

FROM INFLATION TO HYPERINFLATION: REASONS FOR GERMAN MACROECONOMIC IMPOTENCE IN THE INFLATION, 1918-1923.

Jonathan Schachter

Junior Sophister

The hyperinflation that blighted the German economy in the years after World War I is probably the most popularised of all inflationary crises. Jonathan Schachter disentangles the political and economic forces that resulted in such dramatic price rises.

Introduction

“It pounds daily on the nerves: the insanity of numbers, the uncertain future, today, and tomorrow become doubtful once more overnight. An epidemic of fear, naked need” (Kroner, cited in Kaes 1995: 63). Such was the state of everyday life during the hyperinflationary period of the Weimar Republic. Why, though, had it come to this? Before the First World War, Germans were unaware of inflation, but even as their awareness increased, they had no clear understanding of the inflation experienced during the war (Borchardt 1991: 133; Peukert 1993: 62). After the armistice, German inflation was comparable to that of other defeated countries, but as time passed, the inflation grew worse. The government was increasingly dependent on borrowing, and the number of paper Marks in circulation soared. By November 1923, the value of the Mark against the Dollar had depreciated to approximately one trillionth (10^{-12}) of its pre-war value (Borchardt 1991: 137; Hetzel 2002: 8). There was an air of frenzied spending, so that consumers could purchase as many goods as possible before the Dollar value of their wages plummeted further. The Weimar economy was out of control.

This essay will outline the reasons for the progression of inflation to hyperinflation, with a cursory definition of the important terms, followed by an investigation of several important reasons for the deterioration of the German economy to the point of crisis. Although it is possible to lay blame for the hyperinflation on Allied reparations demands, or mismanagement of the economy by the German government, it is more tenable to assume that various

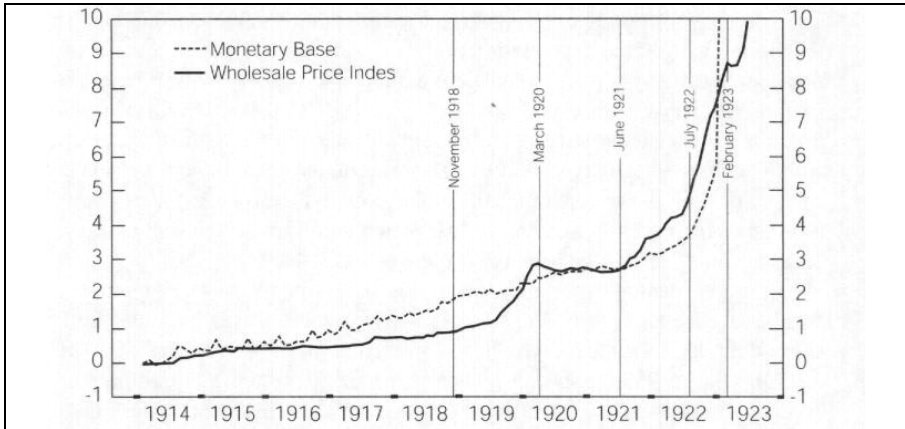
political and economic forces influenced the progression from post-war inflation to the catastrophic hyperinflation of 1922-1923; these included domestic, foreign, fiscal, and monetary policies.

In order to understand the phenomena of early Weimar economic history, it is important to understand the terms that economists use to analyse this time period. Inflation is the most important concept in the economic history of early post-war Germany. Although the concept is quite straightforward, most of the literature tends to take its meaning for granted. Quite simply, inflation is the rise in price levels. To a certain extent, prices rise naturally as the economy grows, but once this rate of increase exceeds 2.5 percent, it is called inflation. It tends to occur frequently in post-war economies, but may also be caused by increased demand for loans and government spending, as well as excess demand driven by a fear of diminished purchasing power (Ammer & Ammer 1984: 229; Sloman 1997: 426-8). Economic historians can measure inflation in various ways to express the variance and eventual magnitude of inflation in the early years of the Weimar Republic. The most common examples are the wholesale price index, the number of Marks in circulation, the Mark exchange rate (usually against the US Dollar), the prices of import goods, and the cost of living (Brescioni-Turroni 1937: *passim*).¹ Each of these indicators gives us a richer understanding of the inflationary German economy from 1914 to 1923. Hyperinflation is a rapid and extreme form of inflation that depreciates purchasing power by reducing a currency's value to almost nothing. Hyperinflation tends to exacerbate itself. The expectation of further currency depreciation on a monthly, daily, or even hourly basis causes individuals and businesses to spend their money on goods rather than to wait for the money to become worthless. Producers tend to stockpile their goods, knowing that their prices will undoubtedly increase, while debtors tend to postpone repayment of their debts, knowing that their real value will diminish (Ammer & Ammer 1984: 408-9; Sloman 1997: 429). Hyperinflation, however, is not the necessary outcome of inflation; in most cases, governments control inflation, hence, there must be reasons for the massive extent of the inflation in the German case.

Between November 1918 and November 1923, the inflation had four distinct phases, as is clear in Figure 1.

¹ These expressions of the extent of the inflation are also throughout the other works cited.

Figure 1: Monetary base and wholesale price index (Holtfrerich 1986, cited in Hetzel 2002: 5)



Notes: Data normalised with 1913 equal to 1. Observations are the natural logarithm. The monetary base is cash in circulation plus commercial bank deposits in the Reichsbank.

One must be aware that this depiction of inflation in Germany obfuscates the fact that there was a two-fold increase in prices during the war. The first phase of the post-war inflation ended in Spring 1920. The subsequent phase of stability continued until Summer 1921, after which the inflation grew into hyperinflation. Immediately after the war, the government aimed to maintain political stability during the demobilisation, largely by minimising unemployment. The Versailles Treaty burdened Germany with war guilt and reparations, which were still to be calculated. Inflation rose until 1920, when a degree of confidence was restored to the German economy by the successful suppression of the Kapp Putsch and the left wing uprisings in the Ruhr, and by Erzberger's tax reforms. However, the reparations demands issued to Germany in the London Ultimatum in May 1921 increased the rate of inflation. Hyperinflation began in 1922, after the Morgan Committee refused to endorse Germany's request for reparations loans, and after the murder of Finance Minister Walther Rathenau (Balderston 2002: 34-6; Borchardt 1991: 63, 69). By the peak of the hyperinflation in November 1923, prices had risen enough to require the printing of currency in denominations up to 100 billion Marks. Clearly, the four inflationary phases are distinct and reflect changes in

Germany's political climate (Balderston 2002: 51-2; Brescioni-Turroni 1937: 24-5).

Political Causes of Weimar Inflation

Historians such as Borchardt argue that the inflation was, above all, a political phenomenon. There is no doubt that the instability of post-war political institutions in Germany, and the enormous foreign and domestic demands placed upon them, intensified the inflation. The government was left with a debt that was approximately half the value of national wealth, and four times the Reich revenues of 1913. Increased taxation was impracticable for two reasons: the tax system inherited from Wilhelmine Germany was unable to cope with inflation, and the public reaction to increased taxation in an already unstable republic could have had disastrous consequences (Borchardt 1991: 133-4; Hetzel 2002: 2-3). However, we cannot be sure whether these consequences would have been more disastrous than the hyperinflation. John Maynard Keynes argued that the plethora of burdens from Versailles—including loss of land and resources, in addition to the reparations—would cripple Germany and have dire effects on the rest of Europe (Keynes 1995: 5, 225). Steven Webb's analysis of Germany's dilemma was quite cogent: "Democracy, capitalism and reparations—the Germans might have achieved any two, but the Allies insisted upon all three within less than two years after lifting their blockade" (1986: 57). These irresolvable political tensions necessarily contributed to the early inflationary periods.

Indeed, there are also political causes of the stabilization of Spring 1920. The failed Kapp Putsch, and the brutal suppression of the left-wing risings in the Ruhr, increased confidence in the stability of the German political system, and temporarily reduced the rate of inflation (Peukert 1993: 68-70). This stabilization ended in May 1921 with the London Ultimatum, which demonstrated the effect foreign affairs had on the domestic economy of the Weimar Republic. The Ultimatum set the aggregate amount of reparations to 132 billion gold Marks and demanded an increase in annual payments from the 2.24 billion Marks paid in the year ending June 1920, to 4 billion Marks per year, with a price escalator (Borchardt 1991: 136-7; Hetzel 2002: 3, 5). By that point in time, the inflation rate began to rise again. While the political policies affecting inflation were domestic before the Ultimatum, from May 1921 onward, it was foreign policy crises that, for the most part, controlled inflation in Germany (Balderston 2002: 52). Webb argued, counterfactually, that the hyperinflation could have been averted had the commencement of cash

reparations payments been postponed by one year to allow German finances to continue to stabilize and to prevent the decimation of the entire tax system (1986: 62-3).

Although the inflation was mismanaged by the government, these mismanagements alone did not cause the crisis of 1922-1923. The murder of Walther Rathenau in July 1922 shattered any remaining confidence in the political and economic stability of the Weimar Republic. His murder, shortly after the murder of Erzberger, demonstrated the domestic social and political turbulence in Germany, including an increasingly infuriated far right, as well as *Völkisch* currents of anti-bolshevism and anti-Semitism (Peukert 1993: 73-4). As foreign investors lost confidence in the German economy and moved their assets out of Germany, the value of the paper Mark plummeted. The Weimar Republic faced a liquidity crisis, and the only recourse was for the Reichsbank to print more bills. As the hyperinflation intensified, though, the Reichsbank was unable to print bills fast enough to satisfy the soaring prices, and incidentally the real money supply shrank (Balderston 2002: 45ff). According to Keynes, "There is no subtler, no surer means of overturning the existing basis of society than to debauch the currency" (1995: 236). Unfortunately, Germany's volatility limited its ability to experiment with deflationary measures to prevent currency depreciation.

The final stage of the hyperinflation began with the Franco-Belgian occupation of the Ruhr on 11 January 1923. The occupation had severe political, social, and economic repercussions, and the hyperinflation intensified itself until its peak in November 1923. By January, wholesale prices had already inflated to 2,783 times the 1913 level, but between January and November, wholesale prices grew by a factor of over 453 million (Hetzel 2002: 6-8; Peukert 1993: 64, 73). France's goal at Versailles had been to prevent German rearmament by slowing German economic growth, and supplanting Germany as continental Europe's largest economy; the French continued to demand reparations from an unsteady Germany. In his study of the iron and steel industries, Feldman argued that the recovery of the German iron and steel industries, and the French dependence on coke from the Ruhr, compelled France to occupy the Ruhr. France then garnered a better bargaining position for the upcoming repatriation of German tariff control in 1925, and subsequent negotiations (Feldman 1977: 346-8). From January until September, the policy of passive resistance—adopted jointly by industry and government, and advocated by Chancellor Cuno—promoted a reduction in productivity. It manifested itself in wage increases, shorter work days, and the shifting of resources out of the Ruhr. Germany incurred great expense by subsidising the unproductive labour costs of the resistance. This was the first major example of collusion between government and industry since the war, and the sacrifice

of productivity revealed the primacy of political factors over economic factors in directing German policy. Cuno's resignation in August led to Stresemann's 'Grand Coalition,' which could not agree on deflationary measures to address the asymptotic depreciation of the Mark, but ended the passive resistance (Feldman 1977: 350-1, 393-5; Webb 1986: 56, 58). The economy looked increasingly hopeless, and the realisation set in that the currency had collapsed and could only be rectified by introducing a new currency, the *Rentenmark*, on 15 November. One Rentenmark equalled one trillion paper Marks. The subsequent stabilisation of the paper Mark, on 20 November, allowed for a fixed exchange rate between the Rentenmark and the Dollar (Balderston 2002: 58-9). Thus ended the first economic crisis of the Weimar Republic.

Economic Causes of Weimar Inflation

In addition to political factors, there were economic forces driving the German economy towards hyperinflation. These were rooted in the fiscal and monetary policies of the German government's Reichsbank. Bresciani-Turroni's work applied quantity theory to the inflation in Weimar Germany. He argued that, "German experiences show us the fundamental importance in the determination of the level of internal prices and of the currency's external value, of the quantity of money issued by the Government" (1937: 398). Inflation was driven by a growing supply of money. As prices rose, there was a growing demand for money. Furthermore, the German government's method of financing its deficits forced an increase in money supply. In addition, as prices rose, more money had to be printed. The Allies preferred this explanation because it suggested that Germany was intentionally destroying its own economy to escape the costs of peace. This view is quite unrealistic though, because the inflation relentlessly limited the government's available policy options. Other historians have argued that restrictions upon Germany necessarily caused a trade imbalance between imports and exports as prices rose, and the value of the Mark depreciated, this worsened. Contrary to quantity theorists, balance-of-payment theorists argued that the trade imbalance drove the inflation, causing the increase in money supply. The balance of payments model has been applied to theories on labour forces and inflation, in which the low Dollar value of the Mark led to demand for higher wages and consequently, higher prices (Balderston 2002: 29, 39-43; Peukert 1993: 62).

Regardless of the causal elements of the inflationary cycles, the inflation imposed limitations on German finances that would direct the

country's fiscal policy. As the rate of inflation increased, the government's tax revenue decreased significantly in value due to the lag between assessment and collection (Borchardt 1991: 137; Hetzel 2002: 9). Webb's article (1986) analysed fiscal changes in the period, and their effects on inflation. Socialists hoped to implement revenue-side reforms to balance the budget. Erzberger, a moderate, attempted to increase revenue with several tax reforms. In Winter 1919-1920, the government centralised the fiscal system by taking from the states the right to tax individuals' property and wealth directly. In March 1920, the government introduced a progressive tax on personal and corporate income. In addition to tax reforms, one-time levies were introduced, including the 'Reich's Emergency Sacrifice,' however, these were less effective. Although the 1920 reforms increased tax revenue by 20 to 30 percent, these measures were unable to cope with hyperinflation (Webb 1986: 47, 51-5). Even the fiscal reforms of March and August 1923, which aimed to combat the depreciation of tax revenues by imposing a fine for the late payment of taxes, were relatively ineffective (Brescioni-Turroni 1937: 70; Webb 1986: 55). There were also fiscal changes in government expenditures, which are more challenging to analyse during the hyperinflation because projected figures for expenditures were irrelevant. During the entire inflationary period, there were three peaks of government spending; the demobilisation in 1919, the commencement of cash reparations payments in 1921, and the costs of resisting the occupation of the Ruhr in 1923 (Webb 1986: 55-8). The expectation of inflation in such an unsteady economy augmented the rate of inflation further. Most economists agree that monetisation of the debt from the beginning of the war was the key fiscal and monetary policy behind the German inflation, but other political factors affected its magnitude (Balderston 2002: 42-3, 47-8; Borchardt 1991: 132-4; Hetzel 2002: 2).

Conclusion

From its inception, the Weimar Republic faced extreme political, social, and especially economic pressures; although the factors that characterised the Weimar Republic are often regarded as existing only between the wars, the period also demonstrated the peace-time continuity of those endogenous and exogenous tensions in Germany that underpinned both wars. The instability of the German political climate resulted in a depreciated value of paper Marks, an increased money supply, and a rise in prices. The phases of the inflation coincided with major political events, which directly affected the course of the economy. As Germany appeared to grow more politically

unstable, foreign investors lost all confidence in the German economy. Even though governments changed frequently during the hyperinflation, the foreign and domestic tensions of the Weimar Republic limited their abilities to control the economy. The hyperinflation was contingent upon the complex and interconnected domestic, foreign, fiscal, and monetary pressures that persisted through the inflationary period, and indeed throughout much of German history in the first half of the twentieth century.

Bibliography

- Ammer, Christine & Dean S. Ammer, (1984) *Dictionary of Business and Economics*. London: Collier Macmillan Publishers.
- Balderston, Theo (2002) *Economics and Politics in the Weimar Republic*. Cambridge: Cambridge University Press.
- Borchardt, Knut (1991) *Perspectives on Modern German Economic History and Policy*. Translated by Peter Lambert. Cambridge: Cambridge University Press.
- Bresciani-Turroni, Costantino (1937) *The Economics of Inflation : a study of currency depreciation in post-war Germany*. Translated by Millicent E. Sayers. London: George Allen & Unwin Ltd.
- Feldman, Gerald D. (1977) *Iron and Steel in the German Inflation, 1916-1923*. Princeton, NJ: Princeton University Press.
- Hetzel, Robert L. (2002) "German Monetary History in the First Half of the Twentieth Century." *Economic Quarterly*, Vol. 88, no. 1, Winter. 1-35.
- Keynes, John Maynard (1995) *The Economic Consequences of the Peace*. New York: Penguin Books.
- Kroner, Friedrich (1995) "Overwrought Nerves." Quoted in *The Weimar Republic Sourcebook*. Edited by Anton Kaes, et al. London: University of California Press. 63-4.
- Peukert, Detlev J.K. (1993) *The Weimar Republic*. Translated by Richard Deveson. New York: Hill and Wang.
- Sloman, John (1997) *Economics*, 3rd ed. London: Prentice Hall.

Webb, Steven B. (1986) "Government Revenue and Spending in Germany, 1919 to 1923." In *Die Anpassung an die Inflation / The Adaptation to Inflation*. Edited by Gerald D. Feldman, et. al. Berlin: Walter de Gruyter.

ORGANISED CRIME IN THE USA DURING PROHIBITION: AN ECONOMIC ANALYSIS OF THE RISE OF AN ILLEGAL INDUSTRY

Conor Doyle

Senior Sophister

This study examines the alcohol industry during the Prohibition era in the United States. Conor Doyle explains continued production in spite of prohibition by examining the supply and demand for illegal labour and the novel organisational incentive structures used to operate in this environment.

Introduction

The historian and economist William Chambliss once argued that:

“As long as providing things that are heavily in demand is illegal, crime networks of one sort or another are inevitable” (1988: 9).

From the standpoint of the economist, this statement is highly questionable. If there is an economic activity which we would expect *a priori* to be disorganised, it is crime. We would expect it to be difficult to attract the necessary factors of production (entrepreneurs and workers) to the sector, given the high risks involved. Furthermore, those who engage in crime work outside the institutional boundaries of traditional economic activity. There are not only high incentives to break agreements (high returns to cutting proceeds for oneself, robbery, etc.), but few of the traditional economic sanctions apply when doing so (legally enforceable contracts with suppliers, purchasers, or employees).

However, from the standpoint of the historian, the truth of the above statement is beyond doubt. Crime is an activity which has always had organised elements, and continues to do so today. This paper examines one particularly notorious example of organised illegal economic activity: the illegal liquor trade in the United States during the period 1920-1933, with particular focus on the Chicago area. The purpose of the paper is to explain how the economic context at the time led to such a boom in illegal activity. Section two will explain how

demand for labour in illegal industries was generated by conditions in the U.S. national economy and its linkages to the labour markets of other nations. Section three will explain how the supply of labour to illegal crime was generated. The section demonstrates the rationality of the average unskilled worker in joining organised crime by constructing a utility function for an unskilled worker across his wages in two legal sectors of the economy. Finally, section four ties the supply and demand for labour together by examining the internal incentive structures which co-ordinated organised crime ventures. The section will further demonstrate how they are similar to the incentive structures which have held together other organisations faced with similar problems.

The reader should note that due to the nature of the topic, the quality of data used within the paper varies. I have compared activity in illegal sectors of the economy with better documented sectors as often as possible, in order to draw reasonable conclusions. Nonetheless, I claim only to sketch the subject, and offer broad conclusions.

The Demand for Labour in Organised Crime

To return to the opening quote, the fact that a good comes to be demanded illegally does not necessarily guarantee its availability on the market. Theoretically, if an illegal industry is to grow, one of two things must happen: either demand for the final product must rise, or supply must increase. Either effect will lead to an increase in output. To generate this increase in production, there must be an increase in employment. However, before this can happen, there must be an entrepreneur to organise production and demand this labour. The purpose of this section is to explain why entrepreneurs were attracted to the sector, and consequently how the demand for labour in the supply of illegal alcohol was derived.

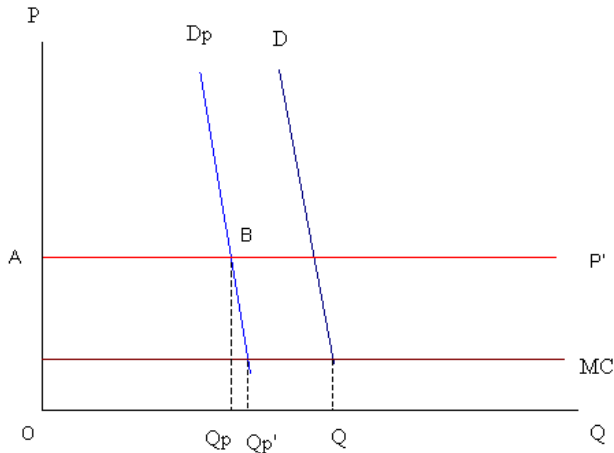
First, let us examine the market for illegal alcohol. On the demand side, while alcohol consumption declined to 20% of its pre-prohibition levels in the years immediately following 1920, it had recovered to 65-70% of its former size by 1927, and stayed at roughly this level through to repeal in 1933 (Miron and Zwiebel 1995: 244-5). The demand for alcohol did not rise significantly following the end of prohibition, despite falls in price of at least 50%,¹ suggesting that demand was almost entirely inelastic with regard to price (Chicago Tribune 5 December 1933, cited in Allsop 1961: 68). This further suggests that the

¹ Interestingly, the 50% rise in consumption (compared to pre-1920 figures) which was attained by 1927 is mirrored by a 50% drop in price on the day prohibition was repealed, suggesting that little of this extra cost was due to production costs.

difference between pre-1920 and post-1933 consumption levels represents a change in tastes. On the supply side, there is evidence of significant monopoly control in the Chicago area. First, the structure of the mafia within the area is described as monopolistic in its operation, with individual gangs selling to defined territories, and each gang either producing their own alcohol, or buying solely from a central figure (Tyler 1962: 168-9; Kobler 1974: 315-19). Secondly, price increases suggest monopoly control by suppliers. Local newspaper quotations estimate that the price of alcohol had roughly tripled during this period, with revenue in Chicago alone at an estimated \$5.3mn per week (Allsop 1961: 63).² Thus market revenues ($REV = P \times Q$), had increased over those available in the previous legal alcohol market by a factor of roughly $3 \times 0.675 = 2.01$ by 1927. A rough graphical representation of the market is presented in figure 1, which models a monopoly market with highly inelastic demand. Consumption is at Q prior to 1920, and following a shift in tastes when prohibition is established, rises to Q_p in 1927. Price rises from MC to P during prohibition, and suppliers earn a supernormal profit of the area ABQ_pO . When price falls again in 1933, however, there is no change in tastes, and Q_p moves only to Q_p' . Thus, the available evidence on the operation of the market for illegal alcohol does suggest that revenue levels gave a more than plausible incentive for entrepreneurs to go into the business.

² Tyler repeats the same prices in a more anecdotal fashion: "Capone booze – and for years it had been good booze – was delivered on time, ninety dollars the case. Capone beer... rolled into the speakeasies on time invariably, fifty-five the barrel" (1962: 169).

Figure 1: The Market for Alcohol



The demand for labour is derived from the willingness of entrepreneurs to organise the use of labour for production. Demand for labour will rise in response to an increase in the marginal productivity of labour ($MPL = d \text{ Profits} / d \text{ Output}$). Given that alcohol was supplied legally prior to 1920, the base employment in the sector was zero, and thus the marginal product of labour was zero. As revenues in the market for alcohol increased under prohibition, so MPL rose and demand for labour in illegal industries was stimulated. Simply to replace the workers who had legally supplied alcohol required a large increase in personnel. Furthermore, there is anecdotal evidence that production technology became more labour intensive during the period, suggesting that the expansion in labour demand by organised crime entrepreneurs was greater than that needed to replace the workers which had previously produced for 70% of the legal market (Mahan & O’Neil 1998: 33)³. However, supernormal profits encouraged the expansion of employment. Total revenue from alcohol sales to Chicago speakeasies alone were around \$13.78bn per year. The minimum reduction which was seen on any alcoholic drink following the end of prohibition was 50% (Allsop 1961: 68).⁴ Even if production required more labour (at pre-prohibition wages), supernormal profits represented at least 50% of alcohol income, or \$6.89bn per annum.

³“During the prohibition era of the 1920’s in Chicago... Gangsters shipped over Sicilian families and set them up with a cooker each. The raw alcohol was collected each week”. This seems likely to be more labour intensive than factory production.

⁴ Quoting prices from The Chicago Tribune on the day prohibition ended.

Most of the labour which was directly demanded for organised crime was unskilled (Cressey 1972: 34).⁵ Furthermore, much of the basic production of alcohol was relatively unskilled, taking place as it did at a household level. Conditions in the unskilled labour market were particularly favourable for the criminal entrepreneur. There is good reason to believe that unskilled labour constituted a higher percentage of the population than in previous decades. Domestic natural increase in labour had increased supply, but education had not increased greatly. In the period 1870-1920, the US had seen an increase in labour supply of 166%, while median years of schooling had increased by only 1.5 years in the 45 years prior to prohibition (Maddison 1991: 231 and Census Bureau 1961: 214).⁶ Immigration had increased supply. 17.5% of labour supply increase came from immigrant labour from 1870-1920 (Maddison 1991: 235, 241). In the period 1900-1920, that is the period which would have supplied the bulk of active immigrant labour during prohibition, just over 78% of immigrant labour was unskilled⁷ (Census Bureau 1961:60). The labour market in the United States during the first half of the twentieth century was thus characterised by an increase in the supply of organised crimes' main labour categories. Thus, during prohibition the demand for labour in illegal alcohol production rose, as market incentives encouraged the growth of employment.

The Supply of Labour to Organised Crime

However, This is only to say that the conditions existed in which organised crime *could* expand during prohibition. Given the nature of the industries we are examining, this is not enough to conclude that the activities *would* expand. Employment in organised crime generated higher risks for the employee than other sorts of employment. He could be jailed or killed for his troubles. In choosing whether to accept any job, the worker faces a gamble: that

⁵ Compiling the accounts of various organised crime figures argues "Most of the persons occupying the lower status positions in the divisions of labour constituting the enterprises are not members of Cosa Nostra (The Mafia)... They (also) fill the organizations needs for... low level services such as driving trucks and cars, delivering messages, running errands, picking up illegal betting slips, and answering telephones used in bookmaking operations. Positions requiring personnel with such skills far outnumber membership positions."

⁶ Calculated as the difference in median years of schooling between those in the 30-34 and 70-74 years age groups in 1940.

⁷ I take unskilled immigration to be the total of those listing occupation as labourer, farm labourer, private household worker, or no occupation. The figure is biased upward somewhat by the inclusion of farm foremen in the farm labourers category. Note that immigration barriers had been imposed in 1921, so immigration following this date may not be purely responsive to market incentives. I thus ignore this period in my calculations.

the payoffs to taking this work will be higher than those which could be gained in alternative employment. This section demonstrates that the average worker was willing to accept the gamble of joining organised crime.

Theoretically, criminals must have earned a higher expected wage to make up for the utility effects of higher wage variance inherent in their rewards structure. Values of wages for criminals are, of course, not systematically recorded. We thus estimate values of wages which are consistent with the average unskilled workers utility function, and show that these values are consistent with wages which the revenues estimated above would have allowed entrepreneurs to pay. To determine whether the wage offered by organised crime sufficiently compensated the criminal to induce the average worker to join, we need to quantify the relationship between wages and risk for the average worker by generating a utility function for unskilled workers during prohibition. I make two assumptions to do this. First, I assume that workers maximise expected utility, in the manner described by Von Neumann & Morgenstern (Gravelle and Rees 2004: 369-375). Second, for ease of computation I assume non-pecuniary benefits are nil, and subsequently that utility is a function solely of wages.

The first step is to generate a basic utility function for unskilled male labourers in legal industries of differing risk levels⁸. Consider a worker who has just left school, and is deciding which industry to enter. He can either become an unskilled labourer in coal-mining, manufacturing, or organised crime. Whichever profession he chooses, he faces a risk of unemployment, say for a period of one year, after which he finds a job. The worker faces two possible outcomes on entering this sector. The expected utility of a worker undertaking standard manual labour over a lifetime of work is therefore the average of the present value of the two income streams which he may earn, weighted by the probability of earning each stream:

$$E(U) = \{ \int (W1.e^{-R.t1/100}) \times P(E) \} + \{ \int (W1.e^{-R.t2/100}) \times (1-P(E)) \}, \quad (1)^9$$

where $E(U)$ is the workers utility from the offered wage, $W1$ is his annual wage, R is the discount factor for future earnings, t_1 is the years to be worked if immediately employed, t_2 the years to be worked if unemployed for a year, $P(E)$ is the probability of employment (i.e. $1 -$ the national unemployment rate), and $1 -$

⁸ I take specifically male wages due to the structure of organised crime employment – “The Mafia is the surest stronghold of male chauvinism in America... a woman is considered a piece of property” (Gage 1973: 95).

⁹ Note that there is no divisor in the term. As we weight the different wage streams by probability, we are implicitly dealing with only one case, and thus the divisor is one.

$P(E)$ is the national unemployment rate. The symbol e denotes the exponential, and the area to be integrated over is determined by the value of t .

Now, imagine his utility if he chooses to be a miner. Miners faced a chance of death 14 times higher than the average for industrial workers during the 1920's¹⁰. Therefore, the utility effects of this event are explicitly included in the miner's utility function. The worker now faces 4 possible states of the world, as the probability of death and unemployment are unrelated. The expected utility is thus the weighted average of these four income streams:

$$E(U) = \{ \int (W_2 \cdot e^{-R \cdot t_1/100}) \times P(E) \cdot (1-P(D)) \} + \{ \int (W_2 \cdot e^{-R \cdot t_2/100}) \times P(E) \cdot P(D) \} \\ + \{ \int (W_2 \cdot e^{-R \cdot t_3/100}) \times (1-P(E)) \cdot (1-P(D)) \} + \{ \int (W_2 \cdot e^{-R \cdot t_4/100}) \times (1-P(E)) \cdot P(D) \} \quad (2)$$

The term W_2 , the average earnings of a coalminer, replaces W_1 . $P(D)$ is the probability of death, and t_1 , t_2 , t_3 , and t_4 denote the time periods to be worked in the different states of the world. Note that each of these income streams is weighted by the probability of their occurrence.

The employer will wish to offer the minimum wage necessary to induce the worker to accept employment with him, and thus offers a wage which gives the worker the same utility as (or negligibly greater utility than) that which the worker expects if he chooses not to accept the job. More importantly, there is good reason to believe that $E(U)$ equalised across sectors during this period. Illinois coalminers were unionized, and earned higher wages than contemporaries in other areas. There was no incentive to pay unskilled manufacturing workers a wage which would give them a utility greater than that which could be earned in coal mining. Furthermore, research has shown that labour was internally mobile and fully responsive to wage rates within the U.S.¹¹. Thus the employer could not offer a wage with less expected utility than that in mining. The conclusion that demand for alcohol was highly inelastic would suggest a highly inelastic labour demand curve, thus giving workers bargaining power. However, as Arlacchi points out, it is a feature of labour in the black market that wages can be kept as low as possible through intimidation (1988). Thus, we would still expect wages for unskilled crime operatives to be low. More formally, the expected wage in organised crime could be kept low enough so that the expected utility over the different unskilled sectors would be equivalent. The situation is therefore as described in diagram 2 below, which graphs the average workers utility against wage level. His utility

¹⁰ Calculated from Fishback, (1992: 87). This is calculated by the ratio of deaths in coal mining per million hours worked to the average number of deaths per million hours worked in the fourteen other industries quoted. This gives a ratio of 2: 0.1395, or roughly 14: 1.

¹¹ "Domestic internal migration fully substituted for the population – and undoubtedly the labour – withdrawn from the urban sector by falling international migration" during the 1920s and 30s (Fishback 1992: 192).

function, $U(W)$, describes the trade off between wage and utility. The average worker can gain expected wage W_1 if working in manufacturing or expected wage W_2 in mining. The expected utility of these wages is equal, as the variance of wages is higher (different wage prospects are joined by the straight lines under the utility function). The minimum wage which the worker is willing to join organised crime at is W_3 , which gives the same $E(U)$ as the expected wages in the other sectors. The calculation of the numerical values of the terms in these functions is undertaken as follows:

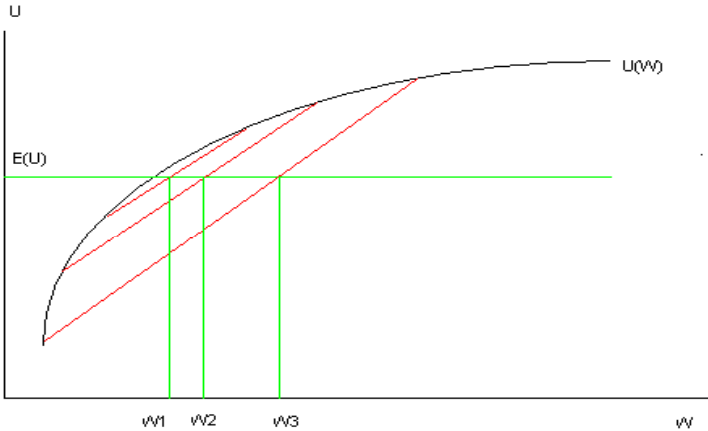
Function 1

- W_1 = The average real wage of a male unskilled worker during the prohibition is calculated in tables 1 and 2 = \$26.87 per week = \$1402.96 in constant 1920 dollars;
- $P(E)$ = The average percentage of the workforce employed during the period under study = 0.9343;
- $(1-P(E)) = 1 - 0.9343 = 0.0657$;
- R = The discount factor is taken to be the long term interest rate on government bonds. This is perhaps a low figure, but is chosen to represent the minimum possible yield a gangster could guarantee on his earnings = 4.449 (Macauley 1999: 101-104);
- $N = 47.3$ is the average life expectancy for the period in years¹², while the median age of school leaving during the period was 14.2 years, giving wages for 30.75 years (Maddison 1991: 241 and Census Bureau 1961¹³).

¹² An improvement here would be to employ life expectancy for those who survive the first 4-5 years of life. None are given.

¹³ Calculated as the average of the median number of years spent in school by those who were aged 35-39 and 40-44 in 1940, i.e. those who were at least 15 years of age at the start of prohibition.

Figure 2: Utility Function in the Unskilled Labour Market



Function 2

- W_2 = the average wages of a coalminer. These were \$1500 p.a. in Illinois in 1926, or \$1485 in 1920 dollars (Fishback 1992: 93);
- $P(d)$ = Fishback quotes the number of hours worked by an unskilled coalminer in 1926 as 36.2, with an average of 2 deaths per million hours worked. The worker can expect to work $(36.2 \times 52 \times 30.75) = 57,883.8$ hours. This gives a probability of death of $= 0.058$;
- t_1 = average number of years to be worked $= 30.75$. Thus we integrate this term over 0 and 30.75;
- t_2 = average number of years to be worked if Assuming the miner enters the work straight from school, the best estimate we of the age of the coalminer at time of death is the age of the average coalminer. This is calculated as $\text{Years of Schooling} + (\text{Average age of Retirement} - \text{Average Years of Schooling} / 2) = 30.75$. Average wages foregone are thus $= 16.55$ years. Thus we integrate over 0 and 16.55;
- t_3 = time to be worked if unemployed. As this takes the form of losing the first years earnings, we integrate over 1 and 30.75
- t_4 = time to be worked if unemployed and killed. We integrate over 1 and 16.55

ORGANISED CRIME IN THE USA DURING PROHIBITION

Table 1: Employment and Wage Data

Year	Unemployment %	C.P.I.	Unskilled Index Wage	Unskilled Wage Index (1920=0)
1920	3.9	194	469	100
1921	11.4	169	388	82.72921109
1922	7.2	165	357	76.11940299
1923	3	168	393	83.79530917
1924	5.3	168	406	86.56716418
1925	3.8	173	404	86.14072495
1926	1.9	171	409	87.20682303
1927	3.9	167	418	89.12579957
1928	4.3	165	420	89.55223881
1929	3.1	165	431	91.89765458
1930	8.7	161	424	90.40511727
1931	15.8	147	407	86.7803838
1932	23.5	131	355	75.69296375
1933	24.7	124	356	75.90618337
Totals	120.5			
Averages	8.607142857			

Sources: Unemployment from Maddison, 1991: 261

Consumer Price Index from Maddison 1991

Unskilled Wage Index from Williamson, 2004

Table 2: Employment and Wage Data Continued

Year	CPI (1920=0)	Real Wage Index	Real Wage (constant 1920 \$'s)	Interest Rates
1920	100	1	25.98	4.453
1921	87.11340206	0.949672601	24.67249416	4.473
1922	85.05154639	0.894979647	23.25157123	4.487
1923	86.59793814	0.967636308	25.13919129	4.516
1924	86.59793814	0.999644634	25.97076759	4.503
1925	89.17525773	0.965971135	25.09593009	4.533
1926	88.1443299	0.989363957	25.70367561	4.517
1927	86.08247423	1.0353536	26.89848652	4.16
1928	85.05154639	1.052917232	27.35478969	4.425
1929	85.05154639	1.080493636	28.07122466	4.432
1930	82.98969072	1.089353587	28.30140619	4.517
1931	75.77319588	1.145264929	29.75398286	4.432
1932	67.5257732	1.120949234	29.1222611	4.43

CONOR DOYLE

1933	63.91752577	1.187564482	30.85292524	4.453
Totals			376.1687062	53.388
Averages			26.8691933	4.449

Sources: Real Wage for Unskilled Workers from the Census Bureau, (1961), series D602
Interest rates from Macauley, (1999, p A101-104). Calculated as the average return on
U.S. government railroad bond, adjusted for variable non-stationarity, quoted in column
5 of these charts. These bonds are chosen as their issue is unrelated to currency issue.

By filling in these values to the utility functions above we find that the worker earns an expected lifetime wage with present value of roughly \$23,035 in manufacturing, with standard deviation of roughly \$310.67. In coalmining he earns an expected lifetime wage with present value of roughly \$23,969 with standard deviation of roughly \$1,867. This renders the unsurprising conclusion that workers are risk averse, as in figure 2 above. However, the degree of aversion is extremely slight, mapping an almost linear utility function. As wage variance increases by 502%, wages increase by a factor of only 4%. That is, for every increase in variance of 125%, a 1% pay rise will be demanded.

The next step is to compare this utility function to the expected utility of a Mafia member. Only anecdotal evidence is available on criminal's wages, but the size of the income variance necessary to dissuade them from joining organised crime is so large as to make it exceptionally implausible that the members of one New York gang reported themselves as earning a basic wage of \$200 per week (Sifakis 1987: 266). This represented an increase of roughly 700% over the standard manufacturing wage. Assuming, as above, that for a 1% pay increase will be demanded for every 125% increase in standard deviation, the standard deviation of income would have had to increase by around 87,500% before the worker decided to enter legal labour market.

From the historical records we have, it seems impossible that the risks facing criminals could generate this level of variability in earnings. There was also a higher probability of death while working for organised crime. An average Italian gang, at its basic operating level, held 100 members, and there were 14 major gangs in New York in 1929 (Sifakis 1987: 44-45). This gives roughly 1400 gangsters in the city, without including the many non-gang members involved in gang activities. Let us assume that Chicago, a city of roughly 2/3 the population of New York, had 1000 gangsters, and a much larger population of workers who were not formal gang members, but worked for organised crime. There were 703 gang deaths in Chicago due to alcohol trading during prohibition (Allsop 1961: 40). Each gangster was directly responsible for around 10-15 non-gang members (Cressey 1972: 25-30). If all workers are replaced, this yields a minimum total criminal population of roughly 11,700, and a probability of death of 6% - almost

the same as that in coal mining. Accordingly, it seems to have been a perfectly rational choice for workers to wish to join organised crime. Similarly, the fine for a conviction for production or supply of illegal alcohol was \$1000, or five weeks pay. Even major criminals with repeat convictions faced only 9 month jail sentences¹⁴. This accounts for a cumulative loss of earnings of only 10 months for two convictions, or less (in a ratio sense) than the 12 month loss considered above for the worker who found himself unemployed for a year.

There are of course problems with the main estimation undertaken in this section. I expect that the implied levels of risk aversion are biased downwards by the fact that I have assumed all labourers work the same number of hours. Coalminers actually worked less hours than manufacturing workers, and thus earned higher hourly wages (Fishback 1992). Given that there is no data on hours in organised crime, I have had to assume hours worked to be equivalent. The wage figures are also biased upwards by the fact that I have ignored the non-pecuniary side effects of risk (stress). Furthermore, the figures presented for organised crime activities do not come close to meeting standards of academic research applied to better quantified fields. However, I believe the case for the rationality of labourers in these industries is proved by the sheer size of the numbers involved in the utility function. Even large quantitative changes would make no qualitative difference to the conclusion of the section – the miniscule levels of risk aversion implied in the labour supply of unskilled labour in legal industries are more than low enough to account for the supply of labour to organised crime.

The Co-ordination of the Activities of Organised Crime: Incentive Structures

The preceding section has analysed the returns to the factors involved in the production of illegal alcohol. It was a rational economic act for entrepreneurs to organise and workers to join the organizations in question, despite the risks involved. However, this does not explain the existence of the organization to begin with, or why it persisted. Organised crime, when thought of at the level of the firm as a whole, faces a number of organizational problems which are not faced in a legally organised firm. Internally, the lack of legally enforceable contracts between workers and management gives workers an incentive to shirk, or

¹⁴ Two owners of a large illegal brewery caught in the same raid. “(O'Banion) received the maximum penalty for a first offence, a \$1,000 fine”. The second offender, Torrio, “pleaded guilty to violating Volstead Act at the Sieben Brewery (which he had bought from O'Banion) and received a 9-month prison sentence” (Purcell 2000).

trade on their own behalf. Externally, the lack of legally enforceable contracts with external entities makes it hard to buy any intermediary services and raises the information costs involved in dealing with outside entities. Furthermore, solutions to these problems must be found using non-monetary means where possible, in order to ensure the secrecy of the activity.

The lack of contracts between workers and management was overcome in two major ways. The first and most important element in holding together crime syndicates, as emphasized above, is the fact that the returns were so high. It would seem from the section above that the workers in organised crime were paid considerably more than a wage which rendered the same expected utility as legal employment. The expected utility from working in organised crime was considerably higher than that in any other sector. Only an exceptionally lucrative opportunity, or exceptionally high value for leisure time, could entice an individual to risk his high Mafia earnings. Thus, supernormal profits were not only a promoting factor in the development of crime but an enabling factor. Secondly, organised crime groups were not run as large businesses, but as conglomerates of small businesses. As noted above, each boss was directly responsible for the actions of only 10-15 people, and often ran his own business (his distillery, distribution ring, etc.) independent of that of other members of the same gang. This reduced costs in two ways. First, it reduced the information costs of the individuals involved, by reducing the number of people on which any one manager had to oversee and trust (though it did increase the costs of production by increasing the number of intermediaries). Secondly, it encouraged workers to hire those who they already knew, in the form of friends or family. This implies that the losses from cheating a partner were multiplied greatly over those which would pertain from cheating a regular business partner. All non-pecuniary benefits of family and friendship were denied to those who cheated. The ability of workers to act in their own interests was not overcome as such, but was annulled by allowing these activities as long as they paid a certain amount of profit to their managers, essentially franchising the gang's protection for a certain amount of profits (Albini 1979: 288). Again, these activities do not create much excess transaction costs, or secrecy costs. Neither use of friendship nor higher wages entail more transactions.

The problems and solutions found in these operations are not unique in economic history. Almost exactly the same incentive structure was seen in the Hudson's Bay Company. The main managerial problem of the Hudson's Bay Company was similar to that of organised crime – though contracts were legally enforceable, behaviour of workers in Canada could not be observed by managers in London to see if contractual obligations were being fulfilled. The incentive given to employees to work on behalf of the company were very similar to those seen in organised crime. First, pay was exceptionally high. Secondly, kinship among workers was encouraged by employing labourers solely from the Orkney

Islands, thus ensuring that any indiscretions recorded during service with the company would be well known on return home. Thirdly, limited outside trading was allowed (Carlos & Nicholas 1990).

The external problems of organised crime were easier to ameliorate. The problem of dealing with outside suppliers was reduced through vertical integration of functions. Some gangsters would organise the production of alcohol, others the cutting, and others the transportation¹⁵ (Sifakis 1987: 266). This structure of production reduced the number of outside groups which had to be contacted in order to organise the business, thus further reducing information costs. It also maintained secrecy, and reduced the need for financial transactions. The lack of legally enforceable contracts with purchasers was overcome by the willingness to employ violence (Albini 1979: 269-273). Without legally enforceable contracts, the contracting partners would find it difficult to offer believable promises to honour contracts. By essentially offering their bodies as collateral, this problem was overcome at low financial cost to the respective parties, and without involving any monetary transactions.

Conclusions

This paper posed the question of why organised crime rose during the prohibition era in the United States. It is less than obvious that making an economic activity illegal will lead to an increase in people engaging in it. In order to demonstrate the reasons for the explosion of organised crime, I have examined three areas. First, I have shown that market incentives were such that they enabled firm-like relations to develop. Supernormal profits made it rational for entrepreneurs to attempt to organise illegal economic activity. Secondly, I have demonstrated that it was rational for labourers to supply labour to these organizations. The high wages available more than compensated for higher wage variability. Finally, I discussed the incentive structures and business methods which were developed for co-ordination of the activities within the organization, and with other organisations. These followed a strict economic rationale without compromising the organisation. In conclusion, it seems that the market incentives created by prohibition did indeed make the growth of organised crime “inevitable.”

Several areas of further study present themselves. First, it would be useful for further understanding of organised crime to examine the effects of the simultaneous repeal of prohibition and the Great Depression in the period after

¹⁵ Gangs included an array of unskilled workers (guards, messengers, enforcers), all responsible as a group to a certain boss.

1933. Similar data are available for the period, but lack of space limits a discussion of the change in organizational forms and activities undertaken by organised crime during this period. Second, the role played by corruption has also been largely omitted here, again due to lack of space. A better examination of the extent of corruption, its organisation, and the ways in which it was overcome, would appear to have useful applications in developing economics.

Bibliography

Albini J. (1979) *The American Mafia: Genesis of a Legend*. New York: Irvington.

Allsop K. (1961) *The Bootleggers*. London Arrow.

Arlacchi P. (1988) *Mafia Business: The Mafia Ethic and the Spirit of Capitalism*, Oxford: Oxford University Press.

Carlos A & Nicholas S. (1990) "Agency Problems in Early Chartered Companies: The Case of the Hudson's Bay Company." *Journal of Economic History*, Vol.50(4)

Census Bureau (1961) *Historical Statistics of the United States: Colonial Times to 1957*. Washington D.C.: U.S. Census Bureau.

Chambliss W. (1988) *On the Take: From Petty Crooks to Presidents*, 2nd ed.. Bloomington: Indiana University Press.

Cressey D. (1972) *Criminal Organization : Its Elementary Forms*. London: Heinemann Educational.

Fishback P. (1992) *Soft Coal, Hard Choice: The Economic Welfare of Bituminous Coal Miners, 1890-1930*. New York: Oxford University Press.

Gage N. (1972) *Mafia: the Inside Story of Organised Crime In America and in Britain*. London: Talmy.

Gravelle & Rees (2004) *Microeconomics*. Harlow: Financial Times, Prentice Hall.

Hatton T & Williamson J. (1994) *Migration and the International Labour Market*

ORGANISED CRIME IN THE USA DURING PROHIBITION

1850-1939. London: Routledge.

Kobler J. (1974) *Ardent Spirits: The Rise and fall of Prohibition*. London: Michael Joseph.

Macauley FR. (1999) *The Movements of Interest Rates, Bond Prices and Stock Prices in the United States since 1856*. London: Risk (reprinted from 1938 original).

Maddison A. (1991) *Dynamic Forces in Capitalist Development: A Long run Comparative View*. Oxford: Oxford University Press.

Mahan S & O'Neil K. (1998) *Beyond the Mafia: Organized Crime in the Americas*. London: Sage Publications.

Miron J & Zwiebel J. (1995) "Alcohol Consumption during Prohibition." *American Economic Review*, Vol. 81, No. 2, pp. 242-247.

Purcell, Mick (2000) *Johnny Torio Part 2* <www.mobsters.8m.com/torrio2.htm>.

Sifakis, K. (1987) *The Mafia Encyclopedia*. New York: Oxford University Press.

Tyler G. (1962) *Organized Crime in America*. Detroit: University of Michigan Press.

Williamson, Samuel H. (2004) *An Index of the Wage of Unskilled Labor from 1774 to the Present*. Economic History Services
<[http://www.eh.net/hmit/data bases /unskilledwage/](http://www.eh.net/hmit/data_bases/unskilledwage/)>.

MEIJI JAPAN: A UNIQUE TECHNOLOGICAL EXPERIENCE?

Alexander David Brown

Senior Sophister

The period following the Meiji Restoration in Japan (1868) was one characterised by technological and industrial advancement. In this essay, Alexander David Brown, asks where credit is due for this progress. He contends that much of the growth that was experienced was a result of the solid socio-economic base inherited by the Meiji system from the Tokugawa regime which preceded it.

Introduction

The restoration of the Emperor of Japan's powers to rule his country symbolised the end of the feudal Tokugawa period and the beginning of what was known as the Meiji (Enlightened) Restoration. Like many other Asian nations, Japan had been forced to sign unequal treaties with the encroaching Western powers because of their superiority in military technology. The new Meiji state was determined to change this situation by catching up on the West economically and militarily. Thus, the Meiji Restoration (1868 – 1914) saw major reforms in nearly all aspects of the Japanese economy. The subsequent industrial revolution, in the words of Lehmann, can be “seen in terms of internal responses to external stimuli” (1988: 190-191). An essential facet of Japan's economic transformation was the apparent increase in technological capabilities that allowed the economy to rapidly industrialise. In this paper, I shall identify the sources of this technological diffusion and analyse the speed at which it disseminated through the Japanese economy. Specifically I will critique much of the current thinking on the Japanese technology experience in the late nineteenth and early twentieth centuries, and offer other explanations for such developments.

Technological progress can be defined as “changes in any of the elements that produce either new products or new processes for producing old ones” (Howe 1999: 236). The basic pattern of technological innovation is the advent of major

product innovation that leads to a continuous stream of process innovations.¹ This process continues until catch-up is achieved with the pioneer of existing technological capabilities. To understand Japan's technological progress we must measure it by analysing its development over time, identify technological progress in different sectors of the economy and lastly place this information within an international context. The simplest way to look at technological diffusion is to list new products as they come into use, and further, to identify time lags between the introductions of these technologies. Another way to look at technological progress is to study the trend of physical output per worker. Specifically for Japan, technological progress was at first a process of 'catching up.' Therefore, an extremely useful measure of progress would be foreign trade measures of import-substitution.

In looking at the period 1868-1915 we are essentially studying the economic development phase that Simon Kuznets defined as 'modern economic growth.' A major condition of this phase is the "application of modern scientific thought and technology to industry" (Kelley & Williamson 1974: 17). Lehmann outlines the factors that allowed for Japanese industrialisation which can be seen sequentially i.e. political revolution leading to institutional reform, increased role of the state, development of infrastructure and then the impact/diffusion of Western technology (1988). While the diffusion of technology has been intensively studied in recent years, authors such as Saxonhouse argue that a detailed analysis of the nature of institutions in relation to the transition of technological knowledge is needed if we are to further understand this process (1974). This is extremely significant in Meiji Japan where political institutions played a major role in determining the new states' technological diffusion experience.

Meiji State Interventionism

Howe states that national technology policy operates within three spheres (1999). Firstly, education, research and development. Secondly; defence and national security. Thirdly, commercial sectors where public involvement is needed because private investment is inadequate. An important clarification however must be made when analysing Japanese technological diffusion. Meiji government technology policy must be divided into 'strategic' and 'commercial' elements. Howe believes that the former was born out of the need for national

¹ Product innovation creates demand and expands the economy through linkages between new/old productive structures. Process innovation reduces costs of existing goods and creates domestic and international competitiveness.

defence and clearly separated from the latter that was governed by economic priorities. In the strategic realm the state intervened directly while in the commercial realm, the government provided infrastructure and assisted companies in order that they could “survive the lengthy learning process needed to make technologies competitive” (Howe 1999: 246).

The Meiji government instigated a policy of import substitution known as *kokusanka*, literally meaning ‘converting to domestic production.’ This was to be achieved through the acquisition of Western technologies and expertise. These acquisitions would inevitably lead to technological diversification in industry with a view to creating export competitiveness. In addition, to achieve increased technological absorption into the economy, the government needed to improve the basic infrastructure of human capital and create an inseparable bond between the public and private sectors. This bond would become the long-term tradition of the Japanese economic experience following the Meiji Restoration.

The above information seems to indicate a strong vibrant government actively engaged in the economy. However in reality the truth was much more complex. Choi points out that while the Meiji government was actively involved in the economy, quantitatively this involvement was not particularly significant (Choi). Government expenditure (excluding transfer payments) is estimated at only 8.4% of GNP between 1878 and 1882, 15% between 1898 and 1902, and 17.6% between 1908 and 1912. With the obvious exceptions of the Chinese and Russian conflicts, the Meiji government’s current and capital expenditures (including military spending) lay between 7-11% of gross national expenditure (Crawcour 1997). This is particularly low if one follows the hypothesis that public spending financed the technological innovation/industrialisation of the Meiji period.

The capital investment that the Meiji administration engaged in was also not universally successful. As we see the Meiji government failed to build and operate two large blast furnaces at Kamaishi despite a 2.5 million yen investment beginning in 1874 plus technical advice from British specialists (Yamamura 1977). In the 1880s, the government began to sell off its mines and factories to private entrepreneurs. Significantly it did not sell its munitions works which suggests that state’s interest in industrialisation ended with the production of military equipment. Tipton states that the sale of mines and factories by the state for relatively low prices reflects the privileged position of the purchasers and the factories’ inherent lack of commercial success (1981). I would argue that this is not the whole truth – the Meiji administration sold the factories off cheaply because it was principally concerned with military production and not industrialisation per se.

The specific economic policies of the Meiji government reinforce the hypothesis that public investment was primarily focused in the military sector to

the detriment of the private. In the inflationary period during the 1870s landowners used their extra incomes to invest in rural industries, especially those producing western consumer goods. While this is in keeping with the government's policy of '*kokusanka*' or import-substitution the very same government denounced them, saying "The manufacture of these contributed but little to national power" (Tipton 1981: 143). The Meiji government responded to the inflationary period by adopting a policy of deflation advocated by Matsukata Masayoshi (Finance Minister from 1881). This deflation redirected investment from rural consumer goods (that were import-substituting) towards public military spending that led to increased importing. From the late 1870s to the early 1880s military expenditure increased by 50% indicating the pre-eminence of the 'strategic' realm of Meiji economic policy.

The inherent current running through Meiji economic policy is this; technological innovation and industrialisation had little to do with the creation of economic priorities. Meiji economic policy was almost purely political. Howe somewhat reinforces this assertion (1999). He states that while the metallurgical, mechanical and electrical engineering skills required for the strategic realm spilled into the commercial, much of the benefit of this, did not materialise until the 1920s and 1930s and some not until after World War II, indicating a lack of political force in insuring technological diffusion into the commercial economy. The above leads one to conclude that the division of strategic and commercial realms in technology policy was more than a simple administrative allocation.

Nakamura argues that the Meiji Restoration signalled the transferral of income from a high-consuming ruling class; the samurai (warriors) and daimyo (nobility) to a new group of lower-consuming landowners. This was achieved through a lower Meiji land tax that was accented by a high inflation rate that eroded their tax burdens. Subsequently there was a greater income distribution among a class of Japanese society that had a larger MPS¹. Through this, we can move away from the hypothesis that Meiji technological innovation and subsequent industrialisation was a direct representation of state intervention in the economy. Instead, we see the more organic development of industrialisation within Japan, challenging the more traditional viewpoint of intense public-private cooperation in the economy that is certainly a feature of the Japanese economy today.

¹ Marginal Propensity to Save

Technological Diffusion

“The most important lesson of Meiji public finance is that rapid economic growth and rapid militarization of the economy are fundamentally incompatible.”

(Oshima 1965:281)

Mijamoto et al. reveal that the industries that expanded quickly in the Meiji period were not those firms that had imported western technology (1965). Traditional industries such as silk reeling and tea making were more important. As they argue, western technology was not transplanted intact into Japan, rather such innovation was an “adaptation of foreign technologies to domestic conditions” (Mijamoto et al. 1965: 18). A good example of this would be the spread of silk-reeling tools with gears in the Tokugawa and early Meiji periods. Post World War I can be treated as a separate phase in Meiji economic experience. From the Great War onwards, the private sector, though still relatively small, became “self sustaining and began to provide the momentum for further growth” (Crawcour 1997: 56). Okhawa, as an exponent of the ‘Japanese model’ of economic growth credits Japan with maintaining concurrent growth in both agriculture and industry. Crawcour argues however, that before World War I this industrial growth took place only in the traditional sector (1997).² This is evidenced in an 1884 survey of nongovernmental factories that revealed that of 1,981 firms, 1,237 were located in rural villages. One third of all ‘factories’ had no more than five workers and only 176 had more than fifty.

To understand Meiji Japan’s technological dissemination process, we must look specifically at how military concerns and activities within the Japanese economy achieved this. Yamamura argues that Japan’s ‘strong army’ policy and her wars against China (1895) and Russia (1905) led to the establishment of military arsenals and shipyards that acted as “highly effective centres for the absorption and dissemination of Western technologies and skills” (Yamamura 1977: 113). Japan’s military activities also created demand for smaller private firms’ products in shipbuilding, machinery etc. that allowed for the continuation of technological production and therefore innovation.

The most important role of Japan’s military arsenals and shipyards was in aiding non-military firms and factories. From the 1870s and 1880s the Osaka arsenal produced steam engines, lathes, wood planes, grinding machines, gears etc. for private firms. The navy’s Tsukiyi arsenal provided the Ishikawajima Shipyard (est. 1876) with technical assistance, three-year interest credit, real estate etc., which allowed the shipyard to produce boilers for textile factories, stone crushers,

² The traditional sector is typically defined as a ‘factory’ with five workers or less.

MEIJI JAPAN: A UNIQUE TECHNOLOGICAL EXPERIENCE?

iron bridges etc. by 1885. By 1907, Japan had some 150,000 workers who were qualified in industrial employment and who were essential in increasing the “technological capabilities of Japanese industry” (Yamamura 1977: 126). Between 1907 and 1910, we see the exodus of some 25,000 workers from Japan’s military arsenals. Undoubtedly these workers moved into the private sector to fill the rapid labour demand of newly established industries. Through this, we can see how the dissemination of technological knowledge was not necessarily a state-regulated act. Therefore the subsequent link between public military production and private industrialisation, was not a state sponsored economic policy but the result of an organic transfer of capital, labour and technological knowledge between the two.

An excellent and direct way to look at technological absorption levels in the Japanese economy for this period is to trace the time lag between the invention of new technologies and their introduction into the Japanese economy.

Table 1: Japanese-European Technology Gaps in Metallurgy, 1858-1909

Technique	European innovation	Japanese adoption	Gaps
Charcoal-fired furnace	1700	1858	160+
Coke-fired furnace	1717	1894	177
Crucible steel	1740	1882	142
Reverberatory furnace	1766	1850-2	86
Puddling method	1784	1875	91
Hot power bellows	1828	1875	47
Air-blown steel converter	1856	1901	45
Open hearth process	1863	1890	27
Stassano electric arc furnace	1899	1909	10

Source: Howe 1999, 249

Table 1 shows a general trend of decreasing time-gaps between Western invention and Japanese absorption. This information could certainly show that Meiji industrial development was not significant before World War I and therefore technological diffusion into the economy was lacking in this time period because of the dearth of active public involvement in the ‘commercial’ sector. This must of course be qualified by the fact that trade/transport networks greatly improved throughout this period thus allowing for more efficient technology transfers.

The organic transfer of technology into the post-World War I economy can be seen in the table below. The average growth rate for the private sector

between 1908 and 1938 was 6.71% with labour productivity growing by 4.4%. More than half of this productivity was due to technological progress.

Table 2: The rate of growth of private industry and the contribution of technical progress to increases in labour productivity, 1908-1938 (% per annum)

	Growth rate of Industry	Growth rate of labour productivity	Technical progress ⁴	Share ³
1908-10	5.41	3.85	.44	12%
1911-20	7.85	4.65	1.55	32%
1921-30	5.03	4.1	2.96	62%
1931-38	7.86	4.69	3.42	85%
Average	6.71	4.4	2.38	54%

Source: Howe 1999: 248.

The evidence above is somewhat qualified by table 3. The organic shift of technological innovation from the public sector to the private can be evidenced by the employment of foreign specialists in Japan between 1870s and 1880s. In this table, we see how there is a shift between an economy where the public sector dominates the employment of foreign specialists in the 1870s to a gradual loss to the private sector over the 1880s and 1890s. This occurs *before* the transition of the Meiji economy into fully-fledged industrialisation but it could represent a time lag between an initial organic shift and the realised benefits (in terms of technological diffusion) of such a shift as I have discussed in Section 2.

³ Share of technical progress.

⁴ Contribution of technical progress to labour productivity.

Table 3: Foreign experts hired in Japan, 1870-1900

	1870s	1880s	1890s	1870-90
Science Teaching	1,300 (72.8)	1,698 (40.8)	3,556 (17.6)	6,564 (34.5)
Engineering	2,210 (58.6)	2,613 (19.6)	2,070 (6.8)	6,983 (28.2)
Business	593 (76.4)	897 (53.6)	566 (44.7)	2,056 (57.7)
Other	1,698 (39.2)	1,244 (8)	277 (6.5)	3,219 (24.7)
Total	5,801 (57.9)	6,453 (27.8)	6,479 (16)	18,732 (33.1)

Note: Data in brackets are % hired by public sector.

Source: Howe 1999:258

If indeed, the hypothesis is correct and the Meiji technological experience was the result of an organic shift of technological capabilities into the private sector rather than the result of direct public participation, then that organic process was particularly successful. In column 1 of Table 4, we see that the average labour productivity in industry rose from 155.7 to 420.4 for the period 1887 – 1915. In line with the evidence above labour productivity shows the most significant increases following the turn of the century.

Table 4: Labour Productivity and Per Capita Output

Year	A ⁵	B ⁶
1887	155.7	92.3
1891	159.8	100.3
1895	188.1	107.1
1899	228.6	114.5
1903	237.2	125.7
1907	304.4	119.4
1911	365.5	132.0
1915	420.4	149.6

Source: Kelley & Williamson 1974: 232.

Re-evaluating Tokugawa Japan

Shigeki and other Japanese Marxists such as Inocie Kiyoshi and Horie Eiichi were perhaps the first academics to re-evaluate the Tokugawa and Meiji periods (Shigeki 1951). They argued that by the time Japan had opened up the Western influences in the twilight of the Tokugawa shogunate, the country already possessed a socio-economic environment that was conducive to growth. Subsequently there continued to be much academic controversy surrounding Japan's industrialisation. Ohkawa and Rosovsky argued that technology dissemination was effectively blocked by the Bakuhan land-system of the Tokugawa shogunate that changed with the advent of the Meiji Restoration and the opening up of Japan to foreign influences. Nakamura however challenges this assertion, stating that agricultural yields during the Meiji were overestimated (in order to avoid higher levels of taxation) and therefore Meiji productivity was less than spectacular relative to the Tokugawa period, with increases of about 1% per annum (Choi 1971). Choi reinforces Nakamura's argument, stating that the Bakuhan system diffused rather than inhibited technology, thereby increasing agricultural output and widening the scope for industrialisation.

In line with this, Kelley & Williamson ask whether the apparent stagnation of the Tokugawa period mask the real contributions it made to the economic development of the Meiji period (1974). The creation of a labour force that could utilise new technologies efficiently requires high literacy rates and general educational standards. As I will discuss, these were present in Tokugawa

⁵ Average labour productivity in industry.

⁶ Average labour productivity in agriculture.

Japan. We see that a sophisticated irrigation system had been built in pre-Meiji Japan that had a direct impact on Meiji agricultural productivity and therefore Japan's subsequent industrialisation. Japan's agriculture was able to increase productivity in an institutional context of small farm size in contrast to the Western traditions of collectivisation, large holdings and economies of scale. The Bakufu's lands (Tenryo) were actually concentrated centres for economic activity and were spread across all of Japan. Thus, their geographical location actually supported rather than blocked the spread of technological knowledge. The presence of large urban populations in Edo, Osaka and Kyoto showed that a national economy existed within the Tokugawa shogunate since their large populations were ultimately clothed and fed by the rural population centres of the Bakuhau.

The link between technological diffusion and educational attainment is an important one. Japan's formal education system however was not a Meiji creation but rather a product of the Tokugawa period. As Howe states, by the beginning of the 19th century Japanese education comprised of temple (terakoya), shogunal, han and various private (shijuku) schools (1999). Between them, these various types of schools provided basic educational attainments but also more advanced teaching and training as well. While the feudal system of the Tokugawa shogunate was somewhat restricting it did not discourage literacy and learning male literacy stood at 40-50% in 1867 (Howe 1999). In addition, Tokugawa Japan had a fully established financial system that served trade and commerce and provided capital for handicraft production and loans for estates that were secured against future tax revenues. This system obviously contributed to the establishment of a national banking system so early in Japan's economic history.

In terms of diffusing newly arrived technology the Tokugawa shogunate provided a good base. During that period there were systems of 'in-house' training in merchant concerns and traditional crafts. Indeed Howe states that there was a massive continuity between the Tokugawa skill-base and that of the Meiji era. The Meiji administration in actuality, inherited much of its industrial base from the earlier Tokugawa shogunate and its establishment of new factories were intended to provide employment for displaced samurai, a political goal, which was not successful. Therefore an essential fact of technological diffusion in Meiji Japan was that it had already acquired the relevant social capabilities and traditional manufacturing disciplines required for industrialisation.

Conclusion

By re-evaluating the physical and institutional contributions of Tokugawa Japan we discover that the economic capabilities of the Meiji period were less impressive than previously believed. Early Meiji growth was as much a product of the Tokugawa period as it was of the economic reforms of the Restoration. Through this the greater technological diffusion of the post-World War I period as a progression of an organic shift becomes much more significant. Early Meiji public involvement in technological diffusion therefore, was even more limited in scope and effect.

This assertion is reinforced by the apparent lack of will or failure on the part of the Meiji government to actively encourage technological diffusion into the private sector. The lack of Meiji industrial development before World War I was therefore a direct result of this public failure to be directly involved in the 'commercial' sector. This was primarily motivated by military/strategic considerations that dominated Meiji economic priorities. Meiji post-World War I industrial growth was affectively created through the organic transfer of labour, skills and capital from the public sector to the private without overt governmental support. This hypothesis challenges the more traditional viewpoint of intense public-private cooperation in the Meiji economy, something that would become the most recognisable feature of the Japanese economy in current times. It also brings the Japanese technological experience more into line with the Western experience of technological diffusion. Full technological innovation was never achieved through pure governmental intervention in the socio-economic structures of the West. Instead we see a more complex blend of interconnecting relationships between various private and public actors and this certainly seems to be the case in Meiji Japan.

While the government's technology policy may have turned Japan into an advanced industrialised nation, the dominance of military technological investment ensured lower standards of living and that may have contributed to the social and political troubles of the 1930s. Therefore Japan's technological dissemination experience offers stark lessons for developing nations today. The dominance of government in technological investment will inevitably be sullied by political considerations preventing purely economic priorities from allocating resources efficiently. Technological innovation and subsequent industrialisation cannot be primarily achieved through direct governmental intervention alone. The government's role must be to provide the basic institutional and physical infrastructure through which the private sector can absorb and utilize technology to achieve economic growth.

Bibliography

- Choi, K.I (1971) "Technological Diffusion in Agriculture under the Bakuhan System." *The Journal of Asian Studies*, Vol. 30, no. 4, August, pp. 749-759.
- Crawcour, E.S (1997) *Economic change in the nineteenth century*.
Cited in Yamamura, K, (ed.) (1965) *The Economic Emergence of Modern Japan*. Cambridge University Press, pp. 3-50.
- Howe, C (1999) *The Origins of Japanese Trade Supremacy; Development and Technology in Asia from 1540 to the Pacific War*. Hurst & Company.
- Yamamura, K., (1977) "Success Ill-gotten? The role of Meiji Militarism in Japan's Technological Progress." *The Journal of Economic History*, Vol. 37, No. 1, March, pp. 113-135.
- Kelley, A.C. & Williamson, J.G (1974) *Lessons from Japanese Development; an Analytical Economic History*. Chicago: The University of Chicago Press.
- Lehmann, J.P (1988) *The roots of modern Japan*. Macmillan Education Ltd.
- Mijamoto, M, Sakudo, Y & Yasuba, Y (1965) "Economic Development in Preindustrial Japan, 1859-1894," *The Journal of Economic History*, Vol. 25, No. 4, December, pp. 541-564.
- Oshima, H.T (1965) *Meiji Fiscal Policy and Agricultural Progress* Cited in Lockwood, W.W (1965). *The State and Economic Enterprise in Japan; Essays in the Political Economy of Growth*. Princeton: Princeton University Press.
- Pittau, J. *The Meiji Political System; Different Interpretations* cited in Roggendorf, S (1963). *Studies in Japanese Culture*, Sophia University, Tokyo.
- Saxonhouse, G (1974) "The Tale of Japanese Technological Diffusion in the Meiji Period" *The Journal of Economic History*, Vol. 34, No.1, March, pp. 149-165.
- Shijeki, T. (1951) *Meiji ishin (Meiji Restoration)*, Tokyo: Iwanami Shoten.

ALEXANDER DAVID BROWN

Tipton, F.B (1981) "Government Policy and Economic Development in Germany and Japan; A Skeptical Re-evaluation." *The Journal of Economic History*, Vol. 41, No. 1, March, pp. 139-50.

WHAT COULD HAVE PROMPTED KEYNES TO CALL MONTESQUIEU “THE REAL EQUIVALENT OF ADAM SMITH, THE GREATEST OF FRENCH ECONOMISTS”?

Joelle Grospellier

Senior Sophister

Montesquieu never presented a comprehensive economic theoretical system, unlike many of his contemporaries. He did, however, theorise on a diverse selection of economic topics: interest, inflation, the price level, taxation, globalisation, among others, and was evidently well-respected by Keynes. Joelle Grospellier analyses the contribution of this theorist to the political economy and seeks to justify the accolade bestowed on him by Keynes.

Introduction

Montesquieu, a French political philosopher who lived at the height of the age of enlightenment, was a contemporary of economists such as John Law, Carl Cantillon, Boisguilbert, and Melon (1689-1755). He influenced many political economy writers of his times, “Justi in Germany, Galiani, Beccaria, and Verri in Italy,...the physiocrats and Turgot in France, and, most significantly, in Scotland....Hume, Sir James Steuart, Ferguson, Smith and Millar” (Hutchison 1988: 221). Despite the extensive treatment Montesquieu gives to political economy in his major work, *The Spirit of the Laws*, he has not been considered worthy of note by modern economists. His greatest claim to fame as an economist seems to arise from Keynes’ laudatory comment in the preface to the French edition of *The General Theory of Employment Interest and Money*: “Montesquieu...was the real French equivalent of Adam Smith, the greatest of your economists,” a comment often presented as fanciful by economic theorists (1942). The purpose of this paper is to explore whether Keynes’ assessment should be taken seriously. In order to do so, a brief summary of Montesquieu’s work will help establish a context in which some of Montesquieu’s economic thoughts, namely taxation, money, prices, and the interest rate, can be examined. These building blocks will lead us to the theme of commerce that provides a

synthesis of Montesquieu's thoughts, leading us to a broader perspective for assessing Keynes' praise, in accord with the spirit of both authors' work.

Montesquieu's work

Charles Louis de Secondat, Baron de La Brède and de Montesquieu, was born into the provincial nobility of Bordeaux, under the reign of Louis XIV (1643-1715). He was a lawyer, a magistrate, and a wine producer. In his major writings, *The Persian Letters*, *Considerations on the Causes of the Grandeur of Rome and Its Decline*, *The Spirit of the Laws*, and in a considerable amount of other minor texts, he demonstrated his scholarship in numerous fields such as politics, science, industry, commerce, political economy, religion, philosophy, psychology, art, and education. He is best known for his staunch defence of liberty and his doctrine on the balance of powers that was later to inspire the constitution of the United States. Just as importantly, he introduced the concepts of relativism and historical causation in the analysis of society's customs and institutions (Cailliois 1996: xiv). Governments and their laws are not the expression of divine will, and "the classical quest for the best state, Thomistic natural law, and Lockean natural rights are all rejected as guides to the ordering of political society" (Strauss & Cropsey 1987: 516). Laws arise out of the universal principle of necessity and the vagaries of mechanical causes, and must therefore vary from country to country.

Montesquieu presents three types of government linked to the amount of liberty they encapsulate, the first two of which he calls "moderate": *republics*, where sovereignty is in the hands of all people (democratic republic) or a group of them (aristocratic republic), and which are guided by the principle of political virtue (here, love of the homeland and of equality), and *monarchy*, where one person only is the sovereign but there are established laws, and where the guiding principle is honour, and *despotism*, where one person reigns, without fixed laws, and where the guiding principle is fear.

Montesquieu undoubtedly was an independent thinker. His writings paved the way for a host of new disciplines: "political economy, the history of commerce and of legislation, demography, formal sociology and its methodology, descriptive sociology and, within it, its different branches: comparative studies of laws, religions, institutions, regimes, and of the principles on which they rest, of the elements which consolidate them or lead them to destruction"¹ (Cailliois 1996: xi). Despite the presence of factual inaccuracies in his writing, his methodology lived on, and he left an enduring legacy to political thought and practice. After

¹ My translation from the original French text.

this brief review of Montesquieu's achievements, our enquiry will now turn to his specific contribution to the field of economics.

Montesquieu as an Economist

Five out of the thirty-one books of *The Spirit of the Laws* are dedicated to political economy (XIII and XX to XXIII), and many economic comments are scattered in the remainder of his work. According to Vernière, Montesquieu had to examine whether the factors he had considered so far (political, moral, climatic) remained valid in the context of political economy, which “is a framework, larger than the national framework, where the mechanisms derived from the typology of governments could no longer apply”² (1977: 86). Although Montesquieu wrote comprehensively on taxation, the role of money and the exchange rate, the scope of this article will only allow me to mention briefly a few salient points about them that will help further my present enquiry. The main focus will be on the quantity of money, price levels and the interest rate, all of which being directly relevant to Keynes' comments on Montesquieu. The theme of commerce will be developed in the next section.

Taxation, money and exchange rate

Taxes are the price to be paid for the enjoyment of liberty. They should be set at the lowest possible level, as excessive taxes are a disincentive to work (Montesquieu 1989: 213-4). To be just, capitation taxes should be based on a sliding scale, but Montesquieu favoured indirect taxation: “the impost on commodities is more natural to liberty because it is related less directly to the person” (1989: 222) and “the least felt by the people” (1989: 217-8). Overall, strong similarities with Adam Smith's four canons of taxation can be found. Fletcher points out how Smith, here and with regards to other economic concepts, borrowed substantially from Montesquieu (1939: 54-68).

With regards to money, Montesquieu advocated a stable currency, as “trade itself is very uncertain, and it is a great ill to add a new uncertainty” and laws against currency manipulations (1989: 401). Interestingly, Montesquieu considers work, and not money or property, as the true source of the wealth of a nation: “a man is not poor because he has nothing, but because he does not work”, and having a craft is a more valuable asset than owning land, concepts that would later be adopted by Adam Smith (Montesquieu 1989: 455).

² My translation from the original French text.

The exchange rate is highly variable; it is “fixed by the most general esteem of traders” and regulated according to the nation that has most silver. A relatively large money stock or a balance of payment surplus raises the exchange above par, and vice versa (ibid: 406). Montesquieu is eager to assert that the exchange is self-regulating, beyond the control of governments, who will suffer dearly if they delude themselves in thinking otherwise: “the exchange... has curtailed the great acts of authority,³ or at least (their) success” (ibid: 416).

The quantity of money and price levels

Montesquieu noted that the large influx of gold and silver from America from the 16th century onward had been beneficial when these were used as commodities, i.e. for barter in colonial trade, but not so as a sign, i.e. for domestic use, where their value rested on scarcity (ibid: 402). Prices are positively related to the quantity of money: “the mass of silver and gold in the world” is equal to “the total of the commodities there are” (ibid: 403); the price of commodities is a mathematical fact, beyond the influence of governments. As goods and signs circulate in and out of the market, price “depends fundamentally on the ratio of the total of things to the total of signs (ibid). The circulation of money is noticed, but ultimately Montesquieu’s quantity theory of money is of a very basic kind.

Montesquieu offers a way to curb inflation, succinctly enunciating a virtuous circle of constant economic growth based on trade: while increasing the quantity of money drives prices up, a simultaneous increase in the number of commodities drives them down and lessens the overall increase. The latter happens with an increase in commerce, which itself comes from the resulting increase in silver and from “new communications to new lands and new seas, which give us new produce and new commodities” (ibid: 404-5). Thus price stability and growth are linked to the production and consumption of new goods. Interestingly, in an example of early intuition of consumer choice theory, Montesquieu also mentions another determinant of prices, that is, the relative utility derived by people, which he describes as “the degree of esteem they have in mind for each commodity in proportion to their need for it” (ibid).

The theory of interest

Montesquieu’s comments on the interest rate appear to have had a strong impact on Keynes, as a literal reading of the preface to the French edition of his *General Theory* would lead one to believe. In it, Keynes states that:

³ That is, currency manipulations.

“it is the function of the rate of interest to preserve equilibrium, not between the demand and the supply of new capital goods, but between the demand and the supply of money, that is to say between the demand for liquidity and the means of satisfying this demand. I am here returning to the doctrine of the older, pre-nineteenth century economists. Montesquieu, for example, saw this truth with considerable clarity, - Montesquieu who was the real French equivalent of Adam Smith, the greatest of your economists, head and shoulders above the physiocrats in penetration, clear-headedness and good sense (which are the qualities an economist should have)...Perhaps I can best express to French readers what I claim for this book by saying that in the theory of production it is a final break-away from the doctrines of J.-B. Say and that in the theory of interest it is a return to the doctrines of Montesquieu” (1942).

So what is Montesquieu’s theory of interest? Prosperity and trade are linked to investments, which require a moderate interest rate (1989: 420). The large quantities of silver on the European market, besides affecting prices, had consequences on the level of interest rate, succinctly described in chapter 6 of Book XXII, and only there. The following passage could be pinpointed as the basis for Keynes’ praise:

“A great quantity of silver was suddenly brought to Europe: soon fewer persons had a need for silver; the price of all things increased and that of silver diminished; the proportion was therefore disrupted, all the old debts were annulled. One recalls the time of the System, when everything had great value except paper money. After the conquest of the Indies, those who had silver were obliged to lower the price or the rental on their merchandise, that is, the interest” (Montesquieu 1994: 655).⁴

In this crucial quote, Montesquieu, albeit not clearly, attributes two different values to money on the domestic market: a value in exchange (prices) that depends on the quantity of money and a value in use (the interest rate) that depends on the demand for money. Fletcher points out that Adam Smith wrongly criticised Montesquieu for supposedly asserting “that a decrease in the value of silver

⁴ My translation from the French text, with original punctuation.

entailed a proportionate decrease in the rate (not the value) of interest” (1939: 65-6).

Keynes stated that mercantilist writers, such as Malynes, Misselden, Child and Petty, commonly associated the level of the rate of interest with liquidity preference and the quantity of money (1951: 341-2). Montesquieu himself does not therefore offer any original insight into the rate of interest in his brief treatment of it. He was merely representative of a time when pre-physiocrat “good sense” still prevailed as classical theory was only nascent. The question remains as to why Keynes was so generous in his praise. I believe the answer lies in Montesquieu’s views about commerce, his qualified liberalism and his deep respect for individual liberty. This implies departing from a narrow, purely technical economic standpoint, in line with Montesquieu’s approach to political economy: issued from mercantilist tradition, but an intrinsic part of a much larger political and social framework, and resolutely rooted in the modern world as we now know it.

Montesquieu and commerce

While recognizing the economic importance of agriculture and crafts in countries where land is unequally divided, Montesquieu favoured commerce above all, believing that trade had the greatest potential for improving the economic and social spheres (1989: 436). Mostly concerned with the international dimension of trade, Montesquieu placed it at the heart of progress and modernity.

The role of commerce

Montesquieu introduced the concept of “la douceur du commerce,” holding an absolute conviction that “the natural effect of commerce is to lead to peace” (1989: 338). It confers great moral benefits: “commerce cures destructive prejudices, and it is an almost general rule that everywhere there is commerce, there are gentle mores.” Trade creates interdependence amongst nations, and “if one has an interest in buying, the other has an interest in selling, and all unions are founded on mutual needs.” This rational interest replaces dangerous passions, such as the search for glory, that only lead to war and misery. Montesquieu’s concept of self-interest appears to be an anticipation of Adam Smith’s invisible hand, but Spector highlights a subtle but fundamental nuance: while the former’s anthropological science rests firmly on accepting the plurality of human mores, and making the best out of it, the latter relies on a science of man based on the

notion of the existence of a uniquely “best”⁵ human nature, heralding the birth of *homo oeconomicus* (Carrithers 2002: 157). In contrast, Montesquieu’s concept of global harmony can be viewed as untainted by judgement and quasi-religious idealism.

Although he holds the above desirable impact to be true of nations, he does recognise that the effects of a commercial spirit on individuals are not so positive, turning “all human activities and all moral virtues” into a traffic for monetary gain, hospitality being such an example (1989: 339). This is compensated by the benefits of trade, which offers “a thousand advantages for the state; there will be more consumption, more things on which the arts can be exercised, more men employed, more means of acquiring power” (ibid: 353).

Prices follow mathematical laws and the exchange is self-regulating: these independent influences allow commerce to be a safeguard against domestic abuses of political power. Nonetheless, Montesquieu’s assessment does appear to neglect the “fact that the development of trade on an international scale leads to the clash of rival imperialisms, particularly in the colonies”⁶ (Cavignac 1970: 59). Although he was aware that this was taking place, he was more concerned with demonstrating that the economy has a naturally global dimension which positively impacts on domestic affairs (social, economic and political), rather than with observing how global economics unavoidably lead to global politics, to the alteration of power distribution amongst the nations of the world, and to international abuses of power.

The nature of commerce

Montesquieu made the distinction between the *commerce de luxe* and the *commerce d’économie*, each of them best related to, although not practised exclusively by, different political regimes. The former is appropriate for a monarchy: *luxury commerce* procures “all that serves its arrogance, its delights, and its fancies” (1989: 340). Montesquieu had remarked on the fact that “luxury is always proportionate to the inequality of fortunes” and that it turns the spirit “to the interest of the individual” (ibid: 96, 98). In a perceptive analysis of the modern concepts of fashion and “keeping up with the Joneses,” he also noted that luxury was “proportional to the size of the towns and above all of the capital...The more men are together, the more vain they are” and wish to call attention to themselves. As luxury fulfils this wish, they “all become equal...; as everyone wants to be

⁵ In a footnote, Spector cites Montesquieu: “Le mieux est le mortel ennemi du bien” (“What is best is the mortal enemy of what is good”), in *Mes Pensées*, 1007 (Montesquieu, 1996: 1151)

⁶ My translation.

looked at, no one is noticed”, resulting in a “general distress” and the inflation of prices of luxury goods and services (ibid: 97).

Hutchison has claimed that Keynes’ eulogy of Montesquieu “was forthcoming apparently because...Montesquieu supported luxury spending for its contribution to the maintenance of effective demand” (1988: 220). In reality, Montesquieu merely stated that luxury spending was necessary and appropriate to monarchies, because the production of luxury items and expenditure on them allow returning to the poor what was taken from them (1989: 99-100). His tone is not laudatory. Steeped into the values of his times, Montesquieu had a prejudice against luxury, and, in my opinion, did not fully grasp that values could change so much that luxury items could become common and necessary consumption, thus boosting economic growth through further demand.

Just as luxury commerce fits monarchies, *economic commerce* is appropriate for republics and the principle of public virtue. Dealing with necessary goods, it is “founded only on the practice of gaining little...and of being compensated only by gaining continually” (ibid: 340). It forms the basis of most of Montesquieu’s reflection on commerce as a tool towards political liberty, and it should not be hampered but facilitated by governments who must realise that commerce can deliver both prosperity and power, an opinion that earned Montesquieu his reputation as a precursor of liberalism.

A qualified liberalism

Montesquieu’s parallel dichotomies of commerce (luxury or economic) and of political constitutions (government by one or many) guide his thoughts on the freedom that trade should be accorded. Although broadly liberal in his approach and favouring the removal of obstacles detrimental to commerce, he also offers some essential reasons why not every aspect of trade should be left to pure *laissez-faire*. Cavignac says that Montesquieu’s concept of liberalism is political, not economic, and that he “is not a precursor of Quesnay, who, on the contrary, accepts enlightened despotism as long as it ensures economic liberty”⁷ (1970: 59). For Montesquieu, political liberty may justifiably override economic liberty. His arguments are still acutely relevant to economic theory in the modern world.

A nation should have many trading partners, because “it is competition that puts a just price on goods and establishes the true relations between them” (1989: 344). Trading companies and exclusive privileges hamper the liberty of commerce, and in a monarchy, their financial power is a threat to the monarch’s wealth (ibid). Port charges should be abolished for economic commerce: this loss

⁷ My translation.

of revenue is well compensated by the wealth generated by the subsequent increase in industriousness, but charges should apply to luxury commerce, as they represent the only wealth that is to be obtained from these already manufactured goods (ibid: 345). Overall, Montesquieu does advocate the freeing of trade and the removal of some obstacles such as privileges and counter-productive levies, but simultaneously, he puts forward a case for the necessity of protectionist measures.

The key element of Montesquieu's justification for a dual stance lies in the existing divergence between private and public interests. The "liberty of commerce is not a faculty granted to traders to do what they want; this would instead be the servitude of commerce. That which hampers those who engage in commerce does not, for all that, hamper commerce" (ibid). For instance, he admires England's opportunistic protectionist stance, always making "its political interests give way to the interests of its commerce," but protectionist measures must be judiciously applied, or else the state "would do itself at least an equal wrong" (ibid: 343).

Further nuances apply to poor countries and colonies. For poor countries, unfortunate enough not to get their share of movable properties (which countries acquire "by their produce, by the labour of their workers, by their industry, by their discoveries, even by chance"), trading unavoidably means running a continuous balance of trade deficit, further increasing their poverty (ibid: 352). They should not engage in trading, and give priority to the sustenance of their citizens (ibid: 344). Liberalism is also irrelevant for colonies: it is natural that nations should establish trade monopolies with their colonies (ibid: 391). After all, "nations, which are to the entire universe what individuals are to a state, govern themselves as do the latter by natural right and by laws they have made for themselves" (ibid: 392). It must be noted that in the absence of international law, Montesquieu has in fact just described the inter-national anarchism that allowed some countries to carve out the world for themselves. Nonetheless, with his common sense blend of liberalism and protectionism, Montesquieu remarkably offers clues towards solving modern issues such as world poverty or the desirability of an international legal system.

Keynes and Montesquieu

Montesquieu suggests that in modern times, with monarchs having learnt the futility of great acts of authority, "only goodness of governments brings prosperity" (1989: 389). This goodness concerns government duties that must be fulfilled to ensure the good functioning of commerce. Governments must tax moderately. They must not inflate the money supply, thereby altering its

proportion to the total quantity of goods. They must only borrow as much as their credit allows. They must maintain the interest rate at a moderate level. Additionally, their trade policies must be an intelligent combination of liberalism and protectionism, as dictated by their country's particular circumstances and by public, and not private, interest. In other words, policies must respect and enhance the independent mechanisms that influence the economy, namely the monetary system and commerce. Here we may begin to understand why Keynes was so favourably disposed towards Montesquieu. One will notice the similarity with Montesquieu in this description by Foley: "Keynes's vision of the economic system is not that of a self-regulating entity which the economist seeks to understand, but a complex set of causal linkages that a policymaker seeks to guide" (1987: 524).

With the exception of public borrowing, which Keynes advised in order to boost aggregate demand and Montesquieu disapproved of, it is clear that Montesquieu's perimeters for government intervention would have positively resonated with Keynes. That Montesquieu also happened to subscribe to a basic rate of interest theory that prevailed in mercantilist times, and correctly identified that the interest rate level depended on the demand for money, is, I would suggest, a convenient focus for Keynes, appropriate for the preface of a French edition, but not a major point. Keynes admires the qualities of "penetration, clear-headedness and good sense" in an economist, and Montesquieu undoubtedly displays these, while in his view, the physiocrats (and possibly, by implication, classical economists?) did not.

It also must be noted that when Keynes said that "in the theory of interest" he was returning "to the doctrines of Montesquieu," the word "doctrines" is in the plural form. He may have been pointing to Montesquieu's whole thesis (clear, penetrating, and sensible) of political economy. In this case, two issues common to both authors are worth highlighting: politics and peace.

Montesquieu emphasised the interdependence of economics and politics. Hutchison remarks that something was lost "in the transition from pre-classical political economy to that of the English classicals" that is "the political element, or input, in political economy" and a high "quality of realistic political insights" (1988: 381-2). Keynes was highly conscious of the intermingling of politics and economics. In addition to his writings that attest to this (he even used the pseudonym *Politicus* for some of his articles), he had first hand experience of it while working at the Treasury during the two World Wars. Milton Friedman is quoted as stating that Keynes left two legacies, "to technical economics and to politics," with the latter having had the strongest "influence on the shape of the world today" (Hutchison 1988: 417).

Montesquieu believed trade to be a major factor towards peace in Europe and prosperity for all. Keynes shared his passion for peaceful economic cooperation between nations. He famously said that “it is better that a man should tyrannise over his bank balance than over his fellow-citizens” (1951: 374). Like many of his friends, he was a pacifist (on grounds of individual liberty and of the economic folly of war), who had applied to be a conscientious objector during the First World War (Keynes 1971, XVI: 157-61, 178). He had resigned from the British delegation to the Versailles Peace Conference, and from the Treasury in 1918, warning that the terms of the peace treaty would devastate the German economy and society and lead to further troubles (Keynes 1971: II). He was also a major contributor at the 1944 conference in Bretton Woods, the birthplace of the International Monetary Fund and the World Bank, institutions that would have delighted Montesquieu. Keynes died in 1946, too early to witness the economic union of Europe, but both he and Montesquieu would have fully backed its original peace aspirations.

Both Keynes and Montesquieu shared similar beliefs. Both men also took into account the Gordian knot of politics and economics, and this strongly contributed to their lasting relevance and influence. It is this fraternity of thought, I believe, that caused Keynes to honour Montesquieu in his preface to *La Théorie Générale*.

Conclusion

Montesquieu did not seek to present a perfect, unique, and independently functioning economic system, as the physiocrats, Adam Smith, and classical economists later did. If this is the criterion used to judge him as an economist, then his contribution is rather negligible. But this criterion is restricted, and using it implies that we believe that it is uniquely valid and based on some immutable truth, no less than an act of faith. This would betray a failure to grasp the very spirit of the author’s endeavour, something that Keynes was not guilty of. Because Montesquieu faces up to the fact that a multiplicity of factors impinge on economics, some of them mathematical, some of them elusively human or even just fated, because he accepts that economics and politics are inextricably linked, because he was enough of a visionary to anticipate the role of international trade, his contribution to economics is in fact considerable, still as relevant today as it was in the 18th century, and may well outlive neo-liberalism. In my opinion, Keynes, whose mind walked the same path as Montesquieu’s, knew this and chose to honour it. Montesquieu’s ideas can be recognised in areas as diverse as international institutions, the question of appropriate economic policies for

developing countries, the process of globalisation, and controversies surrounding them all.

As he lived through the exalting times of an expanding horizon, new discoveries and social shifts, he could never have envisaged that international trade, once fully established, would be as much a factor of peace as the source of new forms of conflict and power struggles, of more inequality in the world, and of the breakdown of societies. Neither could he have imagined that his typology of political constitutions and their associated guiding principles would become so debased that in the 21st century, some “governments by many” would use fear in order to convince their citizens that a mutant form of “liberty” must violently be imposed on others. Interestingly, some kind of a return to Montesquieu’s doctrines on private versus public interest and his guiding principles for republics could yet prove to be a key to more global harmony and prosperity.

Bibliography

- Arnold, Foley, D. (1987) “Money in economic activity.” *The New Palgrave: A Dictionary of Economics*. London:McMillan.
- Caillois, R (1996) “Préface,” in Montesquieu: Oeuvres complètes , Vol.1, Paris:Editions Gallimard (Premier dépôt légal: 1949).
- Carrithers, D.W & Coleman, P., eds. (2002) *Montesquieu and the spirit of modernity*. Oxford: Voltaire Foundation.
- Cavignac, J. (1970) “Montesquieu et le commerce,” in *Etudes sur Montesquieu*, Paris:Lettres modernes.
- Fletcher, F.T.H. (1939) *Montesquieu and English Politics (1750-1800)*. London: Edward .
- Hutchison, T. (1988) *Before Adam Smith: the Emergence of Political Economy, 1662-1776*. Oxford: Basil Blackwell.
- Keynes, J.M. (1951) [1936] *The General Theory of Employment Interest and Money*. London: McMillan.
- Keynes, J. M. (1939) *The General Theory of Employment, Interest, and Money*:

Preface to the French Edition. University of Adelaide Library Electronic Texts Collection. December 2004 <http://etext.library.adelaide.edu.au/k/keynes/john_maynard/k44g/preface4.html>.

Keynes, J.M. (1942) *Théorie générale de l'emploi, de l'intérêt et de la monnaie: Préface de la première édition française.*

Keynes, J.M. (1971) [1914-19] *The Collected Writings of John Maynard Keynes: Activities 1914-1919.* The Treasury and Versailles, Vol. XVI. London: Macmillan.

Keynes, J.M. (1971) [1919] *The Collected Writings of John Maynard Keynes: The Economic Consequences of Peace, Vol.II.* London: Macmillan.

Montesquieu (1994) "De L'Esprit des Lois" [1748], in *Oeuvres complètes*, Vol.2. Paris: Editions Gallimard (Premier dépôt légal: 1951).

Montesquieu (1996) *Oeuvres complètes*, Vol.1. Paris: Editions Gallimard (Premier dépôt légal:1949).

Montesquieu (1989) [1748] *The Spirit of the Laws.* Cambridge: Cambridge University Press. (translated and edited by A.M. Cohler, B.C. Miller and H.S. Stone).

Strauss, L. and Cropsey, J., eds. (1987) *History of Political Philosophy* (3rd ed.). Chicago: University of Chicago Press.

Vernière, P. (1977) *Montesquieu et L'Esprit des Lois ou La Raison Impure.* Paris: Société d'Édition d'Enseignement Supérieur.

GRESHAM'S LAW, FACT OR FALSEHOOD?

Noel Sullivan

Senior Sophister

Noel Sullivan surveys the historical controversy surrounding the validity of Gresham's law, and examines whether or not its popular definition: "bad money drives good money out" is in keeping with what Thomas Gresham wrote. He concludes that the simple expression of the law can be misleading, and can hinder its applicability in practice.

Introduction

Gresham's Law has been popularly defined as "*bad money drives out good money*" (Chown 1994: 16). Questions have arisen regarding the truth of this "law," and its applicability to the real world.

During the course of this essay, I aim to shed some light on whether this law holds as is, or if it needs some modifications. In order to analyse an economic theory, or indeed any theory for that matter, it is important to return to its origins. I will start my analysis with Sir Thomas Gresham, the alleged author of the said law, and a discussion of the economic climate of his day. It is important that a brief description of the development of the theory in economic literature be included, followed by restatements of the same. Illustrations and historic examples will be provided throughout. In conclusion, I will remark on the importance of correct interpretation of economic history and thought, and summarise my analysis of the validity of Gresham's law.

Sir Thomas Gresham

Thomas Gresham was born in 1519 to a banker named Richard Gresham. After his education at Gonville hall in Cambridge, Thomas was apprenticed to his uncle, Sir John Gresham, a merchant. Gresham was no stranger to politics or to the workings of high society; his father served as the Lord Mayor of London in 1537. When his father died, he inherited the bank, where he became quite an expert in financial affairs. In the early 1550's, he was hired by the Crown to work

as a royal agent in Antwerp, one of the major financial centres of the day (Mundell 1998).

At the time, England had a bimetallic monetary system; both gold and silver circulated as currency. Between 1542 and 1551, English monarchs pursued policies which have become known as the 'Great Debasement.' This was initiated by Henry VIII, and lasted until the reign of Elizabeth I, commencing in 1558¹. Debasement describes methods used to procure a premium from the issue of coins by decreasing the precious metal content of them (Chown 1994). Chown identifies four methods to achieve this aim. Firstly, debasement can be implemented honestly through an increase in seigniorage. This is not very effective as it is very visible; the public will not be duped by this and they will not change bullion into coinage.² Other deceptive ways to debase the currency include reducing the weight of issued coins, keeping the weight the same but decreasing the proportion of precious metal in the alloy in relation to the non-precious metal, and crying up the value of the coin.

The Great Debasement was described as "*a fiscal exploitation of the coinage*" which was "*arbitrary, particular and fraudulent*" (Challis 1978, cited in Chown 1994: 43). During Henry VIII's period of manipulation of the currency, the weight of the silver penny was reduced by one third, while its silver content was brought down from nearly 100 percent to 25 percent. In 1551, Edward VI enhanced gold sovereigns, and further reduced the weight of silver pennies. In 1558, Elizabeth I came to power. Gresham was introduced to the Queen and was given the task of negotiating a loan in Antwerp on behalf of the crown. He sent a letter to Elizabeth in which he informed her that the debasing of the currency by her father (Henry VIII) was the cause of the lack of gold in circulation in England.

"Ytt may please your majesty to understande, thatt the firste occasion of the fall of exchainge did growe by the Kinges majesty, your latte ffather, in abasing his quoyne ffrome xxvis. viiid. To xiiis, ivd. Which was the occasion thatt all your ffine goold was convayd ought of this your realme" (Fetter 1932: 482).

Gresham advised her, among other things, to recoin the base money. It is from this advice given to the monarch that Gresham's law arose. This shall be discussed further in later sections. Fetter remarks:

¹ Between 1542 and 1558, three monarchs sat on the throne of England: Henry VIII, Mary, and Edward VI (not counting Lady Jane Grey's brief reign.)

² Seigniorage: at the mint the public would bring bullion to be made into coinage. The mint covered its cost and made a profit by either returning a lesser weight in coinage, or an identical weight with lower bullion content.

“It requires considerable ingenuity to draw from Gresham’s modest statement about debasement and the exchanges, with its historical inaccuracies,³ a universal law the “bad money drives out good money” (1932: 483).

This comment will be important regarding my concluding words on the correct interpretation and chronological documentation of this economic law. This raises the question; did Gresham’s law really originate with Gresham? Many think that the earliest expression of Gresham’s law is in *The Frogs*, a play by the ancient Greek playwright Aristophanes (circa 405 BC.) Aristophanes compares the usage of cheaper copper coins and the resulting withdrawal of gold and silver coinage in Athens to the decreasing standard of its politicians (Burns 1927, cited in Chown 1994: 109).

In order to better explain the working of Gresham’s law, I will use and example found in Mundell’s *Uses and Abuses of Gresham’s Law in the History of Money*.

An Illustration: Gresham’s Law in the Bimetallic System

Given that Gresham’s law was allegedly inspired by a crisis in a bimetallic currency system, it is appropriate to illustrate it using such an example. In order to construct a simple model, the following assumptions may apply. The world price ratio for silver to gold is 15.12 : 1, that is to say, 15.12 grains of silver will buy 1 grain of gold (and vice versa). The currency system of the country we are analysing is a bimetallic system where both gold and silver can circulate. The currency of the country is struck at the mint; ‘free coinage’ applies, i.e. the public may bring gold or silver bullion to the mint to be struck into coins. This particular country has no significant influence over the world price of gold or silver, hence no influence over the world price ratio. The country fixes the mint silver to gold ratio at 15 : 1. Because of this policy, the world price for gold is higher than what the public receive for it when they bring it to be coined at the mint, and the world price for silver is lower than what they would receive. This causes gold to leave circulation; it will be hoarded or exported by citizens of the country to be sold abroad. Silver will flood the system, as foreign speculators and citizens alike take advantage of its overvaluation. In this simple example, silver is overvalued, and gold is undervalued, hence silver is “*bad money*” and gold is “*good money*.” Mundell continues this illustration:

³ Fetter notes that Gresham recorded the debasing of the coins incorrectly.

GRESHAM'S LAW, FACT OR FALSEHOOD?

“Equilibrium can exist only when the market price of gold at home has risen to the international level of 15.12 : 1, which is possible only when all the gold has left the country, and the circulation is entirely silver. By overvaluing silver, the country, while nominally bimetallic, has put itself onto a de facto silver standard” (1998).

This illustration has historical support, as Mundell details. A bimetallic currency system was set up by Alexander Hamilton in the US in 1792. At the time of the foundation of the currency, the world was experiencing a time of financial uncertainty. The main financial power in the world at the time was France, and in 1789, the French peasants revolted against the aristocracy and the church, overthrowing the Ancien Regime. Prior to the French Revolution, the French silver to gold ratio had been set at 15.12 : 1; hence the world price ratio was the same. Hamilton had to anticipate the future of the price ratio. Under his system, a dollar was defined as 371.25 grains of silver, or 24.75 grains of gold, thus making the silver to gold ratio 15 : 1, as in the above illustration. Hamilton's predictions proved incorrect, as in 1803 France's price ratio under Emperor Napoleon Bonaparte was set at 15.12 : 1, as it had been prior to the Revolution. Because of this, silver was overvalued – hence “*bad money*” and gold was undervalued (“*good money*”). Mundell points out that this error in judgement caused the United States to be “de facto on a silver standard for the first four decades of its history” (1998).⁴

Legal tender laws can also reinforce Gresham's law. If, for example, the government of a country that is operating under a bimetallic system declares the overvalued currency as legal tender, the public will hoard, export, or melt the undervalued currency type into bullion (Rothbard 1980).

Gresham's law is not only applicable to bimetallic currency systems. In a monometallic system, the government may decree that money is to be valued by tale instead of by weight. This means that coinage of lesser weight or quality is worth the same as coinage of superior quality (coins could lose weight through acts of defacement such as clipping or sweating,⁵ as well as through the wear of normal usage). This will result in the overvaluation of older coins, and the disappearance of newer coins, through hoarding or conversion to bullion (Rothbard 1980).

⁴ In 1834 and 1837, reforms brought the ratio to 16 : 1, reversing the overvaluation (Mundell 1998).

⁵ ‘Clipping’ was the practise of cutting off small slices from the edge of the coin to hoard for sale or conversion to coin at the mint. ‘Sweating’ involved shaking new coins together in a bag and collecting the metal dust that resulted from the friction, using the dust for the same purposes as clippings.

Gresham's Law in Literature

Gresham's law was first stated in MacLeod's 1858 *The Elements of Political Economy*.

"the illustrious Gresham, who has the merit of being, as far as we can discover, the first who discerned the great fundamental law of the currency, that good and bad money cannot circulate together...Now, as he was the first to perceive that a bad and debased currency is the cause of the disappearance of the good money, we are only doing what is just in calling this great fundamental law of the currency by his name. We may call it Gresham's law of the currency" (1858: 477).

In this, the earliest rendering of Gresham's law, we see Macleod's assertion that good money and bad money cannot be in circulation together. This is described as a "*glaring error*" by Mundell, whose restatement will be discussed in a later section (1998).

Over the next few decades, Gresham's law cropped up in different economists' work. According to Fetter, one of the most important of these works was *Money and the Medium of Exchange* by William Stanley Jevons. Jevons stated: "This law, briefly expressed, is that bad money drives out good money, but that good money cannot drive out bad money" (1875, cited in Fetter 1932: 490). Fetter criticised Jevons' statement of Gresham's law, postulating that: "there is a very real possibility at times of 'good money driving out bad money' in trade" (Fetter 1932: 492). This claim of Fetter's is expanded further in his paper, *Gresham's Law and the Chilean Peso*, which was published in 1933. This paper is basically an analysis of the troubled Chilean currency between 1851 and 1932. I have summarised a few of the more significant developments below, in order to provide a background for his argument.

In 1851, a bimetallic currency system was established in Chile, with the silver to gold ratio set at 16.39: 1 (in comparison to a European market ratio of 15.4 : 1). Gold was overvalued, effectively putting Chile under a gold standard. This caused a serious shortage of smaller denominations of currency (struck in silver), which was combated by the issue of government guaranteed silver coins. In 1875, the world market ratio swung to 16.5: 1, reversing the overvaluation of gold and effectively implementing a silver standard in Chile. Between 1878 and 1895, the government issued an inconvertible paper currency, due to war and instability (Fetter 1933).

In 1895 a gold standard was officially implemented, but was abandoned in 1898, when the government re-issued paper currency. As a result of this, gold

GRESHAM'S LAW, FACT OR FALSEHOOD?

was driven from general circulation, as well as silver, which was worth more in bullion form. Several new lower silver content Peso issues failed to fully deal with the renewed problem of the disappearance of small denomination coins, and in 1926, the gold standard was reintroduced (Fetter 1933).

Fetter points out that one would expect gold to be completely driven out of circulation altogether during the years between the gold standards (1898-1926), but this proved not to be the case. "Although driven from general circulation, gold continued to be used in the payment of customs duties⁶ and to a limited extent in private business" (Fetter 1933: 825). Between 1898 and 1926, there were large movements in the value of the paper notes in relation to gold. Because of this instability, many of the country's business transactions were agreed in gold. Fetter described how good money, in some measure, drove out bad money, in direct contradiction to Jevons' assertions: "Instead of the paper peso expelling the gold peso from all monetary use in Chile, gold at times actually encroached upon the field of circulation of the paper money" (1933: 826). Fetter concluded that the driving out of currency could all be explained in terms of premiums. He argued that if you could not get a premium in the local economy for using good money, it would be driven out by bad money. If a local premium existed,

"there is no profit motive to take it out of circulation; the decision as to whether the higher valued or lower valued money will be used is dictated by convenience, custom or the feeling of the public as to the relative stability of the competing moneys" (Fetter 1933: 827).

Here he introduces important concepts into his expression of Gresham's law: the public's preferences, and in particular, confidence.

The theme of premium is echoed in Alexander Harris' contribution to *The New Palgrave's Dictionary of Political Economy* and reprinted in *The New Palgrave: A Dictionary of Economics*. Harris stated that Gresham's law, i.e. bad money driving out good money, would hold if "by legal enactment a government assigns the same nominal value to two or more forms of circulating medium whose intrinsic values differ" unless the demand for money outstripped the combined supply (cited in Eatwell et al. 1987: 565). In this case, "the more valuable medium will simply run to a premium" (ibid). Harris' interpretation of Gresham's law is strongly criticised by Mundell who labelled it: "merely a variant of MacLeod's mistake that "good money and bad money cannot circulate together" (1998).

⁶ Customs duties had to be paid for in gold or pounds Sterling by law.

Further Restatements and Revisions

In 1986, Rolnick and Weber wrote a controversial paper titled *Gresham's Law or Gresham's Fallacy?* They countered what they termed as the two traditional interpretations of Gresham's law. These traditional views, included in the brief definition introducing this essay, are a qualified version of these interpretations, with a requirement that a fixed rate of exchange exist between two currencies in circulation (Rolnick & Weber 1986). Rolnick and Weber argued that the simple definition of Gresham's law could easily be refuted through historical examples, and that the qualified example could be easily dismissed by the lack of evidence of there ever having been a system where "the ratio of the face (or par) values of the monies (the par price) is somehow the fixed rate at which these monies exchange" (986: 186). They concluded that Gresham's law was properly expressed thus: "Bad money will drive good money out of circulation... but only when use of the good money at its market (non par) price is too expensive" (ibid). This expense was explained by the transaction costs of using undervalued money at a premium. They suggested that this would be prevalent in small denominations of currency. "Generally, the smaller the denomination, the more costly it is to pay a fractional part of the premium" (ibid: 196). This increased fractional cost would lead to the "*bundling*" of smaller denominations of undervalued currency to be exchanged in bulk, thus their disappearance from circulation, while larger denominations of the same currency remained in circulation at a premium.

In 1995, Greenfield and Rockoff wrote a reply to Rolnick and Weber's 1986 paper, analysing instances of Gresham's law in 19th century America. They argued that the main cost of using the undervalued currency was not the increasing fractional costs, but the cost of agreeing the premium; "The value of the non-par coin would fluctuate constantly, forcing people to monitor its value and then negotiate in every transaction" (1995: 1087). This would lead to the majority of transactions being made in par money. Greenfield and Rockoff recognised a point emphasised by Fetter and others; it is not because bad money is "bad" that it drives out good money, but because it is cheaper.

This belief was also expressed by Mundell in 1998. He restated Gresham's law as "Cheap money drives out dear, if they exchange for the same price" (1998). Mundell argued in his conclusion that Gresham's law is based on economy – dear money is driven out by its cheaper substitute, e.g. gold by silver, silver by paper, and paper by electronic transfer. From this perspective, Gresham's law is simply a progression of rational economic thought and of modernisation. Adam Smith wrote the following concerning the development of paper money in Book 2, Chapter 2 of *The Wealth of Nations*:

GRESHAM'S LAW, FACT OR FALSEHOOD?

“The substitution of paper in the room of gold and silver money replaces a very expensive instrument of commerce with one much less costly, and sometimes equally convenient. Circulation comes to be carried by a new wheel, which it costs less both to erect and to maintain than the old one” (1776, cited in Mundell 1998).

Conclusions

Gresham's law, in its basic form, i.e. that bad money will drive out good money, seems to be a useful tool for simple economic modelling. However it would appear through the discussion of the historical development of thought concerning the law, that there needs to be some kind of adjustment in order for it to be more applicable to the real world. An important point, recognised by Fetter, among others, is that bad money is not “bad” per se, rather it is cheap (1932). Mundell's extension of this argument is interesting; the idea that the replacement of dear money by cheap money is not only economically rational, it is progress (1998). Fetter's inclusion of preferences and perceptions of the public in his statement of Gresham's law is an important development. He highlighted the importance of the confidence of the public in currency, which may override what may appear initially as rational decision-making. Thus we can see that Gresham's law is perhaps held back by oversimplification.

It is also clear that Gresham himself did not envisage a “*fundamental law of the currency*” as was alleged by MacLeod (MacLeod 1858: 477). It is important to be careful when viewing past economic writings and thought, not to over-assume, i.e. to avoid the synthesis of theories that never coherently existed.

Bibliography

- Burns, A.R. (1927) *Money and Monetary Policy in Early Times*. London: Keegan Paul.
- Challis C.E. (1978) *The Tudor Coinage*. Manchester: Manchester University Press, cited in Chown, J.F. (1994) *A History of Money From AD 800*. London: Routledge.
- Chown, J.F. (1994) *A History of Money From AD 800*. London: Routledge.
- Eatwell, J., Millgate, M. & Newman, P., eds. (1987) *The New Palgrave: A*

Dictionary of Economics. London: Macmillan.

Fetter, F.W. (1933) "Gresham's Law and the Chilean Peso." *The Journal of Political Economy*, Vol. 41, No. 6, Dec., pp. 821-827.

Fetter, F.W. (1932) "Some Neglected Aspects of Gresham's Law." *The Quarterly Journal of Economics*, Vol. 46, No. 3, May, pp. 480-495.

Greenfield, R.L. & Rockoff, H. (1995) "Gresham's Law in Nineteenth-Century America." *Journal of Money, Credit and Banking*, Vol. 27, No. 4, Part 1, November, pp. 1086-1098.

Jevons, W.S. (1873) *Money and the Medium of Exchange.* London: C. Keegan Paul & Co.

MacLeod, H.D. (1858) *The Elements of Political Economy.* London: Longman, Brown & Green.

Mundell, R. (1998) "Uses and Abuses of Gresham's Law in the History of Money." *Zagreb Journal of Economics*, Vol. 2, No. 2.

Rolnick, A.J. & Weber, W.E. (1986) "Gresham's Law or Gresham's Fallacy?" *The Journal of Political Economy*, Vol. 94, No. 1, Feb., pp. 185-199.

Rothbard, M.N. (1980) *What has Government done to our Money?* Lexington (Mass): Lexington Books for The Ludwig von Mises Institute.

Smith, A. (1776) *An Inquiry into the Nature and Cause of the Wealth of Nations*, cited in Mundell, R. (1998) "Uses and Abuses of Gresham's Law in the History of Money." *Zagreb Journal of Economics*, Vol. 2, No. 2.

STEUART V. LAW A COMPARISON ON NATIONAL DEBT AND THE CREATION OF MONEY

Steffen Torp

Senior Sophister

John Law's name will always be associated with the collapse of the Mississippi System. Steffen Torp, in this analysis, examines the writings of Sir James Steuart, who contended that the collapse was not due to any fundamental flaw with Law's theory but with its mis-application in practice.

1. Introduction

John Law's (1671-1729) reputation as a monetary theorist has fluctuated between being "...at the front rank of monetary theorists of all time" and a "...mixture of swindler and prophet" (Schumpeter 1954: 295; Marx 1992). Such differing views are mainly the result of remembering John Law either as the author of one of the biggest financial booms in history, the Mississippi System of 1716-1720, or for his economic theories and early advocacy of paper money.

To better shed light on the early advocates of paper currency, and on John Law himself, this paper will discuss, and critique John Law's theories and policies through the words of one of John Law's younger peers – Sir James Steuart (1730-80). Steuart was a fellow Scotsman who, like Law, had to flee Britain,¹ and spent approximately half of his life travelling around the continent. Steuart followed in the trails of Law, through the Netherlands, France, Germany, Italy – and also spent some years in Spain. In France he saw the legacy of John Law's system, still sending shivers down the spine of French financiers, and became fully acquainted with the story of Law's financial adventures. Having seen both the poor state of the Scottish economy with much unemployment, and witnessed the famine of Andalusia, he followed up on Law's arguments for introducing paper currency.

¹Not because he was a murderer, like Law, but because of his political affiliations in supporting the Jacobites in the British revolution.

Although the similarities between the circumstances of these two men are striking, their personalities appear widely different. This becomes apparent by comparing the style of *Money and Trade* v. *An Inquiry into the Principles of Political Oeconomy*. While Law spent (probably) not more than a year on his proposal, Steuart worked on his inquiry for around 18 years (Hutchinson 1988). Law is quick to draw general principles of banking, interest rates, the quantity theory of money, and finance. Steuart merely attempts at scraping together some principles which he believes hold under slightly different circumstances, and is always cautious to put every principle into its right context, and advise the reader not to infer any *Systèmes*, that are “...mere conceits; they mislead the understanding, and efface the path to truth” (Steuart 1767: Book I, Preface).

Nevertheless, despite differences in style and elegance, their conclusions and remedies for the economic problems of their age, remains largely the same. Steuart however, has the advantage of critiquing Law's policies in retrospect, and from a distance.

This essay will start by outlining some of the policy recommendations of John Law, in his *Money and Trade*, and some of his later essays. This is to familiarise the reader with his politics, to create a foundation for understanding the similarities between his proposals, and those of Steuart – but also to see his later adventures in a better light. Section two will present Steuarts propositions and principles on the same subjects, to create a foundation for part three, which discusses Law's Mississippi System, as the first complete system of paper money in modern history. This will be critiqued through the writings and theories of Steuart, mirrored to those of Law, to conclude on some aspects of pre-classical monetary theory that is too often forgotten.

2. The First Proposal For Expansionary Monetary Policy

“If Money were given to a People in greater Quantity than there was a Demand for, Money would fall in its value; but if only given equal to the Demand, it will not fall in value” (Law 1705: 117).

In *Essay on a Land Bank* (1704) and *Money and Trade* (1705), the theme of Law's propositions was that Scotland had a high (involuntary) unemployment rate, due to a lack of money in circulation (silver), which made the economy function on less than maximum capacity, both because of the unemployment and because of the high interest rate that follows from a scarce supply of money. In the early 18th

century, there were many propositions for a system of a land bank, wherein paper money could be issued, secured against the stable² value of land.

Several 20th century observers have applauded Law's visions, and his clear grasp of the concepts of money and value (Murphy 1997; Schumpeter 1954; Wassermann & Beach 1934). As can be seen from the previous quotation, he saw the importance of the demand for money in determining inflation. And more like an early Keynesian, he argued that raising the supply of money would give a boost to trade, by both employing more people, and lowering the rate of interest:

“So far as they [the bank managers] lend they add to the Money, which brings a Profit to the Country, by employing more People, and extending Trade; They add to the money to be lent, whereby it is easier borrowed, and at less use” (Law 1705: 37).

There are few, if any, 17th and 18th century economists who surpass John Law in crisp theorising on money and value. As a matter of fact, not until the demise of the American gold standard in 1971, did the modern world fully complete Law's transition away from a currency of pure intrinsic value.

Law's system was inherently anti-inflationist from the beginning. The advocacy of a land bank was precisely to promote a more stable currency, which was more in line with actual demand for money. Moreover, he was aware³ of the risk of oversubscribing the capital of the banks, and appreciated that the safest bank was that which had all collateral readily available, for all subscribed notes. What later led to his system's failure was his clear grasp of how bank deposits created credit, which was lent on the security of the deposits multiple times over, so that in the end, the security of the credit was the credit itself, and he believed that the supply of money could thus never surpass the demand for it. However, he considered the hazard of default to be outweighed by the huge benefits this creation of money would bring to the economy: “The certain good it does, will more than ballance the hazard, tho once in two or three years it failed in payment” (ibid 38). When Law had to flee Scotland, without having set up a land bank, he spent the following years stretching his ideas to new theoretical lengths. Between 1705 and 1716 he wrote a number of pamphlets and letters in which he abandoned land as the basis for monetary value and proposed that all commercial credit could be utilized for security. He submitted a memorial entitled *Plano per lo Stabilimento della Banca a Torino* in Italy, where he proposed a state-run bank in which the reserves should consist of some idle cash, the funds of the state and

²At least more stable than silver, which was being imported in abundance from Spanish America (ibid: 71).

³Law could have been labelled a good 20th century monetarist in this context.

crown, including taxes, and the private deposits of people (Wasserman & Beach 1934). The rules of credit, reserve, and interest for this bank were extremely conservative, in accordance with Law's recommendations. As this paper, and Stuart will show, Law's systems never defaulted because of a lack of security.

The theoretical leap from paper money based on the value of land, to paper money based on credit and state funds, to paper money based on commercial paper, did not seem too big for Law. Thus over 10 years, he effortlessly transferred his system, that was initially based on the contemporarily acceptable land bank, all the way to the complete Mississippi System.

“Of what use does the king make of this new credit? He only lends it to a trading company, into which all the materials of trade in the kingdom fall successively, and are amassed into one. The whole nation becomes a body of traders, who have for the cash the royal bank, in which by consequence all the commerce, money, and merchandise re-unite” (Law, cited in Wasserman & Beach 1934).

Law got the opportunity to practice his system in France between 1716 and 1720. His project started as a conservative bank, but later took on the whole economy. This will be discussed further in part 3.

3. Stuart-Pragmatic Economics

While Law suffers in the history of monetary thought because of his experiments, Stuart suffers because of his unwillingness to simplify, or model, the subject of economics. Moreover, both of these are examples of applied economics; where Law outlines and executes his theories, Stuart discusses them at length, giving examples from situations he has encountered on his travels across Western Europe, and is careful to always set in context, critically examine, and let the reader know how a policy that has worked in one paradigm, might not do so in another. From his experience, he then draws up what he believes to be general principles that any statesman should adhere to. *Principles of Political Oeconomy* thus builds a bridge between the pre-classicals and Keynes, in focusing on the problem of unemployment and pragmatic disequilibrium economics, while at the same time bringing in the force of *self interest* as the natural force of economics – only 9 years before Adam Smith did in *The Wealth of Nations*.

“The principle object of this science is to secure a certain fund of subsistence for all the inhabitants, to obviate every circumstances which may render it precarious; to provide every thing necessary for supplying

the wants of the society, and to employ the inhabitants (supposing them to be fre-men) (...) so as to make their several interests lead them to supply one another with their reciprocal wants” (Steuart 1767: Preface).

Steuart emphasized what was nearly to be forgotten by economists for 150 years – that the prime object of economics is to ensure the well being of every free man in society. He was ahead of Adam Smith in understanding the force of self interest, but instead of relying on an invisible hand, Steuart observes that a statesman is needed from time to time, to steer the course of the people to make optimal use of the *winds of trade*.⁴ This also influenced his explanations for booms, and it was because of his disregard for perfect equilibrium economics that he was able to see through Law's system and show how the statesman could have reacted to save the economy when it had gone astray as a result of the psyche of the people.

Steuart seems to be of the laissez-faire school with regard to the optimal rate of interest, which is discussed in Book IV, chap. IV (ibid). Steuart brings in a train of thought, first showing how the rate of interest in a country, depends on the profits of the rich and the industriousness of the merchants and workers,⁵ and how *double competition*⁶ will bring about the optimal rate of interest for the economy. In chapter V (ibid) he criticises Josiah Child, and the proponents of a low rate of interest, by arguing that a low rate is in fact “the soul of the trade,” but that the intervention of the statesman will have “immediate bad effects (...) impossible to be foreseen” (ibid). Instead the statesman should lower the rate of interest by abstaining from borrowing himself, and “discourage borrowing in those who employ their money in prodigality and dissipation.” In his reasoning it becomes clear that Steuart believes that if money is spent on luxury for the upper classes, instead of consumption by the lower classes, this will in turn lead to higher interest rates because the marginal propensity to save is higher for the rich than the poor. This in turn will bring the economy to a point where the price of land falls because the rich will want to exploit the higher rate of interest offered on holding money. This again will increase credit and money supply, encouraging spendthrift and industriousness, and lowering the rate of interest. If left to itself the rate of interest will thus fluctuate in a narrow band, according to the amount of property – for “what is money but property, of one kind or other, thrown into circulation?” (Chap VII).

⁴Self interest. For an in depth discussion on Steuart's view on economics, the force of self interest and the role of the statesman, see Urquhart (1996).

⁵Not unlike, but less detailed, than in Cantillon's *Essai*.

⁶Several sellers and several bidders, ensuring a fair price in relation to supply/demand.

So far, Stuart is coming to the same conclusions as Law 50 years prior. However, Stuart feels a need to distinguish between three types of credit – Private credit, Mercantile credit, and Public credit (Book IV, Part 2). The differences are set out in table 1:

Table 1: The different kinds of credit

	Private	Mercantile	Public
Principle	Money to be lent upon a security of the same value of the credit and its interests.	Established upon the confidence of the lender that the borrower, through his trade, will be able to replace the credit and interest.	The state borrows money, upon condition that it shall not be demandable, but that a certain part shall be annually paid.
Risk of default	Hardly any.	Most precarious	Secure, as long as interest is regularly paid
Attributes	Inseparable from human society	Speculative. Depends on good fortune.	Rests on the stability of certain maxims of government.

Source: Stuart, 1767.

4. Stuart's Critique of Law's System of Public Credit⁷

“...an ill-concerted system of credit may bring ruin on a nation, although fraud be out of the question: and if a nation be plugged into all the calamities which a public bankruptcy can occasion, it is but a small consolation to be assured of the good intentions of those who were the cause of it” (Stuart 1767: Book IV).

⁷Public credit ≡ Government debt

Steuart spends 9 chapters of his *Principles* on the Mississippi System, of which half are spent justifying the actions of both Law and the Regent. The reason for this is that he sees Law's system as being perfectly devised, according to all laws of money and credit, up until the Regent's "plundering" of 21st May 1720 and in particular the ill-devised repairment of it. Steuart shows how the capital holdings and profits of the Company were actually more than able to support the interests due on the notes, even after being merged with the government's finances, and the Mint. In the chapters building up to his critique of the Mississippi System, he has shown that a mercantile bank, even though its capital is uncertain, is well funded on economic principles because the interest premium offered on the high-risk loans is more than enough to cover the defaults.

Further, the very nature of public credit meant that it could be expanded as long as the profits of the state were larger than the interests due (ibid: Book VI). Therefore, he saw no problem in the fact that the *Banque Royale* seized to guarantee in bullion the value of the paper because for a government-backed bank, only the rate of interest mattered. Steuart quoted Dutot's calculations for the profits of the Company to be at 80 million livres annually.⁸ At a rate of interest of 3%, this could answer to a capital of 2,664 million – much more than the consolidated debts of the kingdom.

Steuart thus analyses every part of the undertakings, and links the debts of Louis XIV, which amounted to a net present value of 2,000 million livre and the Duke of Orleans "nobly" rejected to default upon in 1714, fixed at 4%, with the net present value of the Company's profits of 2,664 million livres at an arbitrarily high 3%. What the Duke and Law effectively did, argues Steuart, was nothing more than bring down the rate of interest for the whole country, and as a result "Lands in France (...) sold at 80 and 100 years purchase" (ibid: ch. XXXVI).

The low rate of interest spurred industriousness, and capital requirement rose in the first years. However, it also brought on hyperinflation, which as Steuart observes, was apparently of no concern to the French – who were "absolutely blockheads" who only cared for the denomination of their notes, not their real value. Steuart does not believe that either Law, or the Duke, attempted to defraud the public, but that they believed that demand for money could never rise above a level consistent with maximum output. The latter also seemed to hold until the Regent started to burn notes and issued bank-notes for the townhouse of Paris, instead of the debt previously held. Now the creditors to the state became holders of a bank note, issued by a bank in which the Regent was a debtor, instead of creditors to the townhouse, which was an institution created by jurisdiction.

⁸Payable profits from the General Farms, the tobacco trade, tax receipts, the Mint, etc..

This might still have worked out well, had not the Regent started the “absurd operations of changing the denominations of coin and paper” so that the value of the note could be diminished by half every month, while the coin was doubled in value (*ibid*). This made it apparent to the public that the ministers were toying with their property, so as to raise the value of the coin in the Regent's coffers up to the point where his debt disappeared. It is only after these actions, which took place during the summer of 1720, that Steuart finds it appropriate to use the term *defrauded*. Most of the problems throughout the whole period were, however, due to money illusion.

Steuart proposes that if the government had taken quicker actions during this fatal summer, the value of paper money could have been restored – although severely devalued. The speculation occurring during 1720⁹ could take place because the central bank successively depreciated the currency at intervals over the whole summer. Those that bought low and held on to the money until the turbulence ended and the money again became stable on 10th October made a profit, whereas those that ridded themselves of the money when it traded at a discount and had to buy it back when it again recovered its credit, suffered an irrecoverable loss.

If the Regent had ordered all money to be presented to the bank during the fatal summer, and recorded in the books as bearing an interest of 2% to be paid monthly, this would have restored the value of paper money, argues Steuart, because no one would want to sell their notes at a discount. This was consistent with his view that any borrower who never defaults on the interest payment will never lose his line of credit. Instead the danger of default pushed interest upwards.

Throughout the whole account, Steuart talks of Law only in favourable terms. To the very end, he argued that France could have prospered to great richness if only they had implemented certain measures for regulating the actions of the Statesman:

1. It should be established that all changes on the “denominations of paper or coin, were contrary to the aims of good government” (*ibid*).
 2. All stipulations between the King and his creditors should be inviolable.
 3. The parliament should remain invested, with exclusive rights to regulation.
- Both the King and the Parliament should be bound by an oath.

⁹ In which amongst others, Richard Cantillon was a partaker (see Murphy, 1986)

5. Conclusions on Steuart, Law, and Public Credit

This paper has given an account of the first experiment with paper currency devised in modern history. Section one showed how John Law devised his theoretical system of money and credit, and how he was one of the first proponents of creating money from property (in all forms) and credit.

Section two showed one of his successors in political thinking who not only theoretically sanctioned Law's system, but at a time when Law was more unpopular than he has ever been, Steuart argued that Law's actions were both theoretically and contextually sound, but that the public was not ready for such an experiment. The remedies for Law's system, as advocated by Steuart were also discussed.

In 1945, Walter F. Stettner argued in *The Quarterly Journal of Economics* that: "The stupendous rise of the public debt during the present war has aroused concern...over the ability of the nation to cope with its postwar economic problems," but the debt of the 18th century was much worse; however, instead this rise in debt had supplied "the key to the economic history of Britain and her rapid rise to commercial and industrial supremacy." Today, every time a country's debt rises out of proportion, Law's failed system seems to be looming in the back of economists' minds. It is then important, however, not to forget to apply the correct remedies for such failures. Above anything else, Steuart showed how hasty remedies, rather than the system in itself, might produce an economic collapse, far worse than the original problem.

Bibliography

- Akhtar, M.A. (1979) "An Analytical Outline of Sir James Steuart's Macroeconomic Model." *Oxford Economic Papers*, 31, 2, July. Accessed through: ABI Inform.
- Hutchinson, T. W. (1988) *Before Adam Smith: the emergence of Political Economy*. Oxford: Basil Blackwell, pp. 332-351.
- Law, J (1705) *Money and Trade Considered with a Proposal for Supplying the Nation with Money*. Edinburgh: Andrew Anderson.
- Marx, Karl (1992) *Marx's Capital: A Student Edition*. London: Lawrence & Wishart.

- Murphy, A.E., (1991) "John Law: Aspects of his monetary and debt management policies," in William J. Barber (ed.), *Perspectives on the History of Economic Thought*, Vol. 5. London: Edward Elgar.
- Murphy, A.E. (1997) *John Law, Economic Theorist and Policy-Maker*. Oxford: Clarendon.
- Murphy, A.E., (1986) *Richard Cantillon, Entrepreneur and Economist*. Oxford: Clarendon Press.
- Schumpeter, J.A. (1954) *History of Economic Analysis*. London: Allen & Unwin.
- Steuart, J., (1767) "An Inquiry into the Principles of Political Oeconomy." 19 December 2004, viewed at <<http://socserv2.socsci.mcmaster.ca/~econ/ugcm/3ll3/steuart/prin.html>>.
- Stettner, W.F. (1945) "Sir James Steuart on the Public Debt." *The Quarterly Journal of Economics*, Vol. 59, No. 3, pp. 451-76, May. Accessed through JSTOR.
- Urquhart, R. (1996) "The trade wind, the statesman and the system of commerce: Sir James Steuart's vision of political economy." *The European Journal of the History of Economic Thought*, 3:3, Autumn, pp. 379-410.
- Wasserman, M.J. & Beach, F.H. (1934) "Some Neglected Monetary Theories of John Law." *The American Economic Review*, Vol. 24, No. 4, Dec., pp. 646-57.

ECONOMETRIC METHODOLOGY AND THE STATUS OF ECONOMICS

Cormac O'Dea

Junior Sophister

The question of whether econometrics justifies conferring the epithet of 'science' on economics is a controversial one. Though the physical sciences are not free from imperfections, Cormac O'Dea contends that the problems with econometric methodology are too great to justify scientific status. He concludes by questioning the need felt by some economists to be referred to as scientists.

Introduction

In examining the nature of econometrics and evaluating its impact on the scientific status of economics, two approaches can be taken. We could consider a scientific realm of knowledge completely and definitively demarcated from all non-scientific knowledge. A second approach involves considering the very real flaws with econometric methodology and comparing them to similar, and again, real flaws in the physical sciences. Such an approach implicitly accepts science as a spectrum of knowledge and allows a ranking of disciplines in terms of their scientific nature. This essay will contend that econometric methodology has added a degree of testability to the economic theory, and by allying economics with mathematics and statistics, rendered the discipline 'more scientific.' However, if we are forced to make an absolute statement, then we must conclude that the inability of econometrics to conclusively and reliably falsify economic theories seriously undermines any claim to scientific status.

The Imperfection of the Physical Sciences

Sceptics point to the inability (or severely restricted ability) of the social scientist to conduct controlled experiments. Friedman points to the inability of the astronomer to conduct same (1953). Assuming a particular distribution of the error term could be deemed to provide a fatal blow to the econometrician's quest

for scientific status. However, Friedman notes the usefulness of the law of falling bodies in physics, which assumes that the body is falling in a vacuum (ibid). That this assumption is unrealistic and only provides an approximation to reality doesn't undermine the law's usefulness or its scientific status. With regard to the contention that there can be no scientific study of a subject matter of which the student is a part, Boulding reminds us that the Heisenberg Uncertainty Principle is by no means restricted to the social sciences (1969). Another frequent charge is that scientific study of the economic environment is impossible given the constant flux of the subject matter. Boulding notes that the subject matter of the physical sciences is not exactly static, in particular that evolutionary process do not seem to render biology unscientific in the popular consciousness (ibid). It has been contended that the possibility of data mining undermines a claim on scientific status. Such a charge implies that abuses of data and deception are impossible in the physical sciences. Hendry predicts that the future status of econometrics will depend "on the spirit with which the subject is tackled" (1980: 403). It would seem grossly unfair to assume that the spirit of all physical scientists is beyond reproach while there exists apparently an army of economists and econometricians bent on deception!

The above paragraph documents some of the frequent arguments used to contend that economics is not scientific. It has not been an attempt to make a claim to the contrary. It simply points out that many of the flaws that exist with econometric methodology exist to a lesser degree in disciplines whose scientific status is not in question. Though it may be possible to find a counterpart in the physical sciences to each flaw in econometric methodology, those flaws should not be underestimated. Their total effect renders econometric tests inconsistent and non-reproducible, which undermines their claim to scientific status.

The Greater Imperfection of Econometric Methodology

If econometric methodology is to give scientific rigour to economic theory, it must be capable of falsifying the hypotheses of economic theory. Such hypotheses normally contain a *ceteris paribus* assumption. The counterpart in econometrics to such an assumption is the disturbance term. All effects, other than those explicitly explained in the model, are included in this term. Assuming that this term follows a particular distribution, as econometric methodology does, it is an attempt to control statistically what we cannot control experimentally. The economic interactions of human beings are governed by an infinite number of forces. Schumpeter claimed that economics was the most quantitative of all sciences as "it was made numerical by life itself" (Hendry 1980: 389). However

many of these forces governing economic behavior are neither numerical nor measurable. They are not even what might be considered 'economic.' The inability of econometrics and the unwillingness of economists to consider such forces flies in the face of its claim to be scientific. In grouping all these forces into one term, the distribution of which is assumed to be known, econometricians take a massive leap of faith.

Econometric tests of economic theory are valid only under the exact conditions of the test. Such conditions can never be known exactly, let alone reproduced. This is problematic, given the role of hypothesis testing in econometrics. The interpretation of failing to reject a hypothesis at a 95% level of significance is that in repeated sampling, we would expect to be correct 19 out of each 20 times. However, given the complexity of the forces governing economic behaviour, and our inability to conduct controlled experiments, each experiment is unique, and to talk of 'repeated sampling' is flawed. It is not the probabilistic nature of econometric results which undermines scientific economics. Statistical inference plays a major role in modern quantum physics (Blaug 1980: 31).

However a reliance on statistical inference, combined with an inability to reproduce supposedly critical experiments, is a major problem.

Random effects are possible in the physical sciences but are all the more present in the social science. It would be tempting to attribute this to an intrinsic randomness in human behaviour. However, such an assertion would be unsafe. An effect that today is attributed to erratic human behaviour could be explained in the future by a variable not yet understood. Popper defines a scientifically significant physical effect "as that which can be regularly reproduced by anyone who carries out the appropriate experiment in the way prescribed" (Popper 2002: 23-24). Using this criterion, which seems eminently reasonable if theories are to be discredited on the basis of empirical results, econometric results cannot be described as 'scientifically significant.'

The Duhem-Quine problem with hypothesis testing has a particular relevance to econometrics, given the infinite number of ancillary hypotheses buried in the assumption about the error term and the specification of the functional form of the model. A rejection (or an incorrect decision not to reject) of a hypothesis concerning an estimated parameter could well be due to any number of flaws with the buried assumptions rather than the falsity of the hypothesis actually under examination. This results from an attempt to control statistically what ideally would be controlled experimentally and undermines the power of econometrics to test economic theory.

A Question of Mindset

An ability to use the laws of statistics and mathematics to test and potentially reject hypotheses from theory is a necessary but insufficient condition to justify economics as a science. Economists have to be willing to reject hypotheses should they fail to stand up to econometric testing. Consider Koutsoyiannis:

“It should be noted that the statistical criteria are secondary only to the *a priori* theoretical criteria. The estimation of the parameters should be rejected in general if they happen to have the ‘wrong’ sign (or size) even though the correlation coefficient is high, or the standard errors suggest that the estimates are statistically significant” (1977: 26).

Such an approach seems to imply that econometrics can’t and won’t be used to put economic theory to the test. Koutsoyiannis sees economic theory as the falsifier of econometric results. The role of econometrics in this regard is simply to provide estimates of parameters in economic models. These models, according to Koutsoyiannis, are clearly beyond reproach, at least from econometric testing. The same author exhibits a cavalier attitude to statistical procedure when ignoring the problem of a loss of degrees of freedom every time a regression is run on the same data set using a different functional form. He states:

“Some ‘loose’ interpretation of statistical rules is at times essential if econometrics is to be helpful in testing economic theory and in measuring economic relationships” (ibid: 25).

Once again we cannot dismiss the notion of econometrics testing theory on the basis of one practitioner, but it would seem that Koutsoyiannis is not alone. Spanos admits that “no economic theory was ever abandoned because it was rejected by some econometric test nor was a clear-cut decision between competing theories made in lieu of such a test” (Keuzenkamp 2000: 247).

Conclusion

Karl Popper is very clear in making a distinction between ‘scientific’ and ‘meaningful’ (2002: 18). To state that econometrics does not give scientific status to economic theory is not to say that it is meaningless or useless to policy. The constitution of the econometric society defines the aims of the discipline as “the

advancement of economic theory in its relation to statistics and mathematics" (Frisch 1933). It goes on to describe itself as a "scientific organization" (ibid). The former definition of econometrics is valid and achievable without the epithet of science.

This essay has pointed out that many of the faults with econometric methodology exist in the physical sciences, albeit to a lesser degree. If we are allowed to view science as a spectrum, we can argue that econometrics does grant a certain degree of scientific rigour to economic theory. If we are forced to come up with a 'yes or no' answer, which requires us to draw a definite line between the sciences and the non-sciences, I would argue that econometric methodology does not do enough to justify using 'economic science' to describe what used to be known as the 'political economy'.

The debate about the scientific status of econometrics is largely irrelevant and represents a certain professional insecurity in those who desperately seek it. Roy F. Harrod points out that "speculation upon methodology...offer the greatest opportunity for internecine strife...and a victory even if it could be established, is thought to yield no manifest cause to the cause itself" (Blaug 1980). Conferring the word science on the discipline would not contribute anything to the development of either economic theory or econometric methodology.

Bibliography

- Blaug, M. (2000) *The Methodology of Economics, or, How Economists Explain*. Cambridge: Cambridge University Press.
- Boulding, K. E. (1969) "Economics as a Moral Science." *American Economic Review*, Vol. 59, pp. 1-13.
- Brown, W.S. (1991) *Introducing Econometrics*. St. Paul (Minn): West.
- Daley, Steven (2004) "Being Economical With the Truth." *Student Economic Review*, Vol. 18, pp. 3-8.
- Friedman, M. (1953) *The Methodology of Positive Economics*. University of Chicago Press <<http://members.shaw.ca/compilerpress1/Anno%20Friedman%20Positive.htm>>.
- Frisch, Ragnar (1933) Editors Note. *Econometrica*, Vol. 1, pp. 1-4.

- Gujarati, D.N. (1995) *Basic Econometrics*. New York: McGraw-Hill.
- Hendry, D. (1980) "Econometrics-Alchemy or Science." *Economica*, Vol. 47, November, pp. 387-406.
- Keuzenkamp, H. (2000) *Probability, Econometrics and Truth: The Methodology of Econometrics*. Cambridge: Cambridge University Press.
- Koutsoyannis, A. (1977) *Theory of Econometrics: an introductory exposition of econometric methods*. London: Macmillan.
- Maddala, G.S. (2001) *Introduction to Econometrics*. Chichester: Wiley.
- McCloskey, D. (1983) "The Rhetoric of Economics." *Journal of Economic Literature* 21, June.
- Patinkin, D. (1976) "Keynes and Econometrics." *Econometrica* 44, November.
- Pesaran, M. and Smith R. (1992) "The Interaction between Theory and Observation in Economics." *Economic and Social Review*, Vol. 24, pp.1-24.
- Popper, K. (2002) *The Logic of Scientific Discovery*. London: Routledge.

IS THE EU ON TRACK TO REACH THE GOALS OF THE LISBON AGENDA?

Paul Gray

Junior Sophister

This paper presents an analysis of the progress of the European Union in reaching the goals of the Lisbon Agenda. More specifically, it seeks to address whether or not the EU is “on track” in terms of meeting the 2010 deadline as established by the European Heads of State and Government in March 2000.

Introduction-The Lisbon Agenda: Defined Goals

Defined by Europe’s leaders in 2000 at the Lisbon summit, the goals of the economic reform programme were designed with one broad intention; closing the economic divide between the United States and Europe. Faced with an ageing population, downward falling growth rates and the omnipresent threat of globalisation, Europe required a long-term policy solution. The solution came in the form of what became coined the “Lisbon Agenda.” The goals of the agenda can be examined in terms of five key dimensions:

1. **Innovation, research, and development** as a key European competency. Without innovation, Europe will not have the capacity to compete globally, particularly in the production of hi-tech products, currently dominated by the US and Japan. The creation of an information society is crucial to the safe-guarding of this objective.
2. **Liberalisation:** the completion of EU objectives on the single market, state aid, and competition policy.
3. **Enterprise environment:** one that promotes entrepreneurial aspirations by being more conducive to private sector involvement. Network industries, such as the telecommunications and transport sectors need to be promoted and receive further investment. In terms of financial services, there is a need for an integrated and effective response in terms

IS THE EU ON TRACK TO REACH THE GOALS OF THE LISBON AGENDA?

of implementing the Financial Services Action Plan, which includes the elimination of cross-border barriers to the sale of financial services.

4. **Improved employment and social cohesion** amidst concerns regarding Europe's ageing populations. The modernisation of social protection with the intention of removing the menace of poverty from society. With high unemployment rates, particularly low female employment, and a skills shortage, European competitiveness was under serious threat. The Lisbon Agenda set a target of 70% employment by 2010 resulting in an anticipated 20 million jobs.
5. **Sustainable development.** The Lisbon Agenda sought to establish an annual growth rate of 3 per cent.

Coupled with the rising spread of IT-based innovative industries, the need for an all-encompassing reform package became even more pressing. The Lisbon Agenda ultimately promised the completion of the single market.

Section 1: Innovation

Much excitement and hype surrounded the Lisbon summit in March 2000. Propagated by talk of the dawning of a new era in technology, the so-called "dot.com summit" stressed the importance of IT-based innovation (Murphy 2004). Central to this was the boosting of internet access on a pan-European level as well as other developments such as the third generation of mobile phones. This aspect of the Lisbon Agenda can largely be deemed a success. According to the European Commission, the number of households (within the pre-accession 15 EU member states) with internet access increased to 47 per cent by 2003. Compared to 54 per cent in the United States, however, this figure highlights the structural inadequacies of the EU's innovative culture; funding of the US knowledge sector is second-to-none, something which is keenly reflected in the quality it showcases (ibid).

1.1 Information

The European Union continues to fall behind the United States in IT expenditure. Compared to the EU's 3 per cent of GDP spent in 2003, the US invested 3.6 per cent of GDP in the sector. However, within the EU, the Nordic countries continue to pioneer technology-driven advances; most notably, Sweden

which spent 4.4 per cent of GDP in the same year (ibid). It must be taken into account, however, that the figures cited do not differentiate between spending in consumer electronics and that in more progressive areas. In 2001, a commitment by the EU accession states to develop mechanisms to accelerate reform in this area was agreed. The eEurope+ initiative has seen countries such as Slovenia as a pioneer. A leader in e-Government, even the majority of the country's cabinet meetings are now held on-line (The Lisbon Strategy and the EU's Structural Productivity Problem 2003).

1.2 Research & Development

In terms of research and development, a further goal was added in 2002 at the Barcelona summit. Albeit a highly ambitious one, a new target of 3 per cent of GDP was agreed for annual EU spending on R&D. This target is to be reached by 2010. Although the OECD Economic Survey of 2003 indicated that in order to meet this target, expenditure must be doubled, the Commission has stressed that the target is "realistic." It is widely felt that much of this funding should come from the private sector.

Despite coming two years late, the EU introduced a community patent in 2003. With its introduction, businesses will simply register their product with a single patent office, which will cover the entire EU area. However, the new system will not function effectively until the patent court in Luxembourg has been established in 2010. Nonetheless, the move represents a further progression towards the full protection of intellectual property rights.

Section 2: Liberalisation

The objectives contained in the Lisbon Agenda pertaining to the area of liberalisation cover three distinct areas: telecommunications and energy markets, transport, and financial services.

2.1 Telecommunications and Energy Markets

The telecommunications sector has seen a successful liberalisation drive. The primary aim has been to focus competition and reduce call charges. A 100% increase has been seen in the number of land-line operators providing telecommunications between 1998 and 2001. Monthly phone bills of EU households have fallen by almost 14 per cent. Despite the reduction in call

IS THE EU ON TRACK TO REACH THE GOALS OF THE LISBON AGENDA?

charges, “the average cost of a local call in the EU remains nearly four times higher than in the US” (Murphy 2004).

In energy markets, the liberalisation of gas and electricity has been a priority. However, the process has been severely delayed. The deadline for full liberalisation for consumers has been postponed until 2007 (ibid). The Commission has taken a zero-tolerance stance on governments assisting domestic suppliers. In an attempt to improve energy-efficiency and eliminate cross-border barriers, the EU has invested in a number of schemes designed to enhance energy markets.

2.2 Transport

Principle objectives include encouraging competition amongst rail providers and providing a “single European sky” by 2004 (ibid). In an attempt to open up rail and air markets, the EU aims to allow any licensed operator to bid for freight services across member states from 2006. Key to this is the establishment of a European rail agency. Legislation is also to be introduced to allow greater competition amongst passenger services by 2008 (Murphy 2004). Arguably, real progress has been made in this area. In 2003, the Commission signed a deal with the United States for transatlantic flights. Now, bilateral deals between EU member states and the US are contrary to EU law. The effect of this is increased competition necessary for bringing increased flexibility to the airline industry. Major transport infrastructure projects continue to roll out across Europe, transforming rural country-sides from quiet backwaters to roaring high-speed motor-ways. A package of 56 projects worth €76 billion was approved in Brussels in 2003, 31 of which are transport-related (ibid). However, these large scale projects have suffered from a lack of private investment. Such cross-border initiatives present many problems which hinder any possibility of public-private partnerships.

2.3 Financial Services

A single market in financial services is a pivotal aspect of the Lisbon economic reform package. The benefits accrued to firms will assist them in raising finance. Consumers benefit from a broader selection of products, thanks to the competitive pricing strategies to be adopted. The Financial Services Action Plan is to be completed by 2005. The FSAP has secured agreement on 37 instruments which will see this task completed. An efficient allocation of capital is crucial for the sustained competitiveness of the European economy, particularly with the accession of the new member-states.

Section 3: Enterprise

3.1 Small and Medium-Sized Enterprises

According to Commission figures, entrepreneurial activities in the EU are crucial for promoting growth and increasing levels of employment. Bureaucratic obstacles are a major disincentive to potential investors and entrepreneurs. As a counter to this, the Commission, in February 2004, proposed an initiative to encourage entrepreneurial activities. In line with the objectives of the Lisbon Agenda, the plan made recommendations in a number of areas: improved possibilities for training, a fair and just environment for starting up a business, promotion of the entrepreneurial culture as a legitimate career option, enhanced finance packages, and a reduction in the bureaucratic duties presented to small and medium-sized businesses.

3.2 Competition Policy and State Aid

In order to prosper as a fully functional single market, the EU must focus on its competition policy and re-consider its practice of providing state-aids. The Lisbon Agenda sought to encourage competition and promote a reduction in state-subsidies, promoting greater choice for consumers and higher quality products with lower prices. Since May 2004, when the EU's anti-trust and mergers rules came into force, the Commission's policies in competition and state aid have been the subject of much speculation and examination. However good progress has been made. In December 2003, the EU reached an agreement on procurement techniques. A competitive market for public procurement is good news for business across Europe.

Section 4: Social Inclusion and Employment

An integral part of the Lisbon reform package, social inclusion and employment, deals specifically with promoting a greater sense of social cohesion and ensuring that productivity and competitiveness is increased.

4.1 Social Inclusion

The evolving requirements of society demands a system of social protection designed to meet their changing needs. A decision was made at Lisbon to eradicate poverty by 2010. It has been shown that social exclusion presents an

IS THE EU ON TRACK TO REACH THE GOALS OF THE LISBON AGENDA?

extraordinary burden on society and that efficient social protection can enhance productivity. To support the agenda of social inclusion, a Social Protection Committee has been established with the aim of monitoring the open-method of co-ordination in pensions.

4.2 Employment

Lisbon, as previously mentioned, set a target of 70 per cent employment by 2010. Employment is an important gauge in determining the success of the Lisbon Agenda to date. In 2002, the EU employment rate stood at 64.3 per cent (Murphy 2004). However, the US figure is considerably higher, at 71.9 per cent. To deliver employment, labour markets must show improved flexibility through the evolution of a well-educated and skilled workforce. To this end, each member state has implemented a National Action Plan centred around four key objectives: “employability, entrepreneurship, adaptability and gender equality” (Blanke, J. & Lopez-Carlos 2004). For example, Finland has introduced re-training programmes for people in retirement seeking to re-enter the workforce. Sweden has launched a search programme for the unemployed, while the Commission is also establishing a Europe-wide database. In order to meet the goals of the Lisbon Agenda, the EU must focus its attention on improving IT-related skills. If Europe is to succeed as the most dynamic economy in the world by 2010, it must invest heavily in fostering employment opportunities.

Section 5: Sustainable Development

Sustainable development, as a response to a growing environmental lobby, was introduced as an addition to the Lisbon Agenda at the Gothenburg summit in June 2001.

5.1 Climate Change

On the issue of climate change, the EU aims to reduce greenhouse gases by 8 per cent by 2010. Such a move would see the EU assume a global first, by reaching the Kyoto protocol target. Between 1990 and 2001, the European Environment Agency (EEA) estimated that greenhouse emissions were reduced by approximately 2.3 per cent (euractiv.com 2005). However, the Commission has advised that member states must make further commitments to ensure the 8 per cent target is met by 2010. It is worth noting that all of the new member states, apart from Slovenia, intend reaching the Kyoto targets by 2010.

The surge in car-ownership also presents a threat in terms of climate change. In response to this, the Commission is set to present a 25-year initiative designed to address the growth of road transport (Murphy 2004).

5.2 Environmental Impact of Agriculture and Fisheries

Policies in the areas of agriculture and fisheries have neglected the impact their introduction has had on the natural environment of Europe. Intensive farming measures caused by the practices promoted by the Common Agricultural Policy (CAP) have had a hugely negative impact on farmland species, notably birds. In response to this, the EU has enacted a reform of the CAP which will see farmers take on a more pro-active approach to the environmental concerns set out by the Lisbon Agenda. Over-production is to be replaced by income support subsidies as an attempt to improve the “management of natural resources and stop the depletion of biological diversity.”

Section 6: The Mid-Term Review

The Lisbon Agenda was formulated based on the economic situation of the EU in 2000. Since then, that context has altered significantly. The question remains as to how the EU in its current shape can adapt the Lisbon Agenda to meet the new Europe as the mid-term review beckons. With a European Union of 25 member states and an uncertain economic outlook worldwide, changes in global dynamics present a real test for the member states meeting to assess the work of the Agenda in March 2005. A lack of coordination and strong leadership has been blamed for the lack of drive behind the process. However, it has also been argued that the Agenda lacks clarity and that too much of an attempt is being made to mimic the US model. In reality, do we want an economy that directly mirrors that of the United States? The Agenda has become overloaded with ideas and reform packages overlapping with a myriad of proposals. The complexity which the Agenda has gathered has lead to a situation of disinterest among the EU member states. Accusations of a lack of “personal ownership” abound as the momentum for reform loses pace (euractiv.com 2005). The current deficit has been taken on board, however, and public awareness is beginning to build in advance of the forthcoming mid-term review.

6.1 The Kok Report

In November 2004, the Council and Commission mandated former Dutch Prime Minister, Wim Kok, to undertake a review of the Lisbon strategy in advance of the March 2005 summit. His findings and proposals may be outlined as follows:

1. Improved climate for entrepreneurs
2. Removal of barriers to free movement of services by the end of 2005
3. Member states to adopt 'ageing' strategies designed to move citizens away from early retirement
4. Environmental awareness
5. Establishment by the end of 2005 of a European Research Council to tackle the R&D deficit
6. National action plans
7. EU Budget to reflect Lisbon strategies
8. Refocus and "ownership" of Lisbon objectives
9. "Naming, shaming and faming" of states (ibid)

6.2 March 2005 Summit

The mid-term review should seek to address the public deficit with regard to the lack of knowledge surrounding the Lisbon Agenda. The harnessing of public interest, political will, and determination will strengthen and drive forward the second half of the reform process. "Simplification, clarification and simpler reporting" is likely to dominate debate at the summit (ibid). While attempts are likely to be made to alter some of the Lisbon 2000 goals (based on justifications of the recent EU expansion according to the fourth annual Lisbon Scorecard), any efforts to redirect the end result should be avoided. While the Commission has admitted that the 2010 targets are unlikely to be met for the entire European Union, some countries will reach the goals and stay on track; the Nordic countries being among the shining examples.

The Lisbon 2010 goals must be observed as work-in-progress. The Spring summit of March 22-23, 2005 will seek to find new ways of equipping Europe with the tools to adapt the goals of the Lisbon Agenda to the realities of a changing Europe. However, the focus on employment and growth should not change (Murphy 2004). Certainly, there is a need for more consultation between economies, in terms of providing advice and expertise to one another and adhering to the goals and targets of 2010. New ways to deepen the European knowledge base must be found. Integral to this objective is the appointment of a

Commissioner with the specific responsibility of overseeing the Lisbon Agenda (ibid). Proposed by the British, French and German governments in 2004, the Commissioner would work closely with the Commission's directorate-generals to ensure their targets are met. A proposal has also been put forward to have each member state submit an annual report outlining the progress made towards reaching the 2010 objectives and demonstrating any apparent local weaknesses.

To achieve coherence across all EU policies, the Lisbon Agenda should be "reflected in other key European and national policy areas, such as the Stability and Growth Pact, the EU Structural and Cohesion Funds, and EU competition policy and industrial policy" (EPC Working Paper 2004).

Conclusion

The economic, social, and environmental goals established by Lisbon are beginning to take shape. However, what is apparent from my discussion in this paper is that progress is slow and that the process is losing momentum as a result. If EU countries are to deliver their objectives by 2010, by becoming the world's most dynamic, knowledge-based economy in the world, over-taking the United States in its step, much work has still to be done. The pace of progress over the coming months will indicate the EU's current enthusiasm for the Lisbon Agenda. However, the seeds of good economic growth have been sown. Continued efforts by the member states coupled with the rising participation of recent accession states spell good news for the reform package. However, the enthusiasm of the new states and notably that of the Nordic states must be matched by a universal political will, and the engagement of the public imagination.

This paper has set out the goals of the Lisbon Agenda, has addressed progress to date in five broad areas, and has offered some conclusions as to where the future of the European Union's economic development policy lies. What is clear is that there exists an over-riding consensus that the "iron curtain" of yesteryear should not be replaced by a transatlantic economic barrier. Completing the goals attached to the Lisbon Agenda will require a concerted effort and although for some EU countries, the finishing line is in sight, for the vast majority, staying on track presents a real uphill struggle.

Bibliography

Blanke, J. and Lopez-Carlos, A. (2004) *The Lisbon Review 2004: An Assessment of Policies and Reforms in Europe*. World Economic Forum.

IS THE EU ON TRACK TO REACH THE GOALS OF THE LISBON AGENDA?

Euractiv.com (2005) <<http://www.euractiv.com/Article?tcmuri=tcm:29-134971-16&type=News>>, <<http://www.euractiv.com/Article?tcmuri=tcm:29-131891-16&type=LinksDossier>>, <<http://www.euractiv.com/Article?tcmuri=tcm:29-117510-16&type=LinksDossier>>.

Murphy, A. (2004) *The Lisbon Scorecard IV: The status of economic reform in the enlarging EU*. London: Centre for European Reform.

The European Policy Centre (2004) *Lisbon Revisited – Finding A New Path to European Growth*. EPC Working Paper, 2004.

DEVELOPING CONFUSION: THE ECONOMIC CONSEQUENCES OF THE EU'S DEVELOPMENT POLICY

Paul Sammon

Junior Sophister

The evolution and consequences of the European Union's development policy are addressed in this essay by Paul Sammon. Forces for change in the policy are examined, as well as the detrimental effects of the CAP. He concludes that the EU does have a role to play in the development of the world's poorest economies, but that this is undermined by the persistence of CAP.

Introduction

The European Union is a true goliath in the global economic environment. Its capacity to influence the expansion paths of the world's Developing Countries (DCs) is immense. The EU accounts for 23% of DC's imports and 21% of their exports. In terms of Official Development Aid (ODA), the EU is the world's third largest donor, contributing some US\$4.91bn (Matthews 2004). Together with Member States' disbursements, 55% of ODA has its origins in this vast economic bloc. Clearly then, its potential influence is far-reaching.

The EU has styled itself as the champion of DC's interests, with the lofty ambition to "reduce poverty with a view to its eventual eradication" (European Commission 2004). The EU approach can be characterised by the three instruments it has at its disposal: its trade regime, development aid policy, and more lately, its political muscle. However, given the often ad hoc manner in which development policy has evolved, inconsistencies and conflicts in the policy have inevitably arisen. While some innovation has been shown possible, the cumbersome nature of policy-making has resulted in a development policy which has the interests of member states at heart, with sensitivities of DCs often sidelined. Indeed, the greatest impetus for reform of the EU's external policy has itself been external: the WTO/GATT.

This essay will firstly give an overview of the evolution and expansion of EU development policy. The question of why the EU holds that the principle of subsidiarity does not entirely apply to the subject will be addressed. This will be considered in relation to its aims of "co-ordination" and "complementarity" with

member state programmes. Within this context, the issue of aid will be shown to be of less importance than where the EU has its greatest strength: trade.

This issue will dominate the second section. The EU's most comprehensive preferential agreement with DCs, the Lomé Convention with the African, Caribbean, & Pacific (ACP) countries, will be looked at. Despite the notable aid flows, tariff advantages, and access afforded to them over 30 years, the ACP countries do not seem to have benefited significantly from them. Reasons for this failure will be shown, with particular reference to greater global trade liberalisation. Then, the new approach of the Cotonou Agreement will be briefly discussed, including the political leverage it attempts to introduce.

Finally, the greatest inconsistency of the EU's development policy will be examined: the continued existence of the Common Agricultural Policy (CAP), and its widespread ramifications for DCs. The vast majority of the world's poor are farmers. The gross distortions generated on the world market by such agricultural supports hurt the weakest the most. The exact effects will be treated, as well as WTO pressures for reform.

Overall, this essay will conclude that while the EU does have a role to play in the economic development of the world's poorest countries. However, the lack of "coherence" with other policies, as well as its past failures with the ACP countries, continue to undermine this role.

Evolution of Development Policy

The original basis for the EU's development policy is not what it is today. The focus was on the former colonies of the founding 6 members, and the historical ties between them. Indeed, in 1958, some of the founding members still had colonies. The European Development Fund channelled resources to these areas. With the accession of the UK in 1973, the policy quickly broadened in its breadth, with many English-speaking former colonies attracting funds. The Lomé Convention was established in 1975 as the centrepiece of EU development policy, with its deep trade preferences, commodity protocols, and partnership model. Otherwise, the Generalised System of Preferences (GSP), established in 1971, was intended to open access for other less developed countries.

Evidently, the policy was not one which was at the heart of the EU from its inception, but one which evolved according to short-term interests. As a result, no clear justification or objectives were established. Poverty reduction was sidelined, as political issues were more pressing, such as the need to maintain stability in Egypt and Israel during the Cold War.

However, a number of issues have fundamentally changed the nature of development policy. According to Matthews, old relationships, based on trade preferences and development aid, are being swept away as a result of a number of factors (2004). Most of this change is a result of external forces, however. First, with the event of greater trade liberalisation due to GATT and the WTO, the value of these preferences has fallen. In addition, GATT and WTO rules have forced the EU to abandon its preferential trade agreements as they were discriminatory. The EU has now agreed to “enter into WTO compatible trade arrangements with its Developing Country partners” (Matthews 2004). Pressure from within came from both increasing ‘aid fatigue’ and budgetary pressures.

Distinctive Incompetence

The resulting changes brought forth in the Maastricht Treaty started the re-orientation of the EU’s approach. Here, the application of the principle of subsidiarity was not clarified, with neither the EU nor member states apparently having a distinctive competence. The EU was given the legal responsibility to co-ordinate its development policy in league with member states. The Treaty also espoused to have ‘complementarity,’ ‘co-ordination,’ and ‘coherence’ between all policies of the EU and member states. This may be some fine alliteration, but without guidance on how they might actually be achieved, they seem rather pointless. The addition of the principle of ‘coherence,’ where other EU policies should not be contradictory to its development aims, only serves to highlight the dichotomy of the policy with the detrimental effects of its agricultural policies.

Even now, there does not appear to be a clear specialisation of tasks between common and national development programmes (Cosgrove-Sacks 1999). The impact of the total EU development effort is likely to dissipate with the persistence of overlapping, duplicated, and even conflicting actions. The EU remains “far from effective coordination of national programmes, the definition of joint regional and sectoral priorities, and the elaboration of strategies of assistance to specific countries” (ibid).

However, the EU’s most recent papers on development policy do seem to start to reconcile its role vis-à-vis member states. The prime concentration appears to be its economic and trade powers, which may be used to exact political leverage. Despite being dismissed as a economic giant, but political pigmy¹, political dialogue as a tool is very evident from the mission statement of the Directorate General for Development: “Our mission is to help to reduce and ultimately to eradicate poverty in the developing countries and to promote

¹The analogy was in fact first used in reference to the German Customs Union at the middle of the 19th Century.

sustainable development, democracy, peace and security” (European Commission 2004). However the role of development aid within this framework remains unclear.

Trade not Aid

EU ODA levels remain very significant, with many member states funnelling much of their aid budgets through the EU, such as Italy with 50% (Radtke 1999). The EU distributes this through geographical, thematic, and emergency programmes, each with its own array of sub-programmes and acronyms. Many aid schemes are quite innovative, such as STABEX, which compensates countries vulnerable to commodity price fluctuations.

However, strong growth in its aid budget did not lead to similar human resource growth. Management systems remained complex and divided. At the end of 2000, a €6bn backlog remained in unpaid commitments. Most were paid at the end of the year, raising questions about the accountability and quality of the aid.

Despite the creation of EuropeAid to alleviate these problems, evidence exists that aid programmes are not the most effective way of tackling poverty. Radtke claims ACP states gained more from trade, not aid (1999). For the twelve largest recipients of EU aid, its value represents less than a tenth of the value of their exports to the EU (Dearden 1998). Ultimately, the “development impact of multilateral aid from the Community to the associated countries is uncertain at best” (Grilli 1993).

Given the fact that the EU trade falls unambiguously within its competence, and that it is the world’s largest trading bloc, perhaps this is how it should target developing countries. It is in creating favourable trading opportunities for developing countries where their long-term future lies. But what has been the EU’s experience of this in the past, and what is shaping it today? These questions will now be addressed.

Trade: Preferences, Partners, and Prospects

This section will address the EU’s experience of trade with the DCs. Despite the GSP established in 1971, the centrepiece of the EU’s policy was the Preferential Trade Agreement (PTA) arranged with the ACP countries under Lomé I. At the time of signing, it was hailed as an innovative form of co-operation that would herald a new international economic order (Stephens 2000). Yet ACP

performance has proven dismal. Is it the fault of the PTA, or would it have been worse without it?

The Lessons of Lomé

The objective of the Lomé Convention was to “promote and expedite the economic, cultural, and social development of the ACP states” (European Commission 1990). Based on the notion of equity and partnership, it was hailed at the time as a new order in relations with DCs. The generous access and trade preferences were coupled with commodity protocols, which provided preferential prices, more flexible application of safeguard clauses, and rules of origin (Brulhart & Matthews 2004). However, despite these arrangements, ACP performance has been disappointing. Imports from ACP states into the EU increased from €10.5bn to €18bn in absolute terms between 1976 and 1992 (Radtke 1999). But their relative share of EU imports fell from 6.7% to 3.5% in the same period—they have gone from being the EU’s second most important source of imports to its second least (Stephens 2000). But why has this happened?

One explanation is that despite the potential for welfare improvements, there is an inverse relationship between preferences and trade performance. Commodity protocols have made traditional exports to Europe much more attractive than they otherwise would have been. Guaranteed high prices for commodities like bananas and sugar have dulled ACP efforts to diversify. When demand for primary products began to fall in the EU, the ACP countries were unable to adapt to their economies appropriately. According to Stephens, “the decline in the value of primary trade reflects and, in turn, influences the drastic fall in world prices for most of the ACP’s primary exports over the last decade and a half” (ibid).

Another reason is that with increased liberalisation of international trade, the value of preferences afforded to ACP states has been deflated. The Uruguay round brought about a general reduction in the Most-Favoured Nation (MFN) clause to around 3.9%. This reduced the absolute value of preferences to ACP countries (Radtke 1999).

Liberalisation also began to expose ACP countries. Lomé has long protected ACP countries from international competition from lower cost sources, for example lower cost banana producers in Latin America. The removal of trade barriers meant that the EU could not continue to use its traditional instruments to implement its commitments under Lomé. An attempt to impose a barrier to Latin American countries by preventing them from increasing their market share was found to be against GATT rules. Since the EU defended the Banana Protocol as part of the Lomé Convention, the entire convention became subject to investigations of its GATT compatibility (Stephens 2000).

Cotonou and the Future

It would appear that most policy makers in the EU believe that the Lomé Convention did not bring about sufficient benefits to justify its extension further. The former EU Commissioner with responsibility for development has said that the EU is

“at a turning point....We are witnessing trends towards liberalisation in the world and this will be deepened, so that any system based on preferences and trade barriers is condemned. We gave to find new ways of helping ACP countries” (Cosgrove-Sacks 1999).

The EU now appears to be attempting to create trade agreements with the ACP countries on a geographical basis. However, questions over the compatibility of such agreements with WTO rules still remain. Free Trade Areas are permitted under GATT, Art. 24. The main problem with the EU's preferential accords is that they are non-reciprocal and do not cover all developing countries. Special pleading on the basis of historical precedence to the WTO will not work.

The challenge for the EU, one they appear to be embracing under Cotonou, is to exact more political leverage. This change is not new, and is evident from the mid-term review of Lomé IV: “Respect for human rights, democratic principles and the rule of law...shall constitute an essential element of this Convention,” adding that “the historical and regional approach of EurAfrica, the notion of colonial heritage, has come to an end” (Radtke 1999).

Development cooperation should be conducted at a global level, under the guidance of economic rules determined by the WTO. Economic development and the modernisation of economies is likely to be faster when trade flows freely, and permeates the economy with new sources of knowledge, skill, enterprise, and capital (Cosgrove-Sacks 1999). Since the EU has put poverty reduction at the heart of its development strategy, perhaps the heterogeneity of the ACP states makes it a defunct entity. A new approach should be based on coherent geographical entities, with a trade policy which helps those DCs beyond the reach of Cotonou. However, such a policy must change the EU's greatest dichotomy with development: the persistence of CAP.

Capping CAP

Agricultural interventions have resulted in enormous budgetary costs, huge surpluses of farm products, major disputes with other countries and the

WTO, distorted international markets, and have benefited special interests that are often highly concentrated (Swinbank 1998). Are such interventions merely intended to correct for market imperfections, or are they the result of over-powerful farming and other interest groups in the member states? Such groups have been said to behave like an 800-pound gorilla: “they walk where they want, they sit where they want, and they take what they want” (Rausser 1992).

However, when they sit, it appears that the world’s weakest are the ones to get crushed. The vast majority of the world’s poor are farmers in developing countries. Their product prices are depressed by industrial country farm support programmes. According to the IMF, net exports of farm products on world markets drive down international food prices, hurting especially commodity producers (2002). Protection also imposes substantial long run costs by “inducing countries to specialise in areas that are not to their long run advantage, and by reducing trade and its associated benefits for growth” (ibid).

Herein lays the great contradiction of EU development policy. Policy coherence was enshrined in the Maastricht Treaty. However, CAP continues to undermine and discredit the EU’s development policy. Even the ACP countries faced significant barriers: imports of temperate agricultural products were capped by levies or quotas, despite the fact that ACP countries had a comparative advantage, especially in these commodities. Agriculture continues to be the area where the EU offers the least concessions in trade liberalisation. Local markets and local producers in West Africa, Brazil, Tanzania, Jamaica, and South Africa have all been documented to have been undermined by EU subsidized farm exports (Matthews 2004).

Sweetening Liberalisation

The case of sugar has been highlighted as imposing significant burdens on developing countries. A World Development Report estimated that sugar policies of industrialised countries cost DCs about \$7.4bn in lost export revenue during 1983, and reduced their real incomes by about \$2.1bn. It is estimated that today, DC economies in aggregate could benefit by \$1.1bn (ABARE 2000).

Indeed the potential for gains from agricultural liberalisation in general can result in gains for all. The World Bank estimates that static gains to DCs from liberalisation could amount to \$31bn by 2015. This increases to \$99bn when dynamic gains are considered such as more efficient use of resources and greater returns on capital (IMF 2002). Indeed, such estimates may be conservative given that increased trade is one of the keys to successful development in DCs.

The difficulties of reforming CAP come from within the EU. Proposals must pander to the prejudices of farm ministers through the QMV decision-making process (Swinbank 1998). But pressures for change will more than likely come

externally: any new round of multilateral trade talks in the WTO will no doubt require further reform of CAP. Whether or not they will be sufficient to aid DCs remains to be seen.

Conclusion

Since its inception, the EU's development policy has undergone dramatic shifts in personality. Originally, it was nothing short of a tether between early members and their former colonies. Poverty reduction was not at the heart of its strategy, resulting in a patchwork of policies and agreements, that did not have the long-term interests of DCs at the core. The lack of a clear and definite division of competencies between member states and the Commission caused duplication of resources and overlapping programmes, dissipating the effort of both. Since the EU has a distinctive competence in the area of trade, it is suggested here that that is where it should concentrate its resources, and not in the field of aid distribution, where competencies are ill-defined.

Regarding ACP countries, they performed anaemically throughout its PTA with the EU. The reasons for this include increased global liberalisation reducing the value of the Lomé Convention protocols; commodity barriers established by the EU; rules of origin barriers; and supply constraints within ACP countries. The changes brought about in Cotonou point towards more political orientated policy, with conditions such as democratic and human rights being added. In addition, a more geographic approach is suggested, with a renewed emphasis on poverty alleviation and elimination.

Finally, CAP was briefly discussed, and its sharply contradictory nature with development policy. The detrimental effects it has on the world's poorest were highlighted, including the effects on global sugar producers. This grotesque policy, which has long outlived its usefulness, must be radically reformed if the EU really wants to have a credible development policy.

Overall, the EU certainly has a distinctive role to play in development policy. First it must improve access for the poorest in the world, especially in agricultural terms. Without this, its policy will continue to be undermined. Also, given its vast economic power, it can influence global trade rules, and liberalise markets for the good of DCs. It is in this way that the long-term development of DCs can be achieved.

Bibliography

- ABARE (2000) "Developing Countries: Impact of Trade Liberalisation." *ABARE: Current Issues*, July.
- Brulhart, M. & A. Matthews (2004) "External Trade Policy." in El-Agraa (ed.). *The European Union: Economics and Policies*. London: Prentice Hall.
- Cosgrove-Sacks, C. (1999) "Globalisation, the EU and Developing Countries" in Cosgrove-Sacks, ed., *Globalisation, the EU and Developing Countries: The Challenges of Globalization*. London: Macmillan Press.
- Dearden, S. (1998) "The European Union and the Third World" in McDonald, F. & Dearden S., eds., *European Economic Integration*. Harlow: Longman.
- European Commission (1990) *Lomé, IV*. Brussels: European Commission. Viewed 11 February 2005 <http://europa.eu.int/comm/development/body/cofonou/lome_history_en.htm>.
- European Commission (2004) *Directorate General for Development Mission Statement*. Brussels: European Commission. Viewed 11 February 2004 <http://europa.eu.int/comm/dgs/development/organisation/mission_en.htm>.
- Grilli, E. (1993) *The European Community and Developing Countries*. Cambridge: Cambridge University Press.
- IMF (2002) "How do Industrial Country Agricultural Policies effect Developing Countries?" *World Economic Outlook*, Oct., IMF.
- Matthews, A. (2004) "The EU and the Developing World," in El-Agraa, ed., *The European Union: Economics and Policies*. London: Prentice Hall.
- Radtke, K. (1999) "The Record of Trade Provisions of the Lomé Convention" in Cosgrove-Sacks, ed., *Globalisation, the EU and Developing Countries: The Challenges of Globalization*. London: Macmillan Press.
- Rausser, G. (1992) "Predatory versus Productive Government: The case of US Agricultural Policies." *The Journal of Economic Perspectives*, Vol.6, No. 3, pp.133-157.

DEVELOPING CONFUSION

- Stephens, C. (2000) "EU-ACP after Lomé" in Van Dijck, P. and Faber, G. (ed.). *The External Economic Dimension of the European Union*. London: Kluwer Law International.
- Swinbank, A. (1998) *EU Agriculture, Agenda 2000 and the WTO Commitments*. Oxford: Blackwell Publishers.

ECONOMIC ASPECTS OF TURKEY'S ACCESSION TO THE EU - HOW TURKEY'S MEMBERSHIP IS CHALLENGING THE EU

Stéphanie Jung and Stanislav Kubacek

Socrates Students

Socrates Students Stéphanie Jung & Stanislav Kubacek analyse the effects that the contentious accession of Turkey would have on the EU budget, core policy pillars, and migration flows before evaluating the short- and long-term economic consequences of integration for both parties.

Introduction

On the 17th of December 2004, the European Council decided that accession talks with Turkey would open in October 2005, following the positive recommendation of the Commission. This means that Turkey is formally on the way to joining the European Union (EU) by 2015-2020. By virtue of its size, its potential, and its economic weaknesses, Turkey's membership is likely to pose a major challenge to the community's structure. With its population of 70 million, this poor and agricultural country is, on its own, expected to provoke a shock comparable to the advent of the 10 new members.

Turkey has expressed the will to take part in the European integration since the very beginning of the process. In 1963, European Communities (EC) and Turkey signed an Association agreement that brought stronger economic and commercial cooperation. In 1987, it submitted its first application for membership. This effort amounted to the creation of a customs union with the EU in December 1995. Until recent times, and despite a written democratic constitution, the military and religion have strongly influenced Turkish politics. The economy was also characterised by *dirigisme*. In the 1990s, Turkey was set on the path of liberal reforms in political, economic, and social arenas. It finally obtained the official status of candidate in 1999.

Although accession talks are already scheduled, the prospect of Turkish membership is inspiring large controversies across Europe. None of the previous enlargements were questioned to such an extent about their cost and desirability. In many European countries, people are sceptical about an extension of the EU to a country that is assumed to belong to the Asian continent, and seen as stemming

from a different cultural heritage. Others simply fear that European prosperity and integration would be compromised by a new costly enlargement with uncertain outcomes.

From an economic stance, the matter is usually presented as: "Will it be a shock for the EU?", implying that only Turkey will truly benefit from accession. Yet, we have to be careful not to fall into a purely accounting analysis made up of fixed cost-benefit calculations. The issue calls for a much longer-term study of the dynamic gains of Turkey's integration, on which it is difficult to put a figure.

The purpose of this essay is to give an overview of the main economic challenges arising from the prospect of Turkey's accession to the EU. This analysis will begin with an estimation of the consequences on the EU budget and policies. We will then discuss the nature and scope of integration's expected gains.

The Initial Outlay for Turkish Membership

"On a process as complex as enlargement, one cannot put a price tag" (European Commission 2005). Yet, while negotiating, actors continue to bear in mind the possible cost of membership. Budgetary aspects form a crucial part of the accession negotiations. It is these visible expenditures on enlargement that we will discuss first.

The sources and amounts Turkey will benefit from depend on a number of fluctuating factors, such as the EU policies and the potential specific arrangements agreed as part of accession negotiations. Hence, projections of the cost of Turkish membership for incumbent members are by their nature, highly speculative. The following section modestly attempts to give an idea of the maximum budgetary transfers that Turkey is entitled to receive under current policies.

Three of Turkey's characteristics imply potentially large demands on the EU budget: low income levels, a large population, and the importance of agriculture. Yet, while adding significantly to expenditure, Turkey will pay only a small contribution given the modest size of its GDP.

As things stand at present, the EU budget is dominated by two items: Structural Operations (35%) and the Common Agricultural Policy (42%). The gross receipts of any member country are to a large extent determined by these funds. Evaluating the Turkish inflow in these two areas may allow us to get a good picture of what the Turkish membership represents in terms of budgetary burden.

A major challenge for Cohesion Policy

Turkey's integration will drastically increase economic disparities in the EU. As a matter of fact, its economy today is 2% of EU-25 GDP. Assuming average annual growth of 5%, it would be only 3% of GDP on accession in 2015, whereas its population will already account for more than 14% of the EU-28.

Table 1: Gross Domestic Product -Turkey and the EU

	GDP at Current prices € Million	GDP per head as % of EU25 GDP	GDP per head (PPS)	% of average EU (PPS)
Turkey	191 711.3	1.99	5920	26.9
Romania	48 372.8	0.50	6350	28.8
Poland	202497.1	2.10	10020	45.5
Greece	141334.0	1.47	17030	77.4
Germany	2110400.0	21.91	23940	108.8
New EU 10	444419.5	4.61	--	--
EU25	9622124.8	100	21990	100

Source: Eurostat, 2005.

Turkey's accession would have the effect of diminishing Community GDP per head, which fell by 12% at the time of the 2004 enlargement, by a further 9%. Besides that, it has to be borne in mind that the different regions within Turkey deviate a lot from one another in terms of per capita income¹. This means that the EU is going to integrate many very poor regions. As one can imagine, the accession of Turkey would then represent a major challenge for cohesion policy. Indeed, on the basis of present rules, the whole Turkish territory would qualify for significant support from the Cohesion and Structural funds for a long period of time.²

Yet subsidies are to be limited as a result of regulations confining the amount that a recipient country can draw from structural funds, to a maximum of 4% of its own GDP. This allows a quick assessment of the ceiling of Structural Funds Turkey could receive. It is assumed that, given its lower level of development and its current growth rates, Turkey will grow more quickly than the EU average over the next decade. So, following Dervis, Gros, Oztrak and Isik, we can suppose that the Turkish GDP would increase to 4% of the EU-28 GDP by 2015 (in comparison with today's 2% share) (2004). This implies that extending current Structural Funds to Turkey would cost at most 0.16% of EU-28 GDP

¹ The poorest regions (in eastern Anatolia) report income per head around one-fifth that of the richest regions (in the Marmara – Istanbul region).

² Even in the case of new rules, the critical income gap with the EU average implies that Turkey is likely to broadly benefit from European Structural Funds.

(0.04*0.04). The European Commission reached the striking estimation of €22.4bn per year (2004 prices).

Structural Funds are intended for poor regions, defined as having a per capita GDP lower than 75% of the Community average. This means that enlargement will amount to a deterioration of the current member states' budgetary positions. Greece and Spain may not qualify for aid anymore, and the UK rebate is being questioned. In fact, the accession of Turkey, together with that of the Balkan countries, may require reform of the entire funding system. More than ever, the EU will have to strike a difficult balance between solidarity and budgetary constraints.

A decisive impact on the Common Agricultural Policy

Turkey is essentially an agricultural country which is considerably less developed economically in comparison to the EU. This basically means that (i) Turkey will have to catch-up and secure full transition and (ii) the EU will have to provide income support mechanisms.

A competitive gap and a less protected market³ will mean a substantial income loss for Turkish farmers. Continuous rural development efforts and an upgrading of administrative capacity would be required from Turkey to create as favourable conditions as possible to participate in the Common Agricultural Policy (CAP). With this in mind, support for structural changes in Turkish agriculture and food industries is to be given before accession, so that when it joins it can cope with competitive pressures⁴.

Concerning the likely funds that Turkey may receive as part of agricultural policy, estimation is more complicated and uncertain.⁵ Dervis, Gros, Oztrak, and Isik suggest that we start from the rate of support to farmers of the former EU-15, which is globally around 20% of their value-added (2004). So, assuming as before, that the Turkish economy accounts for 4% of EU-28 GDP and that agriculture contributes 10% to this,⁶ the cost of providing an equivalent rate of support for Turkish agriculture would be 0.08% of EU-15 GDP ($0.2*0.04*0.1$).

³ The customs union has existed since 1995 but barriers remain on agricultural products.

⁴ This assistance is given through the EU's Programme for the Support of Agriculture and Rural Development (SAPARD)

⁵ One has to assess the output structure of Turkish agriculture in about a decade, and then calculate to what extent this would change if Turkey participates in the CAP. This leads to an excessively complex operation, because we have to take account of the entire input/output matrix.

⁶ Agriculture produces at present around 12% of GDP in Turkey, but taking into account that its share has been declining continuously over the last decade, a reasonable assumption might be that in about a decade, agriculture will account for about 10% of Turkish GDP at maximum.

The number calculated above is an upper limit. In fact, the CAP is likely to change over time, inter alia, because of the commitments made in the context of the WTO to abolish exports subsidies. In addition, it has already been agreed within the EU that the cost of the CAP should rise by less than 80% of the increase in nominal GDP. This implies that the cost of the CAP as a percentage of EU GDP has to fall over the next decade. Depending on the overall growth rate of the EU, the cost of the CAP is thus likely to be less than 0.4% of the GDP. Moreover, since any single country is not likely to get more than one quarter of this sum, it is clear that the cost of extending tomorrow's CAP to Turkey cannot be more than 0.05-0.1% of the EU's GDP. This amount of CAP subsidies that Turkey would receive has been estimated by the Commission at €8.2bn per year.

In summary, the accession of Turkey means that considerable expenditures will have to be made in agriculture and that the income of the founding countries' farmers will be further reduced. It is expected that Turkey's accession, together with the 2004 enlargement, will add to internal pressures for a reform of the CAP.

A trigger to budget reform?

According to Dervis, Gros, Ostrak and Isik, the gross cost of Turkey's membership might altogether amount to 0.26% of EU-28 GDP (2004). We have now to look at Turkey's contribution to the EU budget.

A country's contribution comprises a share of VAT revenues, customs duties and GNP. At present all member states contribute to the EU budget at the same percentage of GNP and overall contributions are more or less proportional to countries' GNP. Assuming that the EU budget will continue to be limited to around 1-1.2% of GDP, and under the assumption made so far that the Turkish GDP represents about 4% of that of the EU-15, Turkey's contribution to the budget will amount to around 0.048% of EU-15 GDP, that is around €6bn according to the Commission. Then, under current policies, the *ceiling* for the net cost should be around 0.20% of EU GDP, equivalent to about €20bn given today's EU GDP of around €10,000bn. We should also add to this assessment the costs brought by special internal policies in Turkey, additional administrative costs (e.g. new translation services) and the pre-accession financial aid, which may reach €2.6bn according to the Commission.⁷

The Turks insist on the high level of uncertainty and methodological difficulties associated with these forecasts. It is not only Turkey, but also the EU

⁷ Now the schedule for the start of negotiations is set (next autumn), Turkey will benefit from different pre-accession instruments such as SAPARD (support to structural change in agriculture), ISPA (concerning infrastructure), and substantial amounts of funding for democracy-building as was the case for central and eastern European countries with the PHARE programme.

that is evolving and changing constantly. It is obviously impossible to predict with any accuracy what the budgetary rules will be in ten years' time. Available studies give varying estimates of the net budgetary cost of Turkey's accession. The European Commission estimated the overall cost at €25-28bn per year for the first ten years of integration, assuming Turkey is to be integrated in 2015.

We can conclude from this analysis that Turkey's membership implies a substantial or even unbearable budgetary cost for the EU under current policies. Also, the rules for both Structural Funds and CAP are likely to become more restrictive. Many commentators argue that the EU should take advantage of this second enlargement (that should include Turkey and Balkan countries) to review the whole system. As a matter of fact, the biggest contributors are seeking to limit their contribution to 1% of the EU GDP. There is hardly room left for more generous policies, at least for the financial perspective 2007-2013. If Turkey is to be integrated, the EU budget design will need to be vastly overhauled.

The prospects for immigration flows

The demographic size and the relative poverty of Turkey are factors giving rise to concerns about likely immigration flows and 'social-welfare tourism.' In fact, the entrance into the EU means the removal of all barriers to free movement of labour. The European labour market may be flooded with millions of unskilled Turkish workers. If substantial and uncontrolled, these immigration flows could lead to important disturbances in the EU labour market.

As theories of migration argue, a major incentive to move is a real income differential. However, it has to be noted that it may not merely be that the same job will be better paid in the EU; it may be that the person moving will be able to get a better job with higher pay. The direction of migration flows will also be impacted on by the location of existing Turkish communities in Germany, France, Netherlands and Austria.

The effect of migration on GDP will obviously differ with the skill level of migrants. If migrants are mainly unskilled, unskilled workers currently residing in the EU may lose out, while both the Turks who stayed and the Turks who moved will benefit from an increase of wages. On the other hand, the migration of highly skilled workers cannot be regarded as an unwanted phenomenon for Europe, while Turkey could face a significant loss of human capital. A number of researchers have come up with estimates of potential migration. Studies on the implications of enlargement for migration vary considerably and are based on very different methodologies. Depending on which method is followed, anywhere between 500,000 and 4.4 million migrants are to be expected by 2030. At this stage it is very difficult to forecast the level and the structure of these flows.

Current rural-urban migration in Turkey may contribute to a trend of unskilled rural Turks migrating to EU labour markets. Yet if economic expansion advances sufficiently rapidly and is accompanied by adequate employment policies and job creation, developing growth areas such as Istanbul and Koecali could absorb a large part of these rural migrant flows. Other counter-arguments can be put forward. Commentators emphasise the relative stability of overall migratory pressures independent of accession. Additionally, the Spanish, Portuguese, and Irish cases where people were actually seen to have returned once their home economies prospered must be recalled. Opinion polls have been taken on this issue and confirm speculation⁸. In any case, the issue of migration is subject to negotiations. Despite the Rome Treaty's free movement of labour provision, the Commission and the Council agreed that a very long transitional period and even a permanent safeguard may be required.⁹

The accession of Turkey to the EU means an important commitment by Europeans to substantial expenditure, even after a necessary reform of the EU budget and policies. The costs for Turkey, on the other hand, are smaller. However, positive effects can also be expected for both.

Important short-term gains for Turkey; Positive long-term perspectives for both parties

It is easier to identify the immediate costs of enlargement, rather than long-term gains. And, in the case of costs it must be emphasised that the numbers put forward are only estimations. Since models utilise many variable factors, there is scope for both very pessimistic and optimistic viewpoints. Let us begin by presenting the gains Turkey could expect. We will then overview potential benefits to the EU, bearing in mind the risks of such estimations.

EU membership is economically positive for Turkey as it will bring EU funds, new market opportunities, and increased competitiveness

Since 1990 Turkey has made sweeping liberal reforms, both in political and economic arenas, but there is still a long way to go to reach European standards. The prospect of membership could boost and consolidate Turkey's transformation.

⁸ See for example the Europe Monitor-CEPS Turkey poll made in May 2004, according to which 60% of Euro-Turks would like to return to Turkey once it becomes an EU member.

⁹ It is the first time that the option of permanent conditions is foreseen.

The EU and Turkey signed a treaty of enhanced cooperation and customs union in 1995, which commits the EU to limited financial support. Further on, EU membership would mean a considerable increase in funds for Turkey, even allowing for EU budgetary and policy reviews.

For Turkish firms, membership means fuller access to the vast European market. The establishment of the 1995 customs union led to only a small increase in trade between Turkey and the EU. In particular, intra-branch trade has been disappointing. The advent of membership, with the prospect of a full removal of administrative and non-tariff barriers, would provide new opportunities to trade creation, though agricultural markets will remain regulated. In addition, the expected diffusion of technology following market integration will benefit Turkish industry and increase competitiveness. As Viner and Meade's theory (cited in El-Agraa 2004) shows, regional economic integration allows greater gains when economies are competitive and diversified.

Pre-accession reforms can reaffirm Turkey's international credibility, help restore its economic health, and attract FDI

Now seems the right moment to support Turkey as it recovers strongly from the 2001 crisis. Turkey is succeeding in stabilising its macroeconomic indicators after a long period of irregular performances and crises. Inflation has decreased to one-digit numbers for the first time ever since 1972. GDP continues increasing by rates above 10%, with a peak of 13.6 % in the second quarter of the last year. At the same time, unemployment has fallen to 10%. Turkey also reached a new agreement last year with the IMF on a three-year \$10bn economic programme that will, according to the IMF's managing director Rodrigo Rato, "help Turkey... reduce inflation towards European levels, and enhance the economy's resilience" (Rato 2004). It also offers indirect proof of Turkey's credibility and an approval of its reforms by international institutions. The EU itself has taken partial responsibility for supervising the financial sector in order to enhance the economy's resilience. Enhanced financial sector credibility will reduce risk premia and attract greater investment. Indeed, previous irregularity along with red tape and corruption have been the main reasons for the country's dismal failure to attract much needed Foreign Direct Investment (FDI) flows, which last year reached scarcely \$1bn. With recent changes, this tendency should be corrected. The efforts required from Turkey to join the EU in terms of meeting the 'Copenhagen criteria',¹⁰ and fully implementing the *acquis communautaire*¹¹

¹⁰ The Copenhagen criteria are: democratic institutions and rule of law; competitive market economy; and ability to take on the obligations of membership

are the same efforts that most attract FDI. In addition, the prospect of EU membership also provides Turkey with enhanced credibility on an international level. Moreover the prospect of EU membership enhances Turkey's strategic position; as investors perceive the combined benefit of low labour costs, relatively well-educated workers, and access to the European market. In these circumstances, the benefits of FDI flows may spill over into the EU by accelerating economic convergence.

For Turkey, the benefits from EU membership are quite clear and this explains their strong willingness to join as soon as possible. However, for existing EU members, the gains seem more opaque and conditional.

Both EU and Turkey will gain in the long-term from enlargement

Turkey is often presented as a large, poor country which will swallow up the better part of the EU budget. The total cost of the 2004 enlargement, incorporating ten central and eastern European countries was little more than €40bn and involved significant trade gains and economic opportunities in return. With hindsight, we may even see it as self-financing because of net welfare gains on both parts. If truth be told, Turkey has more in common with an emerging economy than a transitional one. Central and Eastern European Countries (CEEC) have been faster and more conclusive in their economic reforms. The gap between social classes was not so great. Populations were generally better educated and economies relatively more industrialized. Recent Turkish stabilisation has not lasted long enough to prove that the new economic growth will allow it to catch up with current EU members. Still, Turkey's major economic indicators can be compared to those of Balkan countries in relation to whom membership is almost unquestioned; and is similar to the CEEC economies fifteen years before the 2004 enlargement.

¹¹ This increases the well-being of the economy, thanks to more fiscal rigor, less corruption and more transparency.

Table 2: Comparison of indicators in the year preceding the opening of accession negotiations (Turkey in 2003, Bulgaria and Romania in 1999, Poland & Slovenia in 1997)

	GDP per capita (€)	Budget balance (% GDP)	Debt (% GDP)	Inflation (%)
Turkey	6256	-8,8	87,4	18,4
Bulgaria	5120	-0,9	79,3	7,0
Romania	4980	-1,9	24,0	54,8
Poland	7410	-2,6	44,0	13,2
Slovenia	12600	-1,2	21,6	8,8

Source: Independent Commission on Turkey (2004)

The EU should then profit from similar gains as those from the last enlargement, although Turkey's accession has specific advantages and dangers also. For example, the fact that trade between Turkey and the EU would further increase substantially can be questioned. As the EU and Turkey form a customs union, they are more commercially integrated than the EU was with the CEEC in the early 1990s after the fall of the Iron curtain. Since then, commerce has grown rapidly between EU and CEEC, whereas it still remains relatively low between EU and Turkey. In 2001, EU products represented 49% of Turkish imports while the EU represented a share of 53% of Turkey's exports. Turning to the CEEC, 60% of their exports are destined for the EU. But in terms of GDP, trade with the EU represents 48% of the GDP for the CEEC against just 20% of Turkey's GDP. Turkish products are certainly generally less competitive than those from the CEEC, so it is more difficult for them to make their way into European markets. Still, trade is growing, if not rapidly, at least steadily, and according to the European Commission's reports, there is no reason why this tendency should reverse. Moreover, with more investment, closer ties, and the removal of remaining barriers, exchanges can only be expected to increase. Acknowledging that Turkey is a market of 70 million consumers and is still growing, with strong economic growth, it represents an enormous market and a significant long-term opportunity for European firms.

If Turkey accedes to the EU and gains greater international credibility, it will surely use EU funding, FDI, and other investment flows to improve infrastructure and modernise industry. This also represents an enormous opportunity for European construction and engineering firms. Turkey has enormous mineral and raw material reserves and has a strategic position in the crude oil transit network. These factors would be valuable additions to the European strategic resource position. Its cultural links and geographic position opens doors for Europeans into new markets in the Middle Eastern world for

example, European firms based in Turkey supplying the wider Middle East area. Turkey's adhesion is therefore clearly in the interests of the European export, construction and engineering sectors. Moreover, integration may bring economies of scale resulting from increased production due to the extension of the market. As well as the initial benefit to capital owners profits and equity valuation, we might presume that households would also realise downstream benefits from the capital accumulation after some time.

In the short term, the growth benefits of Turkey's integration are small for the EU. Nonetheless, if Turkey develops rapidly, accession could prove advantageous. Turkey's probable high economic growth in the following years will contribute strongly to overall EU growth. Moreover, Turkey has a significant demographic advantage over the existing EU members. Its large, young and growing population will be a positive asset for a European economy burdened by the increasing weight of its ageing population. Migration could contribute to stemming declining growth potential and rejuvenate the European labour force.¹²

EU support for Turkish reforms: a condition for mutual gains

The gains outlined above are dependant on many factors, and it is clear that the EU would gain most by limiting itself to administrative, political and economic engagements. Turkey's circumstances remain volatile. Even if economic growth remains strong and inflation controlled, fiscal and budgetary rigor still does not yet meet EU standards and represents a source of risk. The outcome of enlargement and the mutual gains from convergence rely to a large extent on the continued implementation of reforms, especially those increasing the growth of mutual trade, investment and productivity. A strategy of utilising economic incentives and rigorous enforcement is needed if the size of the informal sector is to be reduced.¹³ This must be accompanied by less onerous regulations in product and labour, markets, a simplification of administrative procedures, a shift away from the tax burden on labour and decrease of social security charges. Privatisation should be further supported so as to increase economic efficiency. Increased investment in human capital (i.e. increased education and training) is also desirable in order to increase competitiveness and would help in attracting FDI inflows. Turkey has started to implement the *acquis communautaire* since the negotiation of the customs union. The country has successfully pursued liberal reforms and the financial sector is stabilizing. Executive power and the judicial system also work more transparently and effectively now, according to the

¹² In this respect, the EU has a strong interest in that reforms and investments should be made in Turkey for education and training over the next decade.

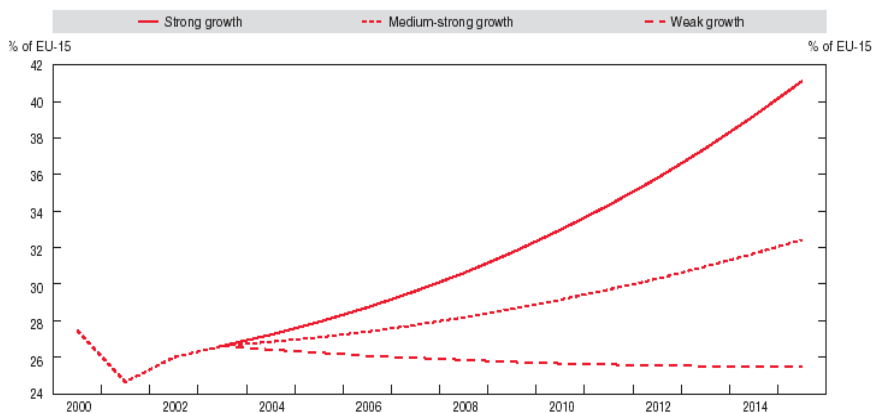
¹³ The informal sector is huge in Turkey and could cover up to the half of the national economy according to the European Commission's report.

ECONOMIC ASPECTS OF TURKEY'S ACCESSION TO THE EU

Independent Commission on Turkey (2004). But these positive steps need firm support to be converted into sustainable growth and macroeconomic stability.

Figure 1:

Turkey's income level relative to the EU-15 under alternative growth scenarios
Per capita GDP, in purchasing power parities



Source: OECD 2004

Conclusion

This analysis has shown that the fears of large negative economic repercussions following Turkey's accession are exaggerated. It is true that this enlargement entails substantial budgetary costs for the EU, yet Europeans could also take advantage of new market opportunities and the benefits of Turkey's demographic profile in the long run. Turkey remains the greater beneficiary of integration. It should expect high growth and gradual convergence to European living standards following its entry into the common market.

If enlargement is well handled, it could result in reasonable benefits for both parties. However, Turkey's accession is not an exchange of goods and services with finite, established terms. One can see it as an investment with an initial outlay, variable gains, and an acceptable risk factor. In addition, Turkey's accession represents an opportunity to accelerate the reform of EU structures and policies.

Finally, when addressing the question of membership, we must remember that other pertinent issues are at stake. One can cite concerns about the Cyprus

dispute, the treatment of the Kurdish minority, recognition of the Armenian genocide, and basic human rights such as freedom from torture and freedom of expression. In addition, we should never forget that the EU is also a political project, and that joining it means much more than complying with economic criteria.

Bibliography

- Barnes, I., Barnes, P.M. (1995) *The Enlarged European Union*. London: Longman.
- Brehon, N.J. (11th February 2005) "Le Coût De L'adhésion Turque," *Le Monde*.
- Centre D'études Prospectives Et D'informations Internationales (2004) "La Lettre Du CEPII," September, No.237.
- Centre For Economic Policy Research (1992) *Monitoring European Integration: Is bigger better? The Economics of EC Enlargement*, Ed. CEPR.
- Chaponniere, J.R., Boillot, J.J. (2002) "La Turquie Et Les 12 Autres Candidats A L'ue," *Revue élargissement spécial Turquie*. PECO, No 24, DREE.
- Dervis, K., Gros, D., Oztrak, F., Isik, Y. (2004) "Turkey And The EU Budget," *EU-Turkey working paper No.6, August*, Centre for European policy studies, Brussels.
- El-Agraa, A.M. (2004) *The European Union: Economics And Policies*. London: Prentice Hall.
- Euractiv (2005) <<http://www.euractiv.com>>.
- European Commission (2004a) "Issues arising from Turkey's membership perspective," *Staff working document COM2004-656 Final*, Brussels: European Commission.
- European Commission (2004b) *Regular report on Turkey's progress Towards Accession*. Brussels: European Commission.

ECONOMIC ASPECTS OF TURKEY'S ACCESSION TO THE EU

- European Commission (2005) *Enlargement FAQ*. Brussels: European Commission. <http://europa.eu.int/comm/enlargement/intro/Index_en.htm>.
- Eurostat (2005) <<http://www.eurostat.eu.int>>.
- Hughes, K. (2004) "Turkey and the European Union: Just Another Enlargement? Exploring the Implications of Turkish Accession," *Friends of Europe Working Paper*, Brussels.
- Independent Commission on Turkey (2004) *Report of the Independent Commission on Turkey*. Brussels: The British Council, <<http://www.independentcommissiononturkey.org/report.html>>.
- Lejour, A.M., De Mooij, R.A., Capel, C.H. (2004) *Assessing The Economic Implications Of Turkish Accession To The EU*. Cpb Document No.56, The Hague: Bureau For Economic Policy Analysis.
- MacAulay P. (2003) *Enlargement Update March 2003*, Institute Of European Affairs.
- OECD (2004) *Economic Survey of Turkey*. Paris: OECD.
- Olivier, L. (2004) "Comparaison Turquie-Pays De L'élargissement," *Revue Elargissement*. No 69 Dree.
- Prodi, R. (2004) *Presentation of the Commission's Report and Recommendation on Turkey's Application*. European Parliament, 6th October, Speech 04/440.
- Rato, R. (2004) *Statement by IMF Managing Director Rodrigo Rato on Turkey*, IMF External Relations Department, <www.imf.org/external/np/sec/pr/2004/pr04265.htm>.
- Tausch, A. (2003) "Social Cohesion, Sustainable Development and Turkey's Accession to the EU," *Turkish Journal Of International Relations*. Alternatives, Vol. 2, No.1.

HOW MIGHT AGRICULTURAL TRADE LIBERALISATION AFFECT WELFARE IN THE LEAST DEVELOPED COUNTRIES?

Kate Bunworth

Senior Sophister

The intractable controversy surrounding agricultural trade liberalisation is examined in this essay. Kate Bunworth outlines the effects, both positive and negative, that an opening up of the market will have on LDCs. She concludes that, though there will be losers, trade liberalisation is a necessary, if insufficient, condition for economic growth in LDCs.

Introduction

Protection in agriculture by developed countries is still quite high, and so remains as a continuous constraint on developing and least developed countries. Since most developing countries have a disproportionate percentage of their resources in agriculture, a more open world agricultural market would allow them greater opportunities to increase their exports and to participate more in this era of globalisation. However, despite the net economic and social benefits of reducing most of the governments' subsidies and opening economies to trade, nearly every national government intervenes in the markets for goods and services, which has distortionary effects on international commerce. They are not only particularly harmful to the world's poorest people, but they also harm the economies that have imposed the barriers in the first place. In this essay I will look at some of the possible effects that the liberalisation of agricultural markets would have on the least developed countries (LDCs) in the world. First, I will look at why developed countries oppose trade liberalisation, which significantly effect LDC markets. I will then look at the possible effect of trade liberalisation in general. Thirdly, I will look at the direct effects that trade liberalisation will have on LDCs. I will then focus on the effect that trade liberalisation would have on certain products relevant to LDCs. Finally, I will look at what is being done now in relation to trade liberalisation.

The Opposition to Trade Liberalisation

Most developing countries' agricultural export markets are in the North. On average, Northern countries import 65% of developing countries' total agricultural exports. With the exception of rice, the North, especially the U.S. and Canada, dominates world grain exports. Non-grain exports such as fruit, vegetables, and cotton are largely the domain of LDCs. When we exclude intra-EU trade, developing countries account for up to 80% of world exports of these commodities, most of which are exported to the North (Diao et al. 2002: 1). This means that the exports from developing countries do not compete directly with the exports from developed ones, which means that trade liberalisation should not directly damage developed countries' export markets. Also, by introducing trade liberalisation, exports from developing countries should increase.

Despite the fact that developed and developing countries do not directly compete with their exports, it is commodities such as vegetables, fruit, and cotton (commodities that LDCs specialise in) that developed countries tend to erect barriers to. This means that there will be increased access to developed country markets for the commodities of developing countries due to the reduction in barriers. This would hopefully compensate for the increase in the prices of imported goods.

The reluctance to reduce trade distortions and liberalise the market is almost never a result as such a reform would involve the government having to hand over even more money. On the contrary, except where we find low-income countries where there is still heavy dependence on trade taxes for government revenue, a policy reform of this kind will actually benefit government revenue because it raises income and consumption tax revenues more than the fall in trade tax revenues. Additionally, they do not have the significant burden of having to pay subsidies. In 2001 the total transfers from consumers and taxpayers to farmers averaged around 30% of gross farm incomes, cost over \$300bn, which is equal to 1.3% of GDP, and was six times the amount of overseas development aid given in that year (IMF 2002: 81). We are giving more money to help animals and to keep land safe from high-rise buildings than we are helping other human beings. A disgusting statistic is the fact that each of the 21 million cows in the EU is subsidised by \$2 a day, while half the world's population live on less than \$2 a day. How can we justify spending more on a cow than on a human life, especially when we in the EU produce so much excess food?

The main reason why governments are opposed to trade liberalisation and cuts in subsidies is because they could redistribute jobs, income, and wealth. This is not a bad outcome and could in fact lead to a more equal society. However, the redistribution of income could alienate some of the electorate, especially powerful businesses that are supporters of the government. The government fears that, if

they reduce trade distortions, their chances of remaining in power are significantly reduced (Anderson et al. 2001: 2). Also, for governments in corrupt countries, liberalisation itself could reduce the level of the government's wealth.

Trade Liberalisation in General

It is estimated that if there was a further liberalisation of 50% on what we have now, then there would be a \$53bn annual increase in global GDP by 2010, using the counter-factual as the alternative (ABARE 2000: 1). When we look at the possible effects of liberalisation it seems as though it is a major worldwide problem but, in fact, a small number of countries in the North cause most distortion in world agricultural markets, especially the EU and US. The elimination of import tariffs should increase the demand for imports and, at the same time, domestic agricultural supply should contract in these developed countries. Also, most developed countries use some form of domestic support policies, which encourage excess production. By reducing or eliminating these domestic subsidies, farm incomes in those countries would fall (Diao et al. 2002: 5). These factors lead to the beliefs that trade liberalisation would lead to price rises. According to some models, by eliminating agricultural tariffs, domestic support and export subsidies worldwide, agricultural prices would increase by about 12% (Diao et al. 2002: 4). However, this is only a static analysis so it doesn't take account of investment responses to the change in prices or how the development of new technologies might take place because of this increase in prices. Those effects are taken account of in a dynamic analysis, which looks at the long-term effects. The static gains in welfare to the world economy are valued at \$31bn. Unfortunately it is the countries that had the highest levels of distortion initially that make the most gains, with developed countries receiving \$28.5bn from a full policy reform. In contrast, most of the dynamic gains should go to emerging and developing countries, with developing countries' welfare increasing by around \$21bn annually (Keeney 2004).

Although we can see that developing countries benefit from the liberalisation of developed countries, gains also accrue to the developed nations from lifting their own restrictions. Some of the major producing countries such as the LDCs in Sub-Saharan Africa benefit to a lesser extent because local producers generally receive relatively lower levels of protection. For Sub-Saharan Africa (SSA), it is thought that the benefits from the removal of agricultural support in developed nations are greater than the benefits if developing countries were to remove their support. This is due to the fact that developed countries generally have a higher level of protection against SSA exports. However, if all developing countries liberalise their agriculture, the terms of trade for SSA would deteriorate,

which lowers the efficiency gains from liberalisation. This is because both developing countries and SSAs export much of the same products so liberalisation by these countries causes the prices of their exports to fall in comparison with SSA's export prices (IMF 2002: 86).

If the international agricultural market was more open, then there would almost definitely be an increase in export opportunities among LDCs. But, because they are importers of food grains and meats, some of these countries would more likely experience a rise in food prices. For most LDCs grains and/or meat account for over 20% of their total agricultural imports. Many of the net food importing countries are poor and among the less developed, so that food expenditures account for a significant portion of household budgets (Diao et al. 2002:12). Therefore high-priced food imports caused by agricultural liberalisation may hinder food security, which is something I will look at in greater detail later.

The ways in which global trade liberalisation might affect LDCs

Benefits from domestic policy reform

As I have said, it is important for countries to reduce their own barriers to entry. However, gains from liberalisation can be unequally distributed within a country with larger export-oriented farms benefiting at the expense of subsistence farms or import-competing crops. There is also the assumption here that countries are actually able to increase their supply to take advantage of these new opportunities, which may not be the case, especially for LDCs.

Terms of Trade effect

Trade liberalisation would lower the world prices faced by exporters due to increased competition, which would be to the detriment of LDC exporters and of benefit to LDC importers.

Dynamic effect through induced innovation

While this is ignored by the static gains approach, using the dynamic approach we can see that technical change could be induced as expected levels of profitability rise.

Full multi-sectoral liberalisation

Agricultural liberalisation may have negative impacts through overvalued exchange rates and there could be possible higher protection in non-agricultural sectors. Here, LDCs may face lower domestic prices because countries may currently keep domestic food prices higher than international levels through higher protection. It is true that removing these distortions will reduce farm incomes and urban households will benefit from lower food prices. However, food self-sufficiency will fall, and it is this fall in both farm earnings and food self-sufficiency that provides the focus of attention for those who argue that agricultural trade liberalisation is bad for poor households (Anderson et al. 2001: 33).

Policy effects

The adverse terms of trade effects arise because LDCs have become net importers of temperate zone foods. The fact that there are lower world prices may cause LDC governments to focus on cheap food policies, which would discriminate against domestic agriculture. However, if world prices were higher, LDCs would reverse the discrimination that they imposed on their own agricultural sector through overvalued exchange rates, compulsory purchase requirements at low official prices, and the neglect of agricultural research. This would then cause food self-sufficiency to rise. However, critics have claimed that this places too much weight on the role of the external environment and ignores domestic policy reasons as to why cheap food policies were used in the past. These critics say that there is greater instability in world markets, which LDC governments recognised and therefore sought to rely more heavily on domestic production for food security reasons (Keeney 2004).

Stability effect

How trade liberalisation will effect the stability of world prices is ambiguous. It is not as simple that removing protection and allowing world prices to be transmitted to domestic markets will stabilise world prices (i.e. the elasticity effect). It is not as simple as removing protection and allowing world prices to be transmitted to domestic markets and so stabilise world prices, which is known as the elasticity effect. This effect could be outweighed by other factors: 1) Governments would no longer have an incentive to hold surplus stocks, which have helped to stabilise prices before. However, the private sector may hold larger stocks than in the past and privately held stocks can be more sensitive in responding to world price fluctuations. This is known as the stock-holding effect,

of which the net result is unclear; 2) When agriculture is liberalised, there could be a reallocation of agricultural production from high-protection to low-protection countries. This may also mean a shift in production from low-risk to high-risk areas of the world, which is known as the production effect.

If the elasticity effect dominated, then trade liberalisation will stabilise world prices, which should benefit both LDC exporters and importers. Then, if there was greater stability, countries could take advantage of the trade opportunities due to their comparative costs (Keeney 2004).

Preference effect

Some LDCs have access to higher prices from developed countries for some particular exports under a preferential agreement and so they currently benefit from the quota rents that they obtain by selling some of their exports at higher prices. As a result, the liberalisation of trade would mean that these LDCs would lose out because they are now receiving lower prices for their exports. The loss of preferential agreements could also cause significant adjustment costs that poor countries would have to try to deal with. These preferential agreements have entrenched dependence on the supported activities and have not addressed major areas of need in the supplying countries. This means that some of the small countries that are very dependent on preferential access to the EU and US in some markets, such as sugar, may lose out from liberalisation. However, the aid provided by the EU and the US could be redirected to make it more beneficial to the recipient countries that currently avail of commodity specific aid-through-trade (ABARE 2000: 3). However, these preference agreements may be harming many other equally poor LDCs, which can be seen from the EU's banana import policy. Also, these preference schemes reduce the capacity for developing countries as a group to press for more access to developed country markets. If the preference schemes had not been offered in the first place, developing countries may have negotiated much better deals in previous GATT rounds (Anderson et al. 2001:20).

Food security and Food Aid effect

Some LDCs receive food aid on very favourable terms or for free, which could be seen as dumping by the rich on the poor. However, if agricultural liberalisation reduced food stocks, as I said before, then the volume of food aid to LDCs could also fall. Trade liberalisation would lower barriers to trade on the part of LDCs and there would be an extension of trade policy reforms to sectors in which these LDCs are likely to enjoy some comparative advantage, thereby raising income levels and purchasing power. Producers in LDCs, who must compete now against developed country export subsidies or who cannot access developed

markets due to high trade barriers, would benefit if distorting measures were removed. However, food-insecure importing countries that benefit in the short-term from lower import prices resulting from developed export competition measures may face higher import prices if such measures are further disciplined. Trade liberalisation encourages deeper market penetration so that more regions within LDCs can choose food self-reliance instead of being forced to attempt food self-sufficiency. In the absence of trade opportunities, then the food security of individuals in these regions may also be improved.

As you can see, food security is, and has to be, a great concern of the world's poorest countries, especially those who are dependent on food imports where there are fears that by reducing subsidies and protection the price of imports will rise. This can seriously damage a country's food security when a country has a very limited budget with which to buy food. However, if a rise in prices is transmitted domestically throughout the poorest countries, the majority of the people in these countries will benefit because the very poor are predominantly found in farm households and are net sellers of food. We can even take this a step further and say that even those who are landless and so are net buyers of food in these poor countries will benefit because an increase in agricultural prices will cause an increase in the demand for unskilled farm labourers due to the rise in supply which would hopefully offset the rise in food prices in rural areas.

The Effect of Trade Liberalisation on specific products relevant to LDCs

The removal of support on rice, refined sugar and wheat would result in an increase of 2 to 8% in world prices. A few countries, including some poor countries that are exporters, as well as some rich countries, can make substantial net gains. The major losers are mainly small islands in the Middle East and North Africa, who are net importers and also some who currently enjoy preferential access to developed country markets (IMF 2002: 89).

The liberalisation of beef would increase world beef prices by around 7%, which would benefit some rich and some poor countries. The main beneficiaries are the middle- to upper-income countries in Latin America, while the loser from the liberalisation of beef would include a number of low-income countries that have to import their beef (IMF 2002: 89).

Milk and milk powder are subject to very high levels of support in developed countries, as can be seen in the example of Jamaica. Here, there has been a long history of milk production in rural communities and resources of land, labour, water, and livestock but now the dairy farming sector is in rapid decline

due to unfair competition from subsidized milk powder. Dairy farmers do not have an alternative activity to keep their land in agricultural production. The declining dairy industry is seriously contributing to the economic pressures being experienced in rural communities resulting in urban drift and inner city crime. Increased food imports and the negative impact this has on the balance of payments also makes Jamaica more vulnerable to external shocks and has a detrimental effect on Jamaican food security. As a result of the high supports, liberalisation would lead to an increase in world prices of 23%, which would be of benefit to any Jamaican milk producers that have survived. As in the case of beef, the main countries that would gain are middle- to high-income while developing countries, including many poor ones, lose out.

What is being done now?

The EU has recently introduced the “Everything but Arms” (EBA) initiative, which provides duty- and quota-free access to the EU for LDCs. This initiative was received at the WTO Ministerial in Doha in November 2001. It may sound liberal but it doesn’t include trade in services, of which the movement of people would be most important to LDCs. Also a number of provisions are included in addition to the EU’s anti-dumping measures. Access to bananas, rice, and sugar is only to be phased in gradually over this decade (Anderson et al. 2001: 19).

The World Bank study for Sub-Saharan Africa, and the effects that the recent initiatives of the US and Japan would have, reveals that SSA would benefit very little because the US economy is already very open and the SSA countries do not have any comparative advantage in products that were previously protected, for example textiles. Contrasting this to the EU proposal, we see that with EU access alone, SSA exports would be raised by over \$0.5bn. However, these results are overstated because the World Bank assumes all SSA, and not just the LDCs, would get duty- and quota-free access (Anderson et al. 2001: 20).

As you can see there are both benefits and costs associated with trade liberalisation for LDCs. For some LDCs, the total increase in agricultural exports after liberalisation would be quite small. World trade for a specific commodity may not rise and may even decline if the current trade barriers imposed by importing countries on the commodity are low. This is why some LDCs have no choice but to focus on one or a few export products, such as the tobacco leaf or coffee bean, and so many may not benefit from liberalising world agricultural markets. We can see that trade liberalisation is a necessary condition, but it is not sufficient, for nurturing economic growth in LDCs. For trade liberalisation to

work it needs to be complemented by socio-economic policies, and a network of institutions that support the transition to a more market responsive economy.

Bibliography

The Australian Bureau of Agricultural Economics (ABARE) (2000) "Developing Countries: Impact of Agricultural Trade Liberalisation." *ABARE Current Issues*.

Anderson, K, et al. (2001) "The Cost of Rich (and Poor) Country Protection to Developing Countries." *CIES Discussion Paper No. 136*. Adelaide: Centre for International Economic Studies.

Blanchford, D. et al. (1999) "Agricultural Trade Liberalisation: The Multilateral stake in Policy Reform," in Kristen Allen (ed.) *Agricultural Policies in a new Decade*. Washington D.C.: National Planning Association.

Diao, X., Roe, T. & Somwaru, A. (2002) "Developing country interests in agricultural reforms under the World Trade Organisation." International Food Policy Research Institute.

Gulati, A. & Kelley, T (2001) *Trade Liberalisation and Indian Agriculture*. Oxford: Oxford Paperbacks.

IMF (2002) "How do Industrial Country Agricultural Policies affect Developing Countries," IMF, World Economic Outlook.

Keeney, M. (2004) Lectures on Economics of Food Markets, May. Trinity College Dublin.

McCalla, A. & Josling, T. (1985) *Agricultural Policies and World Markets*. MacMillan Publishing Company.

Piermartini, R. (2000) *Trade Liberalisation and Growth: Market Access Advantage*. University of Southampton.

Rodrik, D. (1994) *Developing Countries after the Uruguay Round* CEPR.

Srinivasan, T. (1998) *Developing Countries and the Multilateral Trading System*. Westview Press.

EVALUATION OF THE OPERATION OF THE HEAVILY INDEBTED POOR COUNTRY (HIPC) INITIATIVE IN UGANDA

Richie Somerville

Senior Sophister

A comprehensive evaluation of the HIPC initiative is provided by Richie Somerville in this essay. Uganda, the flagship of the IMF/World Bank operation provides a case study. He concludes by recommending a reformulated initiative which places a greater emphasis on national sovereignty.

Introduction

The HIPC Initiative was first launched in 1996 by the IMF and World Bank with the aim of ensuring that no poor country faces a debt burden it cannot manage. The Initiative necessitates coordinated action by the international financial community, including multilateral organizations and governments, to reduce, to sustainable levels, the external debt burdens of the most heavily indebted poor countries. The Initiative has undergone enhanced modifications and been extended to 42 eligible countries (mainly in Africa).

Uganda is the most advanced country in terms of the adoption of HIPC Initiative policies. The IMF & World Bank, and indeed the government of Uganda and civil society organisations, have lauded the Ugandan experience as an international flagship for participatory governance, economic growth, and approved debt disbursement. Uganda therefore is pivotal to the success of the much published policies (Nyamugasira & Rowden 2002). This paper will appraise Uganda's experience of the HIPC Initiative and draw out ideas on suitable enhancements that could be woven into the policy framework. This paper composes three sections. The first evaluates the HIPC Initiative by tracking Uganda's successful operation, and then questioning naïve assumptions commonly perceived. In section 2, the influence of the Initiative is viewed in relation to Uganda's business and economic conditions to see if improvements have occurred. Section 3 is used by the author as an opportunity to present recommendations for improving the HIPC Initiative. The paper concludes with a brief summary of its findings.

Section 1

Evaluation of the operation of the Heavily Indebted Poor Country (HIPC) Initiative in Uganda

a. The operation

Uganda has established a strong track record of economic management and policy reform. It was the first country declared eligible for such assistance in April 1997, and the first country to receive debt relief under the Initiative. Uganda's quick eligibility can be accredited to its design of a successful Pre-HIPC strategy¹. It had built up a technical capacity to manage the complexity of the HIPC Initiative.

Throughout the construction and implementation of the Initiative, the government took proactive measures to facilitate communication with donors, NGOs, and civil society. Measures including:

- Establishing quarterly meetings with donors to discuss debt and macroeconomic issues
- Using Consultative Group meetings with the World Bank to present their views on enhancement
- Communicating their message and expressing gratefulness to NGOs and civil society.
- Constructive workings with the Bretton Woods Institutions².

Table 1: The operation of the HIPC Initiative in Uganda chronologically

Date	Description of occurrence	Explanatory criteria/achievement	Goal/Reward
1995-1997	Government of Uganda produced a Poverty Eradication Action Plan (PEAP)	Determined poverty-reduction priority areas for national budget	Reduce poverty from 44% in 1997 to 10% by 2017
1996	WB and IMF launch HIPC Initiative	Comprehensive effort to eliminate unsustainable debt	
April 1997	IDA & IMF Boards reach 'decision point' on Uganda's preliminary HIPC initiative documents	Considered eligible for assistance	Set a target for NPV of debt/export ratio in the range of 200 to 220 %
April 1998	Executive Boards determine a reaching of 'completion point'	External debt sustainability target for NPV of debt-to-exports ratio was within specified range	Granted US\$347m of debt relief in NPV terms
Sept 1999	Enhancement of the HIPC Initiative framework by WB & IMF	Reassessment of Uganda's policies to enable benefits of enhancements	Designed to make the Initiative broader, deeper, and faster.

¹ Its first strategy was designed in 1991. It implemented a commercial debt buyback rescheduling at the Paris club and limited concessional loans (Kitabire 1999).

² The HIPC Initiative offered the government an important say in determining their debt relief needs, unlike traditional debt relief mechanisms. They worked hard to capitalise on this opportunity.

RICHIE SOMERVILLE

March 2000	Revised PEAR officially transformed into Uganda's PRSP	PRSP was necessary requirement for HIPC II	Speedy improvement for WB/IMF debt relief (approx \$46m in 2000/01)
May 2000	Uganda reached 'completion point' under the enhanced framework	Framework strengthens the links between debt relief, poverty reduction and social policies.	Continued efforts toward social policy reforms- higher spending on social sector programmes like basic health and education
March 2001	IMF changed the name of its ESAF to the Poverty Reduction and Growth Facility (PRGF)	Remain based on PEAR/PRSP and to reflect broadened objectives	Function: to provide assistance on prudent macroeconomic policies
Sept 2002	Execute Board of IMF approves Uganda's three-year Poverty Reduction and growth facility (PRGF) arrangement	Accumulating a potential US\$19m disbursement on successful completion	Intention of PRGF- to insure supports are consistent with a comprehensive framework for macroeconomic, structural, and social policies to foster growth and reduce poverty
June 2003	IMF completes the First Review Under Uganda's PRGF Arrangement	Approves US\$2.8m disbursement	
July 2003	Government of Uganda initiate the preparation of second revision of the PEAR (Its PRSP)	Intended to articulate the medium-term macroeconomic policy framework	
Dec 2003	IMF completes second review under Uganda's PRGF arrangement	Approves US\$3m disbursement	
July 2004	IMF completes third review under Uganda's PRGF arrangement	Approves US\$2.9m disbursement	
Feb 2005	IMF completes fourth review under Uganda's PRGF arrangement	Approves US\$3m disbursement	

Source: This table was constructed using information from various IMF & IDA prepared papers³

Table 1 provides the key occurrences in Uganda's operation of the HIPC Initiative. The government's hard work has produced almost ten years of successful 'completion' criteria. Uganda has proven responsive to evolutionary policies of the IMF and World Bank; it has also been proactive in establishing poverty reduction measures. The Poverty Action Fund (PAF) was created to use debt-relief proceeds to supplement the government's education and health budgets. It has been able to increase expenditure in these and other priority areas.

b. An evaluation of the HIPC Initiative

At face value, it can be concluded that the HIPC Initiative in Uganda has been successful⁴. The remainder of this essay will provide a compressive evaluation of its operation and in doing so, offer a different perspective and alternative measurements of success (or lack thereof). The IMF and World Bank have a clear prescription for achieving economic growth in a country. It assumes neo-liberal instructions based on privatisation, liberalisation, and deregulation leading to higher economic growth rates, and that such higher growth rates will, in

³ (IMF 1999, IMF 2001a, IMF 2001b, IMF 2005)

⁴ Economic indicators also project good performance. Real GDP growth at market prices is estimated to have increased to about 6% in 2003/04 and inflation has been reduced to the low, single-digit rates that have prevailed for much of the 1990s (Ministry of Finance 2004).

turn, lead to poverty reduction (Nyamugasira & Rowden 2002). The following investigation questions critique policy prescriptions, regimented by the Funds, which may impair Uganda's ability to effectively realise its anti-poverty and growth goals.

1 Are the Funds using leverage to impose neo-liberal policies on a supposed 'national' PRSP?

The World Bank's PRSC and the IMF's PRGF are supposedly designed to support the goals of the PRSPs. There is controversy regarding macroeconomic policies, including targets for growth and inflation, and the thrust of fiscal, monetary, and external policies, as well as structural policies to accelerate growth, are subjects for public consultation" (IMF 2001a). Ugandan NGOs and CSOs claim they were invited to provide input on the development of the poverty-reduction goals, but not on the nature of the policies to achieve those goals. Many CSOs felt that the unspoken implication of this was that the neo-liberal policy framework contained in the so-called Washington Consensus was not up for negotiation because it was already decided this would not change. "Our own government officials would not allow us to diverge from the neo-liberal policies," explained Jane Halunga, Programme Coordinator for DENIVA; "they would say that we could not diverge from the existing policy framework because the donors would not accept it." Zie Gariyo, Director of the Uganda Debt Network (UDN), said "in many ways, participation in PRSPs is engineering consent for structural adjustment policies" (2001a). There is a clear divergence of opinion here and sadly there is also a resource dependency relationship whereby donors can leverage their policies into enforcement. It places the legitimacy of the policy framework and the integrity of the WB and IMF in doubt.

2 Do IMF policies lead to sustainable economic growth?

The 20-year track record of neo-liberal policies has been under fire from an ever-increasing body of research. The "dollar-Wall Street" economic regime, in place since the breakdown of the Bretton Woods regime, would say the core solution for lagging regions, Africa above all, is freer domestic and international trade, and more open financial markets, leading to deeper integration into the world economy (Wade 2004).

Prof. Dan Rodick, Harvard University, claims that the Bank is for the first time acknowledging that trade liberalisation may not be an effective instrument for

stimulating growth (2001).⁵ In light of these developments, the IMF and WB should not have continued to stipulate rapid trade liberalisation, and other traditional neo-liberal policies, in Uganda's new loan packages⁶ (Nyamugasira & Rowden 2002).

Uganda has experienced fluctuating positive growth rates during the HIPC Initiative. But an exploration of Uganda's type of export production questions the sustainability of their economic growth. This will be explored further in later sections.

iii. Has the HIPC Initiative failed to encompass Uganda's commitments to the WTO and other loans?

The lending policy documents do not incorporate the risks and opportunities posed by Uganda's membership of the WTO or any bi-lateral and multi-lateral trading policy. IMF and World Bank loans prescribe that Uganda must privatise its key utilities and markets. The documents (for example, the World Bank's Private Sector Development (PSD) Strategy) emphasise that effective state regulation 'will eventually follow' in these sectors' markets. Yet close analysis of WTO rules clearly shows that Uganda will not be permitted to develop adequate regulation. Oxfam have documented "the relationship between the World Bank's proposed Private Sector Development (PSD) Strategy and the national PRSP process as unclear" (2001).

It is likely that WTO rules will restrict Uganda's ability to develop its key public services or provide state supports and regulations needed to effectively regulate its new private markets. This has been either overlooked or ignored in the development of Uganda's PRSP. The next section of this essay will look at the impact this has on business conditions.

Section 2

Has the HIPC improved the country's business and economic conditions?

To recap, the HIPC Initiative has brought about the establishment of Uganda's Poverty Action Fund (PAF), allowing gross savings from debt disbursement to be channelled into poverty reduction strategies. The Initiative has

⁵ Rodick cites the growth of China, India, Vietnam, and Indonesia, over the last two decades. Yet in these countries, the main trade reform took place about a decade after the onset of higher growth, a time when these countries' trade restrictions remained among the highest in the world.

⁶ William Easterly from the World Bank called it 'puzzling' that poverty-reduction was indeed more successful in the prior two decades than in the last two under WB and IMF influence, and that per capita income growth rates had been much higher in the earlier period too (2001).

EVALUATION OF THE HIPC INITIATIVE IN UGANDA

also enacted strategies dominated by the neo-liberal philosophy of decentralisation, liberalisation, and privatisation.

The following analyses will investigate economic and business conditions in Uganda affected by the HIPC Initiative, beginning with three economic indicators, then progressing to consider trade liberalisation, privatisation, and agricultural production.

1. Education

Since 1996/1997 education expenditures have increased to 2.5% of their national budget (from 1.5%) following the implementation of a new effort called the Universal Primary Education (UPE). Enrolment of primary school education immediately skyrocketed, more than doubling from approximately 2.5million to 6 million. This was possible following increases in resources made available by the donors, debt-relief proceeds from the Poverty Action Fund (PAF), and increases in domestic revenue (MSE 2001). Oxfam reported “Access to education has dramatically increased under the UPE program, [but] the ratio of pupils per classroom is still far from the targets included in the PRSP” (2001).

2. Sector Wide Approach Policy & The Health Service

A Sector Wide Approach Policy (SWAP) was instigated under the World Banks PRSC. This has aided efficiency gains through a focus on increasing technical, financial, accounting, and legal reforms within the sectors, but there has been a neglect of issues such as access and coverage. Within the health service, immunisation rates have dropped in Uganda since 1998, when the health sector reforms began. The World Bank’s Operations Evaluation Department (OED) has expressed serious concern that the focus on increasing sector efficiency may be occurring at the expense of expanding health coverage and access to those who need it most (Nyamugasira & Rowden 2002).

3. Water

The World Bank’s PRSC plans involve privatising the operation of Water Supply Sanitation Services Provision in urban centres, and having the services provided by management contracts with local or international private operators. Cross-subsidies had long been built into the price/tariff structure, designed so that wealthier customers could subsidise the costs for poorer users. The WB Water reforms ‘unbundled’ the sector’s provision, allowing private operators to select profitable service contacts and create market prices that the poorest citizens could not afford (Nyamugasira & Rowden 2002).

Trade liberalisation and Privatisation

The IMF and WB continually pursue further trade liberalisation as a condition of the PRGF and PRSC. This process, coupled with a stable political environment and strong economic performance, makes Uganda a top African foreign investment destination⁷. Most of the new FDI has been attracted by the continuing privatisation of telecommunications, and profitable sectors such as wholesale and retail, finance, and transportation (Strategies for financing Development 2004).

FDI has brought with it many negative externalities, resulting in a massive number of farms and enterprises (that have employed large portions of the population) being wiped out (hitting hard lower-skilled, lower-income people). Trade liberalisation has not been good for small and medium sized companies and infant industries due to a:

- Rapid influx of cheap goods due to premature liberalisation
- Lack of access to affordable credit
- Decline in incomes and purchasing power due to labour market and other adjustment measures
- Removal of government supports in line with WTO commitments including the elimination of price controls, abolition of marketing boards, reduction or removal of export taxes, and the elimination of import controls (SAPRIN 2001).

Privatisation is a pre-condition for WB and IMF loans regardless of the extent or effectiveness of public ownership in a particular country. State enterprises and services have increasingly been labelled as inherently inefficient, an obstacle to free competition, and a constraint to private-sector-led growth. In Uganda, foreign ownership increased as a result of privatisation, bringing to the economy advanced technology, investment capital, new knowledge, and products.

The changing conditions also brought disadvantages. Local industries have been obstructed from developing, and existing ones were crowded out. Strategic services have been placed under foreign control (electricity, water, telecommunications), therefore they now respond to interests of foreign capital and strategic considerations rather than to local needs (Nyamugasira & Rowden 2002). Their strategic considerations can prove volatile if they suddenly decided to relocate and lay off employees, causing serious local problems.

⁷ A survey result confirms that Uganda is now the 11th highest investment destination in Africa (Strategies for financing Development 2004).

Agricultural production

Massive coffee exportation has been the prime engine of Uganda's economic growth. Through continual investment, the industry has experienced growth in output. Uganda has a comparative advantage in coffee (and banana) production. In the liberalised international market that the IMF and World Bank seek to sustain, increased specialisation and commercialisation of economic activities in different locations is encouraged (Pender et al 2004). This general neo-classical approach guides Uganda to an export-led development model.

This theoretical underpinning seems flawed when faced with reality. In spite of increases in farm-gate prices, relative prices have not improved for producers. The terms of trade for food producers have fallen.⁸ Uganda's PRSP document was concluded in 2000, the PRSC in April 2001, but by May, coffee prices had plummeted to a 20-year low, and by 2002, a 30-year low. Its reliance on primary commodity products makes it highly susceptible to world market prices. Basic cash crop production cannot lead to much value added nor make little headway in eradicating poverty.⁹

Section 3

What improvements can be suggested to the HIPC Initiative?

In the investigations of section one and two, various limitations and flaws in the HIPC Initiative have been brought to attention. The improvements this section suggests are based on these previous findings.

A new debt sustainability framework

The HIPC Initiative is limited due to blanket consistency and rigid rules across countries. It requires a fully coordinated approach to provide debt relief on an equitable basis across creditors and recipients. A further limitation is its function of addressing an existing debt overhang; it is not progressive.

A new debt sustainability framework was proposed and discussed by the Boards of the Fund and the Bank in Spring 2004. The new framework is intended

⁸ A rate of -2.3% terms of trade growth in 1990's (Easterly 2005).

⁹ "Poverty in Uganda is predominantly a rural phenomenon, most intense outside the central region, and is most prevalent and intransigent among food crop framers, a majority of whom are women" (IMF & IDA 2000: 6).

to provide forward-looking guidance on new borrowing and lending decisions (IMF & IDA 2004). The proposed framework is designed to minimise the possibility of the build up of unsustainable debt by signalling to low income borrowers and creditors the appropriate financing terms that will keep debt indicators at manageable levels.

Overall, HIPC's welcome the proposed framework as it contains a more open-minded view of debt sustainability than that in the HIPC Initiative. However they envisage areas of concern¹⁰, since its recommendations for setting clear but variable thresholds for debt sustainability are based on just one institution's method of judging country performance (Strategies for Financing Development 2004).

A suggestion I pose is that the IMF's & World Bank's exclusive roles as overseers of poverty reduction programmes in HIPC's should be downgraded to include the participation of other United Nations agencies, the WTO, bilateral donors, and all sectors of civil society, not just those hand-picked for PRSP participation. They should be fully brought into the entire process. A second suggestion I can make regarding the drawing up of a new framework is that an HIPC Initiative should not be conditional to privatisation. The decision on privatisation should not be based on narrowly defined measures of efficiency or profitability. Ownership forms should be based on each country's unique set of social, economic, political, and cultural circumstances that can best serve the developmental needs of that country. This will give governments the ownership discretion of basic utilities and social services in order to best ensure the provision of affordable, quality services to all fragments of the population. Nor should trade liberalisation be a condition for debt relief initiatives; "the only way Uganda will become independent of its current donor dependency is to develop its own domestic economy with selective and strategic supports not different than those used successfully by the industrialised countries" (Nyamugasira & Rowden 2002: 6).

100% debt cancellation should be completed and extended

This suggestion has not been left to last because of any lesser significance; in fact this is the suggestion I recommend most strongly. It diminishes the IMF's and World Bank's leverage power to enforce their neo-liberal policies on HIPC's. I suggest all debts owed by HIPC countries be written off, with no conditions, and the list of eligible countries be extended, thus making

¹⁰ HIPC's would like the proposals expanded to take shocks, absorptive capacity, and debt management into account more objectively, and set thresholds for other types of debt, to help them chart a clearer path towards long-term debt sustainability (Strategies for Financing Development 2004).

redundant the term 'HIPC.' In Uganda, like almost all HIPCs, the people being forced to pay back loans are not the people who prescribed for the money or received its benefit. Debts have been socialised and those with power have privatised the profits.

The end of 2004 saw the start of a major new push for debt relief for HIPCs and other low-income countries. G7 finance ministers' meeting on 5th Feb 2005 said that "as much as" 100% of their multilateral debts should be forgiven (The Economist Feb 12th 2005). The current push is lead by UK Chancellor Gordon Brown. He announced a new debt relief initiative in which the UK will unilaterally pay its share of debt service to IDA and the African Development Fund of post-completion point HIPCs and several other low-income countries. It encourages other G7 members and creditors to take similar action. Further debt service can be implemented if the IMF sells more of its gold reserves. One of the greatest benefits of this recommendation is that HIPC debt relief could be de-linked from the PRSP process. This would give nationals true 'ownership' of their poverty reduction goals and frameworks without an explicit connection with macroeconomic polices.

Conclusion

The aim of the HIPC Initiative has been to insure no poor country faces a debt burden it cannot manage. After nearly a decade of operation in Uganda, the country still has an unsustainable debt burden. Positive influences of the Initiative include substantial debt disbursement and the establishment of the Poverty Action Fund (PAF), which has successfully supplemented government education and health budgets using debt-relief proceeds. But on a negative side, the IMF/World Bank enforced neo-liberal policies have not brought sustainable development to the economy of Uganda nor support to the country's poverty reduction goals. An amended policy framework allowing greater national sovereignty can, in my opinion, bring substantial improvements. But the greatest improvement is complete debt forgiveness for controversial loans.

Bibliography

Easterly, W. (2001) *The Lost Decades: Developing Counties, Stagnation In Spite of Policy Reform, 1980-1998*. The World Bank, February 2001
<www.worldbank.org/research/growth/pdffiles/lostpercent20decades-joeg.pdf>.

- Easterly, W. (2005) "What did structural adjustment adjust? The association of policies and growth with repeated IMF and World Bank adjustment loans." *Journal of Development Economics*, Vol. 76, pp.1-22.
- Gariyo, Z. (2001a) *The PRSP Process in Uganda by Zie Gario*. Uganda Debt Network <www.udn.org.> .
- HIPC Debt Strategy (2001) "Uganda's experience in negotiating HIPC debt relief." Fred Matyama, Ministry of Finance, Planning, and Economic Development. *The Newsletter of the HIPC Debt Strategy and Analysis Capacity Building Programme*, Issue 10, 4th.
- HIPC Strategies for Financing Development (2004) "A path to long-term debt sustainability?" *The Newsletter of the HIPC, CBP and the Fpc CBP*, Issue 19, 2nd Quarter.
- Kitabire, D. (1999) "Uganda's lessons from the HIPC Initiative." *HIPC Debt Strategy*, Issue 1, pp.3-4.
- Nyamugasira, W. & Rowden, R. (2002) *New Strategies, Old Loan Conditions: The Case of Uganda*. Accompanied by Action Aid, published in Kampala, April.
- Pender, J., Jagger, P., Nkonya, E. & Sserunkuuma, D. (2004) "Development Pathways and Land Management in Uganda." *World Development*, Vol. 32, No. 5. pp.767-792.
- IMF (1999) *IMF Approves Third Annual PRGF Loan For Uganda*, IMF Press Release No. 99/59 pp.12-101 December 10th, International Monetary Fund.
- IMF (2001a) *The IMF's Poverty Reduction and Growth Facility (PRGF): A Factsheet*, March.
- IMF (2001b) *IMF Completes Uganda Review under PRGF and Approves US\$11 Million Loan*. News Brief No. 01/27, March 26th. International Monetary Fund.
- IMF (2005) *IMF Executive Board Completes Fourth Review Under Uganda's PRGF Arrangement and Approves US\$3.0 Million Disbursement*. Press Release No. 05/42 February 24.

EVALUATION OF THE HIPC INITIATIVE IN UGANDA

IMF & IDA (2000) *Initiative for Heavily Indebted Poor Countries Second Decision Point Document*. Prepared by the Staffs of the IMF and IDA, Jan.

IMF & IDA (2004) *Debt Sustainability in Low-Income Countries: Further Consideration on an Operational Framework and Policy Implications*. Prepared by the Staffs of the IMF and World Bank, Sept.

MSE (2001) *The Impact of Public Expenditure Management under SAPs on Basic Social Services; Health and Education in Uganda*. Prepared by MSE Consultants Ltd., Kampala. Sponsored by the Uganda National NGP Forum as part of the series of SAPRIN reports <www.saprin.org>.

Oxfam (2001) *Are PRSPs working? Oxfam's contribution to the World Bank/IMF PRSP review process, by Oxfam (UK)*. December 21st.

Rodick, D. (2001) *Globalization, Growth and Poverty: Is the World Bank Beginning to Get It?* By Dani Rodick, Harvard University. December 6th. <www.ksg.harvard.edu/rodick/papers/html>.

SAPRIN (2001) *The Policy Roots of Economic Crisis and Poverty: A Multi-Country Participation Assessment of Structural Adjustment*, A Report Based on Results of the Joint World Bank/Civil Society Structural Adjustment Participatory Review Initiative (SAPRI). November. Washington, DC. Prepared by the SAPRI network <www.saprin.org>.

Strategies for financing Development (2004) *Uganda: a top African investment destination*, Issue 20, 3rd Quarter, pp.14-15.

The Economist (2005) *The G7, aid and debt*. The Economist 12/02/2005.

The Economist (2001) *Reducing poverty*. The Economist 30/04/2001.

Wade, R. (2004) "Is Globalization Reducing Poverty and Inequality?" *World Development*, Vol. 32, No. 4, pp. 567 – 589.

IRISH AND UK MIGRATION TO SOUTH AFRICA 1900-2002: WHO WENT? WHY DID THEY GO? WHAT IMPACT DID THEY HAVE?

Tara McIndoe

Senior Sophister

In this essay, Tara McIndoe examines the forces that resulted in Irish and UK migration to South Africa over the last century. She analyses the impact that this migration had on the South African economy at the time and comments on the effects that are still being felt today.

Introduction

The mass migration of economic factors of production impacts immensely on the state of the world. The reallocation of capital, labour, and goods and services determines relative and absolute standards of living as well as economic development in general. The culmination of the mass migration of these three factor resources has lead inevitably (if not continually – recall the war and inter-war period at the beginning of the 20th century) to globalisation over the last 200 years.

The mass migration of these resources has not however, always developed in unison. The migration of labour especially faces a complex combination of push and pull factors and as such its relative migratory freedom has differed over time to that of capital and goods and services.¹ There is no doubt however that the mass migrations of labour since the early 19th century have altered fundamental aspects of the world, as we know it.

Although land, labour, and capital work symbiotically to effect economic development, the presence of people is the necessary and sufficient condition for initialising this development. As such examining the reasons that have led to the variety of labour movements over time and space and the impact that these movements have had on both the economies they have moved from and those they have moved to, can be a highly instructive exercise. It may also offer insightful

¹ Chiswick and Hatton (2002:1) state that “trading in goods and services and capital flows are fundamentally different then trading in labor (sic) services (people).”

IRISH AND UK MIGRATION TO SOUTH AFRICA 1900-2002

understanding into some of the major economic, social and political issues that we face today.

The characteristics of labour movements have been significantly different through history and continue to change; the questions that enable us to understand these changing patterns must be: Who goes? Why did they go? What impact did they make and do they continue to make?

In light of these three interrelated questions and the economic (and political/social) fundamentals that form their answers I would like to examine UK and Irish migration to South Africa over the last 100 years, and its apparent reversal today. By analysing the established literature relating to mass international migration, its causes and effects, over the significant and well documented eras of mass migration (which in itself is a relatively recent phenomenon), potential answers for the economic underpinnings of migration to South Africa will be formed, namely labour response to market signals. Investigations of the specific context that characterised the migration of interest, the actual and relative numbers of migrants and their timing as regards their migration, and finally the skill set of the migrants seeking new lives in Africa, are carried out in an attempt to answer these questions in a systematic way.

By going some way towards answering the questions posed above, in relation to South Africa; it is hoped that increased insight will be gained into the present reversal of migration trends between Africa and Europe; as well perhaps, as the current state of economic development that South Africa faces.

Mass Labour Migrations

Economic Reasons

“The volume of migration is best viewed as an international redistribution of labour between sectors of an integrated (if imperfectly so) market, constantly adjusting the respective supplies of labour towards those values which, given the respective *demands* for labour, would bring about the equilibrium wage differential” (original emphasis) (Gould 1979: 663).

In attempting to understand the core factors that influence migration, O’Rourke and Sinnott acknowledge that many variables can potentially determine attitudes to migration not all of which are economically motivated (2003). They find econometrically, that on the whole, economic factors controlled migration flows in the 19th century (including the introduction of anti-immigration policies) and that “mass migration undermined itself via the distributional changes which it provoked” (O’Rourke et al. 2003: 27) i.e. wage convergence between destination

and source regions. Conversely, attitudes towards migration (by destination countries) in the 20th century have been driven by economic as well as non-economic factors most notably patriotism, racism, and chauvinism. This will be amply illustrated by the migration flows to South Africa in the decades immediately following World War II. In investigating the legacy of these non-economic factors it will be seen that these may have had a significant negative impact on the South African economy in general, as such liberal democracies in the developed world currently bowing to the anti-immigration sentiment displayed by voters may find instructive examination of the long term consequences of introducing immigration policies driven by emotive rather than economic reality.

The importance of examining migration flows via an economic decision-making framework, where the full set of expected future costs and benefits is weighed up by potential migrants, has become an established departure for analysing migration patterns (Chiswick et al. 2002: 14).

Finally it must be noted that different combinations of motivating factors may define long run and short run migration streams. Empirically, wage rates as well as employment rates in both destination and source country affect yearly migration variations, thus migrants weigh up the option value of waiting. The longer run factors correspond to those previously discussed and do not include a large role for real wage ratios, whose short term influence is weakened in the long term (ibid: 15-16).

So much for the questions regarding: who migrates and why. It is apparent that the reasons for choices between different overseas destinations have not yet been fully accounted for. In fact Hatton concludes that this constitutes the least understood aspect of the global integration of labour markets. He does observe however that 'emigration streams from a given country were often dominated by one destination' (Hatton 1999: 14). He also indicates that although the destination question is resolved via economic calculus in a similar fashion to the resolution of the other migration questions, additional factors including cultural and linguistic affinity with the country of origin are also important, which may be re-enforced by immigration policy and/or prejudice in the destination country.

Last, let us investigate the impact that mass migration has had for destination and source economies over time especially as regards skill level. The skill composition of migration was increasingly influenced by immigration policies of destination countries in the immediate pre-war and post-war period, with a bias towards skilled workers that has increased the gap between skilled and unskilled wage. This has also had consequences for the flow of skills and the skills premium, and as such may have large impacts on underdeveloped countries.

Although previously these economies may have been recipients of highly skilled labour, they are now losing this labour before it has been able to increase the standards of living for low skilled labour unable to move freely to developed

IRISH AND UK MIGRATION TO SOUTH AFRICA 1900-2002

economies, which exhibit higher wages for unskilled labour than do less developed countries.

Mass Migration between the UK and Ireland, to South Africa

Migrants to South Africa

Table 1: South Africa-International migration, 1910-2002 ('000s)

Year	Immigrants	Emigrants	Net Migration	Year	Immigrants	Emigrants	Net Migration
1910-1914	227.2	215.3	11.9	1960-1964	126.1	52.5	73.6
1915-1919	67.9	92.2	-24.3	1965-1969	207.2	51.3	155.9
1920-1924	129.3	103.0	26.3	1970-1974	170.0	39.4	130.6
1925-1929	37.2	31.4	5.8	1975-1979	158.9	88.3	70.6
1930-1934	24.7	21.7	3.0	1980-1984	176.0	43.8	132.2
1935-1939	41.7	20.9	20.8	1985-1989	54.0	49.0	5.0
1940-1944	5.5	7.4	-1.9	1990-1994	53.3	30.6	22.7
1945-1949	97.0	39.0	58.0	1995-1999 ¹	22.7	44.8	- 22.1
1950-1954	82.6	62.2	20.4	2000-2002	14.4	33.4	- 19.0
1955-1959	73.8	55.1	18.7				

Source: Mitchell, B.R., (2003), International Historical Statistics – Africa Asia and Oceania, Palgrave Macmillan: New York, table A8, pp. 86; Statistics South Africa (2003), Stats SA Report No. 03-51-03(2002), Statistics South Africa: Pretoria, pp. 2.

Data from Statistics South Africa diverges from Mitchell between 1994 and 2002. Statistics South Africa states lower figures for both migration and immigration. This leads to systematic net emigration during these years where Mitchell estimates continued net immigration. South Africa became a multi-party democracy in 1994, at this time clearly there were divergent migration measurements introduced between the South African authorities and those consulted by Mitchell.

South Africa has been an area of net inward migration for at least a century. The only significant periods of net emigration were, until 1995, during the two World Wars. Immediately after the Second World War South Africa received a huge number of international migrants, this peaked during the 1965-1969 period at nearly 160,000 net immigrants. There was a significant decline in net migration after 1984 and this has turned recently to net outward migration.

In tracing British settlement in its colonies Tinker notes that South Africa did not succeed where the other colonies did in attracting British migrants, despite its administration being wholly provided by Britain (Tinker 1995: 16). Thus the hope that South Africa would become an English-speaking country would never be realised, despite various attempts to by the administration to attract British migrants from 1820 onwards, including subsidised passage and active recruitment first by the British authorities and then (after the Second World War) increasingly by the South African authorities. The organised business of peopling the British Empire with Britons occurred as ‘Darwinian philosophy became dominant’ and it was assumed that the ‘inferior races’ would give way to the white man wherever he went. As such those bits of Africa colonised by the English represent some of the few areas of the British Empire where the white population has never been in the majority and often represented a statistically insignificant minority (Tinker 1995: 14).

South Africa has always received immigrants from a diverse range of European countries as well as Asian and other African states. Similarly it is a natural intermediate destination for international immigrants intending to settle in other areas of Southern Africa, or intending to leave the continent for extra-African destinations. Attempting to disentangle these various migration flows is thus complex in the extreme, especially given the country’s race history and thus the importance that was placed for many years on delineations along racial rather than national lines. As such the following will attempt to focus on Irish migration to South Africa over the last century in an attempt to gain an insight into the characteristics and effects migrants in general and the Irish in particular had on the South African economy. This will necessarily entail detailing British migration prior to the early 1920s and in some cases acknowledging that the British/ Irish separation is difficult to maintain. We will examine Britain then as a new destination country for South Africans in the late part of the 20th century. Ireland is increasingly becoming such a destination for Southern Africans, however the majority of these are categorised as asylum seekers and do not constitute as yet a purely labour-related issue (Mac Éinrí 2001).

Answering the Migration Questions

Who Came to South Africa?

A limited amount of research has been carried out on the Irish in South Africa, this is due in the most part to the difficulty in differentiating Irish migrants from British ones. Irish migration to South Africa was part of a general pattern that saw Irish emigration to a large extent occurring to Britain or British colonies

IRISH AND UK MIGRATION TO SOUTH AFRICA 1900-2002

(Akenson 1991). Akenson views this as part of the wider tendency for collaboration between the Irish and British as regards the general maintenance of the greater British Empire; for our purposes it means that any discussion on Irish emigration to South Africa must be viewed in light of British migration to the country.

Table 2: Net white migration into South Africa from Ireland and the UK, 1924-1970

	Ireland	UK	Other ³	Net Total
1924-1929 ¹	583	12,295	82	12,960
1930-1034	396	6,707	517	7,620
1935-1939	825	13,120	9,092	23,037
1940-1944	196	3,278	- 5,849	-2,375
1945-1949	2,157	57,898	- 5,742	54,313
1950-1954	207 ²	20,507	- 2,879	17,835
1955-1959	-	13,753	4,692	18,445
1960-1964	-	16,258	57,877	74,135
1965-1970	-	76,012	101,646	177,658

Sources: International Defence and Aid Fund, (1975), *Southern Africa: Immigration from Britain*, UN Economics and Social Council, London. pp. 24; Akenson, D.H. (1991), *Occasional Papers on the Irish in South Africa*, Langdale Press, Canada, pp. 61.

¹Figure for Ireland does not include 1924-1925

²1950 figure only, thus the 'Other' column from 1951-1970 also includes Irish migrants.

³This figure is estimated from the other three columns; many of these may have been Southern Rhodesian migrants.

As such, Table 3 indicates first that between 1924 and 1959 UK and Irish emigration to South Africa accounted for the majority of net inward migration, and immediately after the Second World War the Irish figure counted for almost 4 percent of overall inward migration to South Africa.

Although the Irish in South Africa were not a coherent ethnic group, they were significant in key areas of the South African state: the military, the management of imperialism, and the spread of the capitalist economy (Akenson 1991: 43). Irish migration from the mid-1800s although initially driven by the famine was always a "conscious individual choice" aimed at improving living conditions (Akenson 1999: 34). Thus emigrants to South Africa, either direct from Ireland or via the UK, were predominantly Protestant, overwhelmingly from the east and thus the urbanised and early-modernised areas of Ireland and, when considered as a group, they were highly skilled. The Irish who came to South Africa came to join an occupational, cultural, and racial elite. Even after 1948 when the British no longer ruled South Africa the Irish contributed to an imperialism driven by an elite racial minority.

The people who emigrated to South Africa did so mainly of their own volition, South Africa was never a destination for the forced migration of British prisoners as the USA and Australia were. Although in 1849 the *Neptune* sailed into Table Bay carrying 288 ‘ticket-of-leave’ prisoners to establish a penal settlement, the Cape colonists strongly and successfully opposed the idea and the *Neptune* had to sail to Van Diemen’s Land (McCraken 1987: 12). Thus as Akenson notes the immigrants were self-selected and often thought like South African whites before they left the British Isles, the structure and values of South Africa and of the British Isles were not very different and when taken together, South African society and the position of immigrants, were “exceptionally conducive to newcomers conforming to the social and racial attitudes of the host society” (Akenson 1999: 45).

Why Did They Come?

This question is comprised of two parts: first why did immigrants to South Africa leave their homes in Europe and second, why did they choose South Africa of all the competing destinations for European migrants.

The vast majority of the many Irish and British emigrants did not in fact migrate to Southern Africa. However those that did were driven by the economic goals that stimulate migration demand over time and space, primarily as a means to increasing their lifetime earnings potential. Although there was a constant demand for Irish (and British) immigrants from the authorities in South Africa (first the British and then the South African regimes) it seems that they were unable to attract migrants due initially (in the early 1800s) to the reputation Southern Africa had for being “unsettled and teeming with hostile Africans” (MacCraken 1992: 9), and in the late 1800s and onwards, because Irish (and British) migration patterns had by then become firmly established, despite the boom at that time of the gold and diamond mines.

“We are afraid we could not induce the Irish labouring classes to come to this colony in anything like sufficient numbers. They know nothing of it beyond a dim idea that it is associated with Kaffir wars; but they know all about America and Australia, or think they do, having heard them talked about from their infancy by those who had friends there” (Cape Town Daily News 1876, cited in McCraken 1992: 10).

Various schemes were implemented from 1820 onwards to entice the Irish to South Africa with limited success, including assisted passages either by the government or by Irish companies with branches in South Africa. Towards the end of the 19th century some success was attained in attracting single, transitory,

IRISH AND UK MIGRATION TO SOUTH AFRICA 1900-2002

Irish men to South Africa to work on the mines and in the British armed forces (at various levels). As these migrants tended to move either back to Ireland or on to Australia after bouts of work in Southern Africa, they did not establish permanent Irish settlements. Many however came privately either paying their own way or having the passage paid by a relative already resident in Southern Africa (McCracken 1992).

After the Second World War an intricate policy initiative was set up expressly to attract European emigrants to Southern Africa (namely Rhodesia and South Africa). This was driven by the demand of these Southern African economies for skilled, white labour, initially to facilitate economic growth and then as a crucial means in maintaining the Apartheid regime. The immigration policy included “private companies, travel agents, and employment bureaux [covering] Europe with the explicit or – more frequently – implicit complicity Western governments, national airlines and, last but not least, some international organisations” (Angola Comité et al. 1975: 1). Thus assisted passages were available, though these did not compare to the famous £10 fare to Australia. The emigrants left because “immigrants were offered jobs enabling them to earn more than they could earn in Britain, or people they knew recommended South Africa as a place of economic opportunity” (International Defence and Aid Fund 1975: 9). Stone maintained that South Africa did not attract “bigoted racialists,” rather ordinary people reacting to real economic incentives, who when confronted by a specific social structure tended to conform to its implicit attitudes, norms and values (Akenson 1991: 45).

What Impact Did They Have?

“These (immigrants) are people coming to South Africa in the hour of its need to stand by the Whites here” (Prime Minister Vorster 1970, cited in Angola Comité et al. 1975: 241).

The skill structure of the migrants will go a long way to indicating what impact they may have had on the South African economy both through history and as a lasting economic legacy that stretches into the future. As such the following illustrates the skill profile of British Isles migrants from the beginning of the 20th century to its end.

Thus immigration prior to the World Wars comprised predominantly of skilled labour, which had a large impact on the Southern African economies. For example, the Irish impact on the region was particularly disproportionate to their relative numbers; the settlers came because they wanted to exploit the area’s economic potential. MacCracken holds that Africa attracted the ‘rugged, the colourful, the adventurous, the foolhardy Irish who drew attention to

themselves...the settlers often had initiative and enterprise which with time could see them through to the top of their profession' (MacCraken 1992: 19).

Table 3: Occupational distribution of male migrants to South Africa from the UK, selected years, 1912-1930 (%)

	Irish			English and Welsh			Scottish		
Occupation	1912-1913	1921-1924	1925-1930	1912-1913	1921-1924	1925-1930	1912-1913	1921-1924	1925-1930
White collar									
Commerce, Finance, Professions	48.7	53.0	39.8	48.0	46.8	48.8	34.2	34.4	35.7
Skilled Trades	32.1	29.3	41.5	43.8	37.1	34.5	60.1	53.4	50.5
Blue collar									
Transport and Communications	-	2.2	2.3	-	3.3	3.5	-	3.3	3.2
Agriculture	17.0	13.1	12.7	7.4	11.6	12.4	5.5	8.2	9.8
Labourers (including Agriculture and Transport)	2.2	2.4	3.7	0.8	1.2	0.8	0.2	0.7	0.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Akenson, D.H. (1991), *Occasional Papers on the Irish in South Africa*, Langdale Press, Canada, pp. 81.

Similarly, the majority of immigrants during the time of active recruitment of white European migrants by the Nationalist Party (between 1960 and 1975) was then of skilled or managerial labour. It must be noted however, that the total immigration into South Africa (and Rhodesia) was not by any means predominantly white. Quite the contrary, migration of non-white (mainly black) unskilled labour into these economies was large throughout the period under discussion. But black workers were forbidden from holding skilled jobs and were not even given official 'immigrant' status, rather they were required to return to their countries of origin when their (usually short – 12-18 month) contracts expired (Angola Comité et al. 1975: 3).

IRISH AND UK MIGRATION TO SOUTH AFRICA 1900-2002

Table 4: Occupational distribution of (white) immigrants to South Africa, 1968-1973 (%)

Occupation	1968	1969	1970	1971	1972	1973
White collar						
Professional	24.7	25.0	27.1	25.9	28.7	31.9
Managerial/Administrative	5.1	6.2	4.7	4.1	4.6	3.7
Clerical	16.1	18.0	20.3	19.1	15.7	18.3
Salesmen, etc.	4.8	4.9	5.0	4.7	4.6	6.2
Blue collar						
Manufacturing and Construction	41.7	38.4	35.0	37.7	40.8	35.0
Mining	1.1	0.6	0.5	1.4	0.4	-
Other	6.5	6.9	7.2	7.1	5.2	4.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: International Defence and Aid Fund, (1975), *Southern Africa: Immigration from Britain*, UN Economics and Social Council, London. pp. 5.

Thus European (including Irish) emigration to Southern Africa over the course of the 20th century explicitly aided in the oppression of the black majority and, due to the low numbers of skilled workers available to work in the economy, promoted capital intensive rather than labour intensive growth which may have seriously depressed future African employment (ibid: 12).

Unfortunately, although the policies aimed at attracting white skilled labour into the economy have been abandoned, and positive active measures are being taken to encourage the up-skilling and skilled employment of black South Africans, the economic climate in the country has led recently to net emigration of skilled professionals, mainly to the developed world.

Abedian and Standish contend that the most important policy implications for South African leaders today are the results of the 'previous attempts to keep blacks out of the major urban areas' (Abedian et al. 1992: 12). Second in order of importance then is the consequences of past training and education policies and their far reaching effects on the skills-set of the labour force (ibid).

Table 5: Occupation distribution of self-declared migrants (net figure) to and from Africa, 2000-2002 (%)

Occupation	2000	2001	2002
White collar			
Engineers, Scientists, Medical workers, Educationalists, Humanities	-32.4	-32.5	-29.8
Managerial, Clerical	-29.2	-28.8	-29.5
Services, Entertainment	-6.5	- 6.5	- 5.6
Blue collar			
Mining, Artisans, Agriculture, Transport	-7.4	- 6.8	- 5.5
Unspecified	-24.5	-25.4	-29.6
Total	-100.0	-100.0	-100.0

Source: Statistics South Africa, 2003, Stats SA Report No. 03-51-03(2002), Statistics South Africa, Pretoria. pp. 3.

This is undoubtedly harming the country's present and future economic prospects. To what extent this is due to the migration history the country has experienced remains to be seen. Clearly the aggressive affirmative action that is currently being practiced in South Africa is a direct result of Apartheid and results in limited employment prospects for young skilled non-Black South Africans who may be forced to seek employment abroad.

Conclusion

Having identified the characteristics of migrants from Ireland and the UK to South Africa over the past 100 years, and having investigated the decisions they faced when deciding whether to emigrate, as well as what destinations would maximise their lifetime income flow, it is seen that South(ern) Africa attracted skilled, single men until the World Wars and skilled married men and their dependents thereafter. Currently however, South Africa is a net loser of skilled migrants to the developed world. Although the country displays positive future economic potential, to achieve this it must confront and deal with the mixed legacy that international migration policies and facts have bequeathed South Africa.

An investigation into the magnitude of these effects will aid South Africa's efforts to mitigate them, as well as instructing global immigration policy as to the potentially harmful effects of limiting labour migration to the skilled. As evidenced by the Irish experience in the late 19th century, free migration of skilled and unskilled labour has the potential to cause factor price (wage) ratio convergence between economies of both the skilled and unskilled which results in overall aggregate gains for all involved.

Bibliography

- Abedian, I. & Standish, B. (1992) "The South African economy: an historical overview," in I. Abedian and B. Standish, eds., *Economic Growth in South Africa: Selected Policy Issues*. Cape Town: Oxford University Press.
- Akenson, D.H. (1991) *Occasional Papers on the Irish in South Africa*. Canada: Langdale Press.
- Angola Comité (1975) "Anti-Apartheid Movement Britain, Anti-Apartheid Movement Ireland, Boycot Outspan Aktie, Centre Europe – Tiers Monde, Comité contre le colonialism at l'apartheid, Ecumenical Research Exchange, Informationsstelle Südliches Afrika and International Defence and Aid for Southern Africa." *White Migration to Southern Africa, Centre Europe*. Geneva: Tiers Monde.
- Bell, T. & Cattaneo, N. (1997) "Foreign Trade and Employment in South African Manufacturing Industry." *ILO Employment and Training Department Occasional Report 4*.
- Boyer, G.R., Hatton, T.J. ,& O'Rourke K. (1994) "The Impact of Emigration on Real Wages in Ireland, 1850-1914," in T.J. Hatton and J.G. Williamson eds.. *Migration and the International Labour Markets 1850-1939*. London: Routledge.
- Cape Town Daily News (1976) 2 February, cited in McCracken, D.P. (1992) "The Irish in Southern Africa 1795-1910." *Southern African-Irish Studies*. 2, pp. 9-23.
- Chiswick, B.R. & Hatton, T.J. (2002) "International Migration and the Integration of Labour Markets." *IZA Discussion Paper 559*.
- Ferenczi, I. & Willcox, W.F. (1969) *International Migrations, Vol. I Statistics*. London: Gordon and Breach Science Publishers.
- Gould, J.D. (1979) "European inter-continental emigration, 1815-1914: patterns and causes." *Journal of European Economic History*, Vol. 8, No. 3, pp. 593-679.
- Hatton, T.J. (1999) *The Age of Mass Migration: What can and can't explain*. Oxford: Oxford University Press.

- Hatton, T.J. & Williamson, J.G. (2003) "What Fundamentals Drive World Migration?" *WIDER Discussion Paper 2003/23*.
- Hatton, T.J. & S.W. Price (1999) "Migration, Migrants and Policy in the United Kingdom." *IZA Discussion Papers 81*.
- International Defence and Aid Fund (1975) *Southern Africa: Immigration from Britain*. London: UN Economics and Social Council.
- Mac Éinrí, P. (2001) "Immigration into Ireland: Trends, Policy Responses, Outlook," first part of research project for EU Commission Contract VS/2000/0312, February-December 2001. *Governance models and new migration patterns: local strategies to foster social cohesion in a changing labour market*, draft at <<http://migration.ucc.ie/irelandfirstreport.htm>>.
- McCracken, D.P. (1992) "The Irish in Southern Africa 1795-1910." *Southern African-Irish Studies*, 2, pp. 9-23.
- Mitchell, B.R. (1988) *British Historical Statistics*. Cambridge: Cambridge University Press.
- Mitchell, B.R. (2003) *International Historical Statistics – Africa Asia and Oceania*. New York: Palgrave Macmillan.
- O'Rourke, K.H. & Sinnott, R. (2003) "Migration Flows: Political Economy of Migration and the Empirical Challenge." *Trinity Economic Paper 6*.
- Prior, K. (2002) *Immigrants from Ireland*. London: Franklin Watts.
- Statistics South Africa (2003) *Stats SA Report No. 03-51-03(2002)*. Pretoria: Statistics South Africa.
- Stone, R. & Stone G. (1961) *National Income and Expenditure*. London: Bowes and Bowes.
- Tinker, H. (1995) "The British Colonies of Settlement," in Robin Cohen, ed. *The Cambridge Survey of World Migration*. Cambridge: Cambridge University Press.

IRISH AND UK MIGRATION TO SOUTH AFRICA 1900-2002

Vorster, Prime Minister (1970) speaking in the South African Parliament, 6 February, cited in Angola Comité et al. (1975) *White Migration to Southern Africa, Centre Europe*. Geneva: Tiers Monde.

INCOME AND INEQUALITY – DETERMINANTS OF LONGEVITY?

Sinéad Kelleher

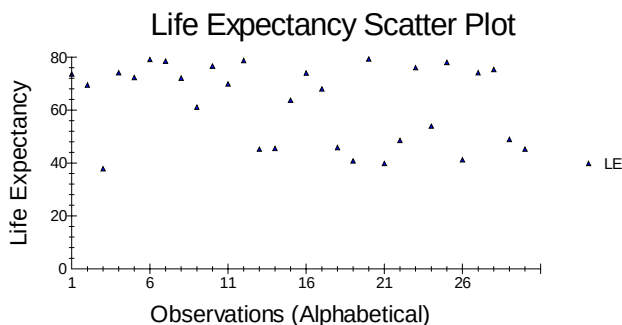
Junior Sophister

In this econometric enquiry, Sinéad Kelleher analyses the effect that income and inequality have on life expectancy. A strong link is found between GNP per capita and life expectancy, though the link between inequality (measured using the Gini coefficient) is not found to be statistically significant.

Introduction

Today, despite over 50 years of focused development effort, the average gap between the life expectancy of those in the industrial, developed North and those in the poorer, more agrarian South is still exceptionally high. In 1998 a person living in the developed world was expected to live 75 years, almost double the expected life span of those in the world's least developed countries, who were expected to live to the age of just 48 (Todaro 2000).¹ The extent of the variation in life expectancy in my data set can be seen in the scatter plot below. The y-axis measures life expectancy in years from birth, whereas the observations along the x-axis are the countries in alphabetical order.

¹ The biggest gap in life expectancy observed in my data is between Canada (79.3 years) and the Angola (37.8 years). A full list of countries and their associated data can be found in the appendix.

Figure 1:

The determinants of longevity are difficult to unravel and quantify. However, one can easily identify many factors which influence one's health status and therefore, life expectancy. Access to clean water, availability and cost of immunizations, prevalence of HIV/AIDS, health technology, educational facilities, and the incidence of violent conflict are obvious examples. However, in this paper I intend to show a relationship between life expectancy and broader, economic variables, namely GNP per capita, and the inequality of income distribution within a nation, measured, in this case, by the Gini coefficient.

Literature Review and Hypotheses

A vast amount of research has been done on the link between socioeconomic status and longevity. It has been shown, and is intuitively logical, that residents of wealthier countries tend to live longer, but that high levels of societal income inequality reduce average life expectancy. With regards to income distribution, Amin found, after carrying out a multiple regression using life expectancy as a proxy for the health of a nation, that the Gini variable was significant to the .01 level (2001). He showed that, on average, when the income of a country is distributed very unequally, the life expectancy decreases. These results are substantiated by Idala, who attempts to explain this by suggesting that "societies with greater equality can be expected to have a lower infant mortality rate or higher life expectancy because more people can afford life's necessities" (2002: 18). However, the study carried out by Lobmayer and Wilkinson yielded different results (2000). They showed a "disappearance of the relationship between income inequality and mortality" (Lobmayer & Wilkinson 2000). They use two summary measures of mortality: Age-Adjusted Mortality and Potential

Years of Life Lost (PYLL). For age-adjusted mortality the relationship between mortality and income inequality (measured using the 50:10 centile ratio) is either non-existent or weakly inverse, whereas the relationship between mortality and income inequality using the PYLL measure is positive up to the age of 50 and the relationship reverses its sign among those over 65. However, the countries used in this study were all wealthy, developed market democracies. It is possible that the effects of income inequality may diminish as countries become wealthier, meaning that this study cannot be automatically generalised and assumed to be equally valid with regards to developing nations. For this reason, I am going to assume this study is not directly relevant to my paper. My first hypothesis therefore states: *There will be a negative relationship between the measure of income inequality (Gini coefficient) and life expectancy.*

Previous studies on the link between income and life expectancy have suggested a positive relationship. Rodgers shows this relationship is highly significant and results with R^2 values of over .75 when life expectancy at birth is used as the measure of longevity (1979). Idala reports similar results that are consistent, he notes, with the absolute income hypothesis, which states that mortality decreases with average income, but at a declining rate (2002). A point is reached where an increase in income will no longer improve one's health nor increase life expectancy. These results and the intuitive logic of the statement lead to my second hypothesis: *There will be a positive relationship between the measure of income per capita (GNP/capita) and life expectancy.*

Data Selection and Dependent Variable

A cross sectional sample of 30 countries was selected for this study (the full list of countries and associated data is available in the appendix). In order to get a wide and unskewed data set, the Human Development Index (HDI) was used. The HDI is published annually by the UN and ranks countries on a scale of 0 to 1 based on the quality of life of their citizens, as opposed to on purely economic measures. I divided the countries on the United Nations website into three categories depending on their HDI ranking. According to the classification proposed by UNDP, countries with an HDI below 0.5 are considered to have a low level of human development; those between 0.5 and 0.8, a medium level; and those above 0.8, a high level. The first ten countries alphabetically were selected from each category. However, in some cases, especially in the category of countries with low human development indices, lack of data availability forced me to skip a number of countries. This system allowed developed and developing nations to be weighed equally and hopefully resulted in the data used reflecting the

broad patterns within each category. The decision to choose countries alphabetically was taken to prevent any bias in the choice of observations on the basis of population, wealth, global influence etc.

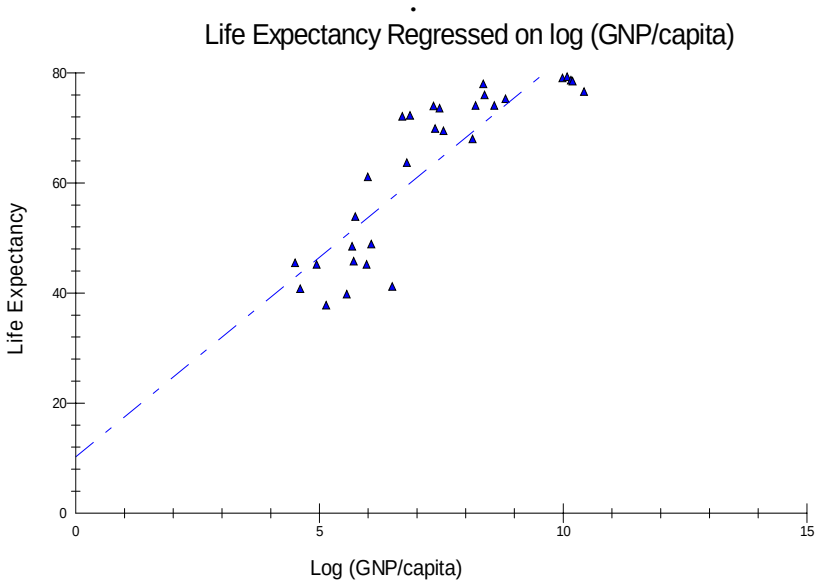
The dependent variable used in the study is life expectancy from birth. Data was sourced from the UNDP website and is from the 2002 World Development Report.

Explanatory Variables

GNP per Capita

Gross National Product is the total monetary value of goods and services produced in a year by the nationals of a country. It includes income that nationals earn abroad, but does not include income earned within a country by foreigners. To determine GNP per capita, this figure is simply divided by the population of the country in question. This measure, as opposed to GDP per capita, was chosen as it was felt it would more accurately represent the incomes of those living in poorer, less developed countries within which many large American or European Multinationals are located.

The relationship between life expectancy and income/capita is not linear—research by Rodgers and Idala shows the reciprocal of the square of per capita GDP to yield the closest relationship (1979: 2002). However, this specification was deemed to be outside the scope of this paper, therefore the logs of the GNP per capita values are used. This specification has also been shown by research to yield quite satisfactory results (Rodgers 1979; Idala 2002). The 2003 figures for GNP per capita were found on the World Bank website, and were computed using the Atlas method (2005).

Figure 2:

As can be seen from the above scatter diagram, there is a clear positive relationship between the two variables. An analysis of the OLS regression results clarifies this relationship. The R^2 value of 0.75553 means that over 75% of the variation in life expectancy can be explained by variation in GNP per capita. The F-test returns a p-value of 0 to three decimal places; we can be confident that the model has overall significance.

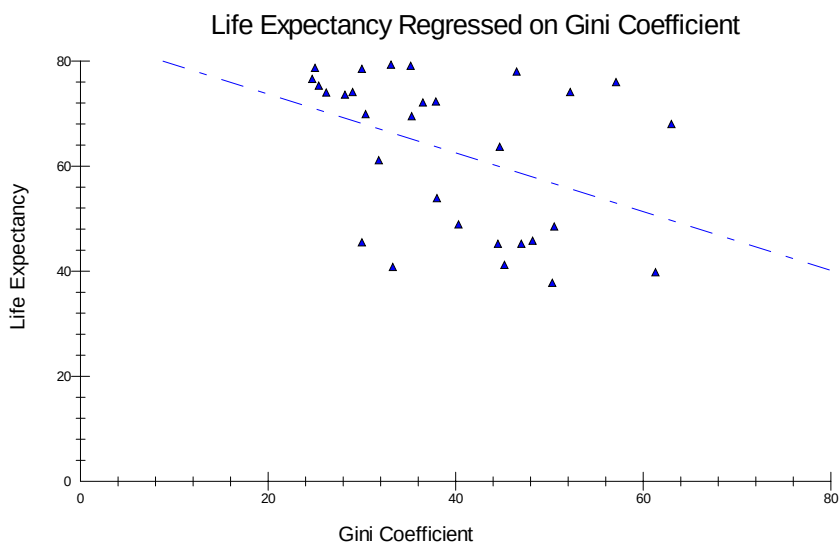
It was also found that the GNP/capita variable was positively related to life expectancy. A coefficient of +7.2535 was produced. The probability value for the t-statistic is also 0 to three decimal places, indicating that the coefficient is statistically different to zero. These results lead us to fail to reject the first hypothesis. There is a positive relationship between life expectancy and GNP per capita.

Gini Coefficient

The Gini coefficient is a summary measure of the inequality of income distribution within society and can be expressed as a proportion or a percentage. It has a value of zero when there is complete equality, and is equal to one (or 100%)

in a situation where the income of the entire society is held by one household, leaving the rest of the population with no income at all (Amin 2001). The average Gini value for the nations used in this study was 39.36%. The data for this variable was found on the United Nations website and is from the 2002 World Development Report.

Figure 3:



The results of the OLS regression of life expectancy on the Gini coefficient are as follows: the F and t results are significant at the 5% level, but this variable has much less explanatory power than GNP/capita does- the variation in the Gini coefficient value explains just 17.14% of the variation in life expectancy. The coefficient value produced is -0.55928, allowing us to fail to reject the second hypothesis, though possibly not at an acceptable level of significance (see below). There is an inverse relationship between income inequality and life expectancy.

Dummy Variable

A dummy variable was used to account for any unquantifiable consequences of living in a country with a high, medium, or low level of Human Development. Countries with a high HDI ($>.8$) are the base group. Countries with medium ($0.5-0.8$) and low HDI ($<.5$) measures were assigned 1 and 2 respectively.

Multiple Regression

The model used in the multiple regression is a simple three variable regression model taking the form:

$$Y_i = \beta_0 + \beta_1 (\ln X_1) + \beta_2 X_2 + \beta_3 D_i + U_i$$

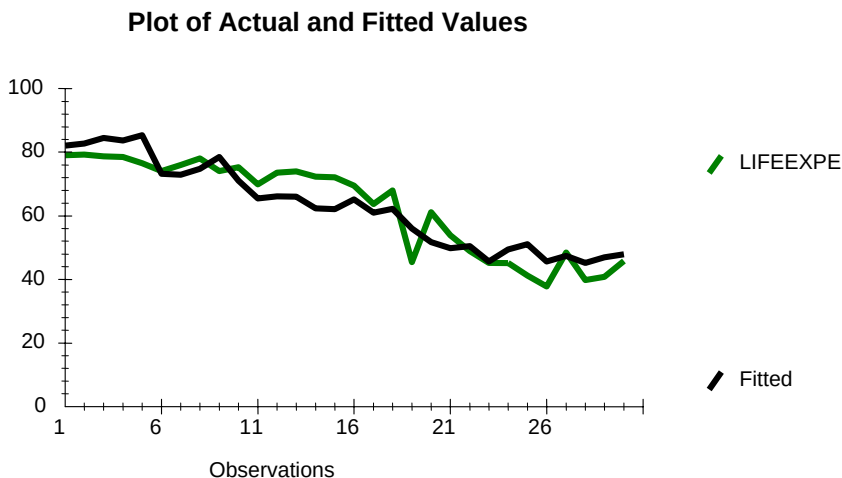
Where Y_i = Dependent Variable-Life Expectancy from Birth in country

i
 β_0 = Intercept
 $\ln X_1$ = log of GNP/Capita
 X_2 = Gini Coefficient
 D_i = Dummy Variable
 U_i = Error Term

To investigate whether the model contained significant problems of multicollinearity, the correlation between X_1 and X_2 was calculated. This yielded a R^2 value of .11668, meaning that only 11.7% of the variation in X_2 is statistically explained by the variation in X_1 . This is an acceptably low result (Gujarati 2002).

Coefficient of determination (R^2)

R^2 is a measure of the goodness of fit of the fitted regression line. The multiple regression yielded an R^2 value of 0.83093, meaning that 83% of the variation in life expectancy can be attributed to the variation in the explanatory variables. However, taking into account the fact that the R^2 measure is, as Gujarati states 'a non-decreasing function of the number of explanatory variables, or regressors in the model,' it is more appropriate to examine the adjusted R^2 value (2002: 217). This measure takes into account the number of X variables in the model, and in this multiple regression, yields a result of 0.81142. This high result can be seen by examining the graph of actual Y against fitted Y values below.

Figure 4:

T-tests

The null hypothesis for the t computation is $\beta_1 = 0$. The t-test results show that the coefficient result for the X_2 variable (-0.1771) is not significantly different from zero at the 10% level—we cannot reject the null hypothesis. This means that the variation in the Gini coefficient is not statistically significant in explaining the variation in life expectancy at this significance level. The lowest level at which the inequality measure will be significant is the 13.9% level. This can be determined by the fact that the associated p-value is 0.139.

All of the other coefficients are significant at the 10% level. The signs of resulting coefficients conform to expectations. The coefficient associated with income per capita is positive (3.3093) whereas the sign associated with the inequality measure is weakly negative (-0.1771), and the dummy coefficient is strongly negative (-8.8313).

F-statistic

The F-statistic tests the overall significance of the sample regression. The null hypothesis is that all the slope coefficients are simultaneously zero, i.e.

$$H_0: \beta_1 = \beta_2 = \beta_3 = 0$$

The F-statistic calculated in the multiple regression is 42.5938. This far exceeds the critical value at the 1% level ($F_{(3, 26)} \approx 4.64$), allowing us to reject the null hypothesis and state that our model does have overall significance at the 1% level.

Durbin-Watson test

The Durbin-Watson test is used to detect autocorrelation between error terms. The null hypothesis is that there is no positive or negative autocorrelation between the residuals i.e.

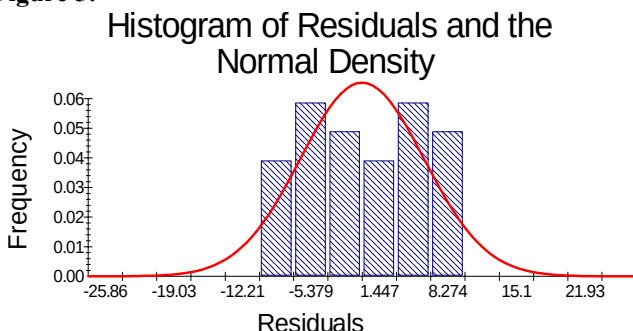
$$H_0: \text{cov}(u_i, u_j | X_i, X_j) = 0 \quad i \neq j$$

The Durbin-Watson statistic obtained following the multiple regression was 1.1290. For 30 observations and 3 explanatory variables, $d_u = 1.421$ and $d_l = 1.006$. As our DW statistic is between these two bounds, the test is indecisive.

Jarque-Bera test for normality

This test measures the difference of the skewness and kurtosis of the distribution with those from the normal distribution. A small probability value leads to the rejection of the null hypothesis of a normal distribution of the residuals. The value computed in the multiple regression was 1.5369. The lowest significance level at which we can reject this null hypothesis is 46.4% (i.e. the computed p-value is 0.464). The computed value is far less than the critical value at the 5% level ($\chi^2_{(2)} \approx 5.99147$), therefore I cannot reject the null hypothesis. This is a very important result as the F and t tests both assume normal distribution of variables. It is useful to look at the histogram of residuals to visualize how they are distributed.

Figure 5:



Heteroscedasticity

The null hypothesis in this test is that the residuals exhibit the same conditional variances, i.e. $H_0: \text{var}(u_i | X_i) = \sigma^2$. The result produced by Microfit is .33515 with a p-value of 0.563. Since 56.3% is the lowest significance level at which we can reject the null hypothesis of homoscedasticity, it is obvious that we cannot reject it at the 5 or 10% level.

Functional Form

The null hypothesis for this test is that the model is correctly specified. The criteria for analyzing an F-test is to reject H_0 if $F > F_{\alpha(k-1, n-k)}$, or if p is sufficiently low. The F-value produced by the multiple regression is 16.7431. This far exceeds the 1% critical value of 4.64, and the p-value is less than .000. These results mean the null hypothesis is rejected and we are forced to conclude that the model is incorrectly specified. Unfortunately, the Ramsey RESET test cannot tell us the source or form of the misspecification, nor suggest any superior alternatives. However, as mentioned earlier, previous research suggests that using the squared reciprocal of GNP/capita as an explanatory variable would yield a more satisfactory result for this test.

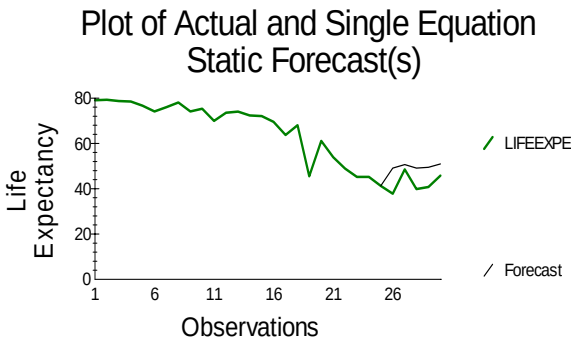
95% Confidence Interval for β_2

This will take the form $\beta_2 \pm t_{\alpha/2} \text{se}(\beta_2)$. At a 95% confidence interval, $\alpha=5\%$, T tables show $t_{(26, 0.025)} \approx 2.056$; thus $-.1771 \pm (2.056) (.11589)$ or $-.1771 \pm .23827$. This yields a confidence interval of $[-0.0612, 0.4154]$. If this test was

carried out an infinite amount of times, the true value of β_2 would lie between (-0.0614) and (0.4154) 95% of the time.

Forecast

Figure 6:



I will test the forecasting capabilities of this model by substituting the data for Burkina Faso, and a dummy variable of 2 (indicating a low HDI ranking) into our regression line, and comparing the result with the true life expectancy in this country.

Substituting this data into the line of best fit the following is obtained:

$$Y = 55.2519 + 3.3093 (5.7037824746562) + (-.1771) (48.2) + (2) (-8.8313)$$

$$Y = 47.92$$

This is our forecasted expected life expectancy for Burkina Faso. The model overestimates the true value (45.8 years) by 4.6%. Considering the fact that the model does not explain 100% of the variation in life expectancy, I consider this a relatively good result. Also, the Chow predictive failure F-test yielded a result of 0.95573 with a p-value of 0.467, resulting in a failure to reject the null hypothesis of correct forecasting properties of the model.

Conclusion

In this model, the lowest significance level at which all of the coefficients are statistically different to zero is 13.9%. This is not an ideal result as one would usually wish for their explanatory variables to be significant at quite low levels, 5% or 10%. However, the model as it stands is shown by the F-statistic to have overall significance and yields a high adjusted R^2 level of 0.81142. I did not reject the null hypothesis in the case of the Jarque-Bera test for Normality. The test for heteroscedasticity yielded a satisfactory result – we could not reject the null hypothesis of homoscedasticity at the 5% level. The Durbin-Watson test for autocorrelation is indecisive. Unfortunately, the Ramsey RESET test shows the model to be misspecified.

The conclusion of this paper would be that the absolute income hypothesis (i.e. health and life expectancy depend on income, not income relative to others' income or income inequality) is more valid than the relative income hypothesis, which stresses the significance of income distribution. Policy suggestions arising from this study would therefore encourage a focus on increasing overall GNP, and would be less concerned with how income is divided between societal members.

However, a number of limitations exist in this study. Firstly, the measure of income inequality used, the Gini coefficient, is not an unbiased measure, being more sensitive to inequalities at the top of the income distribution (Idala 2002). The measure used by Lobmayer and Wilkinson in their study, the ratio of income at the 50th and 10th centiles, was shown by Daly et al to be more strongly related to mortality levels and may have been a better measure to have used (2000; 1998). Also, the Jarque-Bera test for normality is an asymptotic test. The sample size in my study was rather small. Hence, the results of this test may not be entirely valid. Further study into the links between socioeconomic status and mortality should include an effort to overcome these shortcomings and provide a more legitimate and valid insight into this interesting and essential area of research.

Appendix

Country	Life Expectancy	Gini Coefficient (%)	GNP/Capita	Ln(GNP/Capita)
<i>High HDI</i>				
Australia	79.1	35.2	21650	9.9828
Canada	79.3	33.1	23930	10.0829

SINÉAD KELLEHER

Belgium	78.7	25	25820	10.1589
Austria	78.5	30	26720	10.1931
Barbados	76.6	24.7	33750	10.4267
Argentina	74.1	52.2	3650	8.2025
Chile	76	57.1	4390	8.3871
Costa Rica	78	46.5	4280	8.3617
Croatia	74.1	29	5350	8.5849
Czech Republic	75.3	25.4	6740	8.1582
Medium HDI				
Belarus	69.9	30.4	1590	7.3715
Albania	73.6	28.2	1740	7.4616
Bosnia and Herzegovina	74	26.2	1540	7.3395
Armenia	72.3	37.9	950	6.8565
Azerbaijan	72.1	36.5	810	6.6970
Algeria	69.5	35.3	1890	7.5443
Bolivia	63.7	44.7	890	6.7912
Brazil	68	63	3430	8.1403
Bhutan	45.5	30	90	4.4998
Bangladesh	61.1	31.8	400	5.9915
Low HDI				
Congo	53.9	38	310	5.7366
Djibouti	48.9	40.3	430	6.0638
Eritrea	45.2	47	140	4.9416
Benin	45.2	44.5	390	5.9661
Côte d'Ivoire	41.2	45.2	660	6.4922
Angola	37.8	50.3	170	5.1358
Chad	48.5	50.5	290	5.6699

INCOME AND INEQUALITY – DETERMINANTS OF LONGEVITY?

Central African Republic	39.8	61.3	260	5.5607
Burundi	40.8	33.3	100	4.6052
Burkina Faso	45.8	48.2	300	5.7038

Bibliography

- Amin, K. (2001) "Income Distribution and Health: A Worldwide Analysis." *The Park Place Economist*, Vol. IX, pp. 45-52.
- Daly, M. C. et al. (1998) "Macro to Micro links in the relation between income inequality and mortality." *Millbank Quarterly*, Issue 76, pp. 315-339.
- Gujarati, D. N. (2002) *Basic Econometrics*. New York: Mc-Graw-Hill.
- Idala, D. (2002) *Do income and Income Inequality Explain the Variation in Life Expectancy Across Countries?* Viewed on 13th February 2005 <http://www.umbc.edu/economics/grad_699_abstracts/d_idala.pdf>.
- Lobmayer, P. & Wilkinson, R. (2000) "Income, Inequality and Mortality in 14 Developed Countries." *Sociology of Health and Illness*, Vol. 22, pp. 401-414.
- Rodgers, G.B. (1979) "Income and Inequality as Determinants of Mortality: An International Cross-Sectional Analysis." *Population Studies*, Vol. 33, No. 2, pp.343-351.
- Todaro, P. (2000) *Economic Development*. London: Pearson Education Limited.
- United Nations Development Programme. Viewed 14th February 2005, <www.undp.org>
- World Bank. Viewed 20th February 2005, <www.worldbank.org>.

ETHIOPIA: WHAT CAN BE DONE?

Jennifer Flynn

Senior Sophister

Jennifer Flynn analyses the plight of one of the world's poorest countries in this case study. A look is taken at the extent and the causes of poverty in Ethiopia. The importance for development of good governance, labour mobilisation, access to education, and a move away from an overdependence on coffee exports is emphasised.

Introduction

Ethiopia has long been known as the cradle of humanity. It was from here that primitive man first emerged. Yet 100 million years later, Ethiopia is in crisis. 62% of the population live in what the United Nations describes as absolute poverty. The extent of the poverty facing the Ethiopian people is staggering. Wherever you look, throughout the country, the indicators of poverty – subsistence farming, hunger, high mortality rates – can be seen.

The causes of poverty in Ethiopia are the same as they are in most other Less Developed Countries (LDCs). An over-reliance on agriculture, a lack of infrastructure, war, poor education, and trivial levels of livelihood diversification are all to blame. Throughout the world, these problems are universal to LDCs, and in order to overcome poverty, they must first attempt to overcome these obstacles.

Both the government of Ethiopia and the various international agencies at work within the country have come up with remedies to the widespread poverty. The current government has put both the Ethiopian Country Strategy Paper and the Poverty Reduction Strategy Paper (PRSP) forward. These focus mainly on an agriculture-led rejuvenation of the economy. The World Bank has itself created seven policies, which it believes will reduce poverty in the developing world. These policies, while having some merit, do not seem to be having the desired result.

An alternative policy, which I will explore, is one supported by many economists when assessing the feasibility of developing world growth. This is the theory of labour mobilisation.

Extent of Poverty

Ethiopia is frequently described as the poorest country in the world. 26.3% of its population live on less than \$1 a day (World Bank 2004a). Its Gross National Income (GNI) per capita in 2003¹ was \$90 (World Bank 2004b). This contrasts starkly with the 1982 figure of \$130 per capita (Cornia et al 1992).

One of the largest recipients of foreign aid, it is also one of the most indebted countries in the world. Between 1996 and 1999, disbursements from the Organisation of Development Aid (ODA) accounted for an average of 44% of the Federal Ethiopian budget per annum (Joint Committee on Foreign Affairs 2003). The 2000/01 budget allowed for \$700m in external grants and loans (ibid). Yet in the same fiscal year, Ethiopia had \$5,614m of debt, which cost \$232m to service (ibid). External debt accounted for 88.2% of GNI (World Bank 2004a).

Like most LDCs, the population is employed mainly in economic activities based in rural areas. 85% of the labour force is employed in agriculture, and three quarters of the population rely on it as their only source of income (Griffin and Graham 1992; Parker 1995). These landholdings are usually only one hectare in size, which is barely large enough to feed the average family of five to six (Cornia et al 1992).

The result of this subsistence farming is hunger and malnutrition, which are both signs of poverty and underdevelopment. The average daily caloric intake in Ethiopia is 1,621 calories per person (Parker 1995). 60% of children suffer from stunted growth as a result of hunger and malnutrition. This will result in them never reaching their full adult size and will also compromise their health in years to come (Buerk 2004). 17% of children will die before their fifth birthday (Joint Committee on Foreign Affairs 2003).

Famine is also a recurring and tragic problem for the people of Ethiopia. Three major famines have taken place since the 1970s. These have resulted in massive loss of life, and have also locked Ethiopia into a vicious cycle of continuous poverty, as after the famine ends, the people no longer possess the tools and skills necessary to get the economy back on its feet. Agricultural output has fallen to less than a third of what it was in 1960, yet the population is increasing by an average of 2.8% per year (Abegaz 1994). Seven million people starved during the famine that so shocked the world in 1984. Last year, aid agencies had to feed 14 million (Buerk 2004).

Other indicators of poverty are a lack of access to education, clean water, and sanitation, as well as high mortality rates. Ethiopia is among the worst

¹ The last year of available data.

performing countries when these factors are taken into account. Secondary school enrolment is 10%, while access to sanitation is 18% (Joint Committee on Foreign Affairs 2003). As of 2000, only 24% of people had access to clean water, and these were mainly in the urban areas (UNDP 2004). Life expectancy has fallen from 45 years in 1990, to 42 years in 2002 (World Bank 2004a). This is mainly attributable to the spread of HIV/AIDS. It is estimated that 2.1 million of the 65 million population are infected. 160,000 people died of the disease in 2001, and there are approximately one million AIDS orphans under the age of fifteen (Joint Committee on Foreign Affairs 2003). In conjunction with this, poor sanitation and healthcare means more than 80% of mortality is due to “diseases of poverty” such as diarrhoea and malaria (Ahmed 1992).

Causes of Poverty

There are a myriad of reasons why Ethiopia continues to experience serious poverty and lack of development. Amongst them are over-farming of the land, a reliance on coffee as a source of export income, lack of infrastructure, little diversification and the prevalence of conflict in the region during the last twenty five years.

Agriculture

Dreze and Sen tell us that famines such as those experienced repeatedly by Ethiopians are primarily due not to a lack of food, but rather with an inability to purchase it (1989). There is evidence that during the 1973 famine in Wollo province, prices for food in the provincial capital, Dessie, were no higher than they were in Addis Ababa. The problem here was that the poor’s only source of income – their crop – had failed due to drought. Without a surplus to sell, they had no currency with which to buy the food that they needed (Sen 1999).

The reliance on traditional agriculture by Ethiopians over the millennia is also a major contributory factor to poverty. Traditionally agriculture is geared towards production for personal consumption rather than for sale. Ingham believes that “the low productivity of traditional agriculture is an important underlying explanation of rural poverty in developing countries” (1995: 275). The current land tenure system, whereby peasants do not own the land they cultivate, means that there is no incentive for growth or up scaling. The plot is forfeited if the farmer leaves it, thus the workers have no reason to invest in their land by buying tools or implementing irrigation systems (Buerk 2004).

ETHIOPIA: WHAT CAN BE DONE?

95% of cultivated land is in the hands of peasant farmers (Ghose 1992). These people are usually from the poorest strata of Ethiopian society, and have farmed the same land for centuries. The soil in numerous places is seriously fatigued, and only 35cm deep in some upland areas. 1.5 million tonnes of soil are washed into the Blue Nile annually (Parker 1995). This effectively makes the land unviable as an area in which to grow crops. Yet year after year, these Ethiopians must try to grow something in order to feed themselves.

The reasons for the soil becoming so fatigued are manifold. Throughout the years, little thought was given to the potential damage that was being done by the intensive subsistence farming that was taking place. The poor “heavily discount the future and choose consumption over conservation” on the whole (Perkins et al 2001: 241). During the famines of 1973 and 1984, the poor sold their tools in order to buy food. This meant that when they returned to their land the following year, they had no implements with which to cultivate it. The price of firewood rose by 9% during the late 1970s, thus pricing many farmers out of the market. This resulted in them replacing firewood with dung. Whatever surplus they had from their animals, they sold. Inevitably, they soon experienced a severe lack of natural fertiliser, and thus, poorly nourished soil (Pomfret 1997). The soil also blows away due to the extreme deforestation that has occurred in the last thirty years. Parker tells us that there is now only one sixth of the forest cover that there was in the late 1960s (1995). One third of peasant farmers own no traction animals, and thus can’t plough their land (*ibid*). All of these factors combine to make the reliance on agriculture in Ethiopia a major cause of poverty.

Overdependence on Coffee

Ethiopia is the second largest coffee exporter in Africa, and the beans account for two thirds of its annual export income (*ibid*). The industry directly or indirectly employs 25% of the population (Joint Committee on Foreign Affairs 2003). This dependence on coffee for export income is ill-advised, as the world coffee market has plummeted in value over the last five years. While the price of coffee has been declining for decades², Ethiopia has been significantly affected since 2000. Its export revenue in 2000 from coffee beans was \$420m. By 2003, this had fallen dramatically to just \$175m (Joint Committee on Foreign Affairs 2003). This means that vast swathes of the population are earning less than half of what they were five years ago from coffee production. In this time, inflation has

² Using real product price indices (1971= 100) we can see that between 1971 and 1973 coffee was worth 116.21, while by 1992-1994 it had fallen in value to 50.37 (Lawrence & Belshaw 2002).

stood at roughly 5% per annum (ibid). The result of this is that “real” income for Ethiopia’s coffee growers has declined sharply since the start of the decade.

Infrastructure

The lack of infrastructure in Ethiopia is also a significant contributor to rural poverty. Hardly any of the 20,000km of roads have tarmac, and the ones that do are generally very pot-holed (Parker 1995). Rural roads alleviate poverty by providing farmers with the opportunity to reach larger markets. There they can purchase necessary products more cheaply, and also sell their own goods at a higher market price (Perkins et al 2001). Many rural areas of Ethiopia are virtually cut off from the 18 large cities, as it would take days if not weeks to reach them. This means that rural producers cannot avail of a prevailing market price that might be more beneficial to them.

Education

Lack of access to education also means that the vast majority of the poor in Ethiopia have few marketable skills. In order for poverty to be alleviated, livelihood diversification is essential. With 85% of the population relying solely on agriculture as their income source, a drought or crop failure will inevitably bring disaster. Currently 49% of the population have no livelihood diversification activity (Carswell 2000). Activities which can be pursued for alternative income provision are casual labour, herding, trading, or formal employment. Without these additional sources of income, Ethiopia’s poor will never be able to free themselves of the cycle of drought and famine.

A great many jobs, however, require a certain level of formal education. While public expenditure on education has increased from 9.4% in 1990 to 13.8% in 2001 (UNDP 2004), there are still huge sections of the population with little or no opportunity to attend school. Less than half of all school-aged children are enrolled in primary education, and adult literacy stands at 41% (ibid). Without a considerable increase in the availability of education, the vast majority of Ethiopians will not have the opportunity to seek alternative or additional employment to that in the agricultural sector.

Conflict

The final cause of poverty in Ethiopia is war. Conflict is one of the greatest impediments to development in LDCs. Not only is it expensive, it causes many other economic problems as well. The war with neighbouring Eritrea, which

ETHIOPIA: WHAT CAN BE DONE?

is currently under ceasefire, cost an estimated \$2m a day during its duration (Buerk 2004). This is an extraordinary amount of government expenditure on current goods which has brought no benefit to the country or the populace itself.

Another problem that arises from conflict is refugees. War in Somalia and southern Sudan in the 1980s and 1990s brought an estimated 1 million people into Ethiopia. At one point, Hartisheik refugee camp could have qualified as the second largest city, housing about 250,000 people (Parker 1995). Not only do these people require food and shelter, they also need healthcare and education. Even providing the bare minimum necessary is an enormous drain on the government coffers, and brings little benefit to the economy as a whole.

The final problem Ethiopia faces because of conflict is what is known as the brain drain. The mass exodus of the educated for the countries of the developed world began during the civil war in the 1980s. Up to one third of qualified doctors have left Ethiopia in the last two decades (UNDP 2003). Universities need approximately 600 lecturers in dozens of subjects. The emigration of the educated middle class means that the skills and expertise needed to pull Ethiopia out of its poverty trap are missing.

Policies to Relieve Poverty

National policies

The current Ethiopian government has promised to implement some policies which it claims will allow Ethiopia's economy to expand. Ideologically Marxist, they are currently pursuing an agriculture-led policy which they believe will revitalise the failing economy. Along with this, the ruling Ethiopian People's Revolutionary Democratic Front has created a strategy paper and a Poverty Reduction Strategy Paper (PRSP). The major aims of these are:

- i. to focus on agriculture
- ii. to strengthen industry and improve infrastructure
- iii. to stimulate export growth with high value agricultural products
- iv. to invest in education
- v. to deepen decentralisation
- vi. to improve governance and reduce governmental waste
- vii. to implement agricultural research, water harvesting, and small scale irrigation projects
- viii. to increase water resource utilisation

Problems with National Policy

Without the correct support, however, the agriculture-led regeneration of Ethiopia will be a failure. The most pressing need in rural areas currently is irrigation and potable water. While the government has made commitments to increase water harvesting and implement irrigation schemes, it has so far invested little in these areas. The irrigation, projects that are being carried out are done on a small-scale by NGOs and Christian charities. While this helps some farmers, the vast majority are still facing another year of unfarmable land and no water. Without irrigation, tools, and fertilisers, it is impossible for Ethiopia to produce the high value agricultural produce that the government believes will stimulate export growth and lessen the reliance on coffee for foreign currency.

The insistence by the government that the peasants remain on their land may actually be hindering Ethiopia's economic growth (Buerk 2004). The current land tenure practice means that if a farmer leaves his land, he loses it. Many who fled the highlands during the 1984 famine looking for food or medical help faced this situation. Tenure insecurity means that there is little incentive for the farmer to invest in the land himself, and this is why the World Bank has advised that farmers be given assets.

There is also an argument that allowing the peasants to sell their land would actually stimulate the economy (*ibid*). Numerous small farms could be aggregated into one large farm, and thus take advantage of economies of scale. This would reduce production costs, which in turn would cause a fall in the prevailing market price of the goods. Larger farms with larger production volumes would also stimulate rural employment, not only in agriculture, but also in industries allied to farming such as food processing.

The government's strategy plan also mentions nothing of co-ops. Currently co-ops only account for 1.4% of the cultivated area and production in Ethiopia, and just 0.8% of peasants are members. Mirotchie argues that by biasing the distribution of yield-increasing inputs such as fertilisers and better seeds towards co-operatives, it would encourage more farmers to join (1994). In time, this would allow the co-op members to take advantage of economies of scale in harvesting and transport, and allow them to enter larger markets. The increasing revenue they received would spark a rejuvenation of the rural economy.

Gross school enrolment has improved in recent years, increasing from 33% in 1990 to 64% in 2000 (World Bank 2004b). Only about one quarter of girls are enrolled, however (Parker 1995). If development is to happen, the government needs to emphasise the importance of education for women as well as men. Educated women know more about sanitation and health, and tend to have fewer children. By educating this generation of girls, the government is investing in their

children's futures. Another area in which the government has failed to look is the provision of health care. Parker found that at least 50% of the population wanted family planning, yet in 2001 only 8% of women had access to contraception (World Bank 2004b). The current population growth rate is 2.8%, which is unsustainable in the long-term (Joint Committee on Foreign Affairs 2003).

Policy Alternatives

One policy which has been put forth as an alternative by some economists is mobilisation of labour surplus to stimulate the economy. Pomfret argues that since farmers can only cultivate their land at certain times of the year, their main asset is their labour power (1997). Since this is Ethiopia's main resource, the surplus seasonal labour should be mobilised into capital construction projects (Griffin 1992). This would not only provide a floor to rural poverty, but would also:

- i. increase land under cultivation
 - ii. increase yields through the use of land improvement projects
 - iii. increase the cropping ratio, e.g. through small scale irrigation works
 - iv. increase the productivity of labour
 - v. develop a local construction industry
 - vi. establish small workshops for agricultural products/tools
- (Ghose 1992; Griffin 1992)

The end result of this mobilisation of labour would take the form of additional income for poor families, livelihood diversification, and long-term benefits to the rural economy via capital expenditure. These economists agree that the agriculture-led policy is appropriate, but also that industry should be encouraged. The increase in agricultural output will stimulate industry into producing agricultural inputs such as fertiliser, but also processing agricultural outputs for export (ibid). The ability to export will bring much needed foreign currency into Ethiopia and hopefully stimulate the economy further.

The World Bank has also come up with seven policies which it believes will reduce poverty in the developing world:

- i. make labour cheaper in relation to capital
- ii. give assets to the poor
- iii. increase education
- iv. implement progressive taxation

- v. public provision of consumption goods to the poor
- vi. commodity market intervention in order to aid the poor producers and consumers
- vii. develop new technology, which will increase productivity

While some of these views are contentious, not all of them can be brushed aside. The provision of education has already been seen as essential for the development of Ethiopia. By allowing subsistence farmers ownership of the land they have tended for years, the Ethiopian government could stimulate the economy in a number of ways.

Other options will not work for Ethiopia, however. The massive surplus of labour in relation to capital already makes labour cheaper when compared to capital. The government needs to employ this labour and implement strategies to increase labour productivity, rather than take action to make labour cheaper.

The introduction of progressive taxation is also unfeasible until Ethiopia tackles its more pressing financial problems. A huge section of the population earns little or nothing. The creation of new jobs through labour mobilisation and rural regeneration will bring money into the countryside. However, the existence of progressive taxation may initially prove to be a disincentive to seeking additional work. Equally, the problem of corruption is rife in many developing countries, and thus, the Government itself must first take steps to improve the quality of their own governance, and set up a system of rules for their civil servants.

Conclusion

Drought will always be a problem for Ethiopia, but its effects can be lessened through investment in better infrastructure, education, yield-increasing inputs, improved agricultural practices, more access to water and sanitation, and better healthcare.

The government has pledged to take the first steps necessary, but without the continued help of the developed world, further improvements in the state of Ethiopia's people and economy are unlikely. The main help needed does not take the form of financial or food aid. Instead, foreign governments and supranational bodies such as the World Bank and the United Nations must provide support and training for the government itself. Good governance is mandatory if any of the other policies implemented are to be successful.

Along with this, there must be an overhaul of existing employment and economic practices. Labour must be mobilised, and the provision of education,

fertilisers, and irrigation must begin immediately. If all of this takes place, labour and capital productivity will rise, and the future may begin looking a little rosier.

Ethiopia was one of the first developing world countries to join the League of Nations in 1923 and make its voice heard. If Ethiopia wants to return to those glory days, it must first turn its back on the traditional economics it has practised and embrace the future.

Bibliography

- Abegaz, Berhanu (1994) "Ethiopian Economic Reform," in B. Abegaz (ed.), *Essays on Ethiopian Economic Development*. Aldershot & Vermont: Avebury.
- Ahmed, Manzoor (1992) "A Floor to Poverty: Essential Public Services," in Keith Griffin (ed.). *The Economy of Ethiopia*. New York: St. Martin's Press.
- Buerk, Michael (2004) "Going Back." *The Sunday Times*, Sunday 4th January, p.1.
- Carswell, Grace (2000) *Livelihood Diversification in Southern Ethiopia*. Brighton: Institute of Development Studies.
- Cornia, Giovanni Andrea et al. (1992) "The Supply Side: Changing Production Structures and Accelerated Growth," in G.A. Cornia, et al (eds.), *Africa's Recovery in the 1990s: from Stagnation and Adjustment to Human Development*. New York: St. Martin's Press.
- Dreze, J. & Sen, A. (1989) *Hunger and Public Action*. Oxford: Clarendon Press.
- Ghose, Ajit (1992) "Institutional Transformation and Agricultural Development," in Keith Griffin (ed.), *The Economy of Ethiopia*. New York: St. Martin's Press.
- Griffin, Keith (1992) "Summary and Conclusions," in Keith Griffin (ed.), *The Economy of Ethiopia*. New York: St. Martin's Press.
- Griffin, Keith & Graham, Andrew (1992) "The Commitment to Socialist Development," in Keith Griffin (ed.). *The Economy of Ethiopia*. New York: St. Martin's Press.

Ingham, Barbara (1995) *Economics and Development*. London: McGraw-Hill Book Company.

Joint Committee on Foreign Affairs (2003) *Project Ethiopia Report*. Dublin: The Stationary Office.

Lawrence, Peter & Belshaw, Deryke (2002) "The Non-Recovery of Agricultural Tradables and its Consequences for Rural Poverty" in D. Belshaw & I. Livingstone (eds.). *Renewing Development in Sub-Saharan Africa: Policy, Performance and Prospects*. New York: Routledge.

Mirotchie, Mesfin (1994) "Technical Efficiency of Ethiopian Agriculture," in B. Abegaz, (ed.), *Essays on Ethiopian Economic Development*. Aldershot & Vermont: Avebury.

Parker, Ben (1995) *Ethiopia: Breaking New Ground*. Oxford: Oxfam.

Perkins, Dwight H. et al. (2001) *Economics of Development*. London: WW Norton & Company Inc.

Pomfret, Richard (1997) *Development Economics*. London: Prentice Hall.

Sen, Amartya (1999) *Development as Freedom*. Oxford: Oxford University Press.

UNDP (2003) *Ethiopia suggests steps to turn brain drain into brain gain*. New York: UNDP, viewed 11th March 2005 <<http://www.undp.org/dpa/frontpagearchive/2003/november/11nov03>>.

UNDP (2004) *Human Development Report 2004*. New York: UNDP, viewed 8th March <http://hdr.undp.org/statistics/data/cty/cty_f_ETH.html>.

World Bank (2004a) *Millennium Development Goals*. Washington DC: World Bank, viewed 11th March 2005 <<http://devdata.worldbank.org/idg/IDGPprofile.asp?CCODE=ETH&CNAME=Ethiopia&SelectedCountry=ETH>>.

World Bank (2004b) *Ethiopia Data Profile*. Washington DC: World Bank, viewed 8th March 2005 <<http://devdata.worldbank.org/external/CPProfile.asp?SelectedCountry=ETH&CCODE=ETH&NAME=Ethiopia&PTYPE=CP>>.

THE ALLOCATION OF RESOURCES IN DEVELOPMENT POLICY

Francesca Reinhardt

Senior Sophister

Francesca Reinhardt examines whether Official Development Aid is being allocated efficiently. She analyses aid allocation as a dynamic game between donors and recipients, focuses on the importance of access to future resources in development, and concludes by commenting on the importance of intra-household resource allocation.

Introduction

It is a truth universally acknowledged that there is always a shortage of development aid. Three aspects of resource allocation should be taken into consideration to make development policy more efficient. The first issue is how Official Development Aid (ODA), the primary source of funding, should be allocated. The second is how to help with risk management to make current investments last. The third issue is understanding the local distribution structure to determine where resources will actually go and what effect they will have in the targeted community. This essay looks at (1) efficient aid allocation, (2) increasing access to future resources, and (3) intra-household resource allocation and the status of women.

Aid Allocation

While ODA needs to double over the next ten years in order to meet the Millennium Development Goals (MDG), aid proliferation and lack of coordination reduce the efficiency of existing aid. More aid needs to be directed at the poorest and most populous countries at more sustained levels. This is undercut by persistent donor patterns of allocating aid to less developed countries (LDCs) to reinforce political partnerships or dependency, relying on short to midterm budgetary planning, and diverting aid to emergency or high profile development efforts. The EU needs to participate in the drive to consolidate aid allocation to

LDCs, basing allocation on objective efficiency criteria relative to the recipient country's development goals. It also needs to advance strategies to extend development cooperation beyond existing power structures in recipient countries, and channel aid to the neediest and to those best-equipped to effect social and economic change.

Accordingly, the Commission's three operating principals in its 2003 Development report are "Coherence, Coordination, Complementarity." To increase coherence it is working on partnerships with the World Bank and the UN, working more closely with local structures in target countries, and working on poverty focused accords. It is also advocating ODA management reform and budget support for recipient countries to efficiently absorb and administer ODA. Related pilot projects were launched in Morocco, Mozambique, Nicaragua, and Vietnam in 2002. To increase harmonization, the Commission has released strategy papers in conjunction with the UN Development Program, including better contractual and financial procedures. The overall goals it should drive for are: (1) consistency, (2) coordination, (3) efficiency, and (4) participation.

Consistency

In the face of international crises, media spotlights, and political expedients, EU donors need to keep their eyes on the prize: consistent aid flows to consolidate long-term gains in LDCs. The reconstruction of Iraq is a good example of a critical project requiring immediate international support that nonetheless has the effect of diverting funds and curtailing other aid efforts. Hilary Benn, UK Secretary for International Development, defends UK funding decisions, saying

"Quite a lot of the money for reconstruction has come out of central resources or our own contingency reserve: we have allocated some money from what is known as our 'core for middle-income countries' – those that are less poor."

He adds that

"By 2005/6, we should be spending £1 billion a year on Africa because this is the part of the world where we need to make faster progress if we are to meet the Millennium Development Goals."¹

¹ *International Development Review (IDR)*. "A passion for development: interview with Hilary Benn." Oliver Romain.

Coordination

In the post-September 11 environment, bilateral aid is exceeding multilateral aid 70-30 (Rogerson 2004.) Multilateral approaches to ODA offer two important advantages. First, they are more likely to filter out vested interests and non-development goals. Secondly, they may avert duplication and conflicts between competing programs and investments. Aid fragmentation is costly, inefficient, and taxes the institutional capacity of LDCs. EU aid allocation needs to address the two linked problems of aid coordination between donors and aid fungibility (the practice of LDCs diverting funds from donor target areas).

Aid coordination may be seen as a global public good. The aid coordination problem can be examined as a dynamic game between aid donors and aid recipients, typically with incomplete information. The rounds may be simultaneous or sequential, however there is limited scope for learning after each round because the budgets change each time and remain private information, and possibly the preferences as well. Coordination failure arises from simultaneous decisions, incomplete information about other donor's budgets even ex-post, and under- or over-sharing in complementary projects. More shared financing and comprehensive data based on donor budgets and intentions would help limit the information failure that leads to coordination failure.

Non-cooperative strategies are likely to continue to be the norm, however. In the case of perfect information in a simultaneous game, the Nash equilibria can be efficient. For example, in a game between a big and small donor with the same preferences for a major and minor sector, there are two equilibria: either the large donor invests entirely in the major sector and the small donor invests entirely in the minor sector; or the big donor funds a project in each sector and the small donor fund a project in the major sector only. Sequential games should in theory create efficient equilibria except that information is rarely complete, especially concerning budgets. The only complete information is the misallocation after each round. A couple of strategies can lead to efficient Bayesian equilibria. First, when the other donor is small, donors concentrate on the major sector and share marginally. Second, when the other donor is big, donors specialize in one sector.

Halonen-Akatwijuka observes that the more similar the preferences are between donors, the more scope there is for coordination failure (2004). If donors have the same preferences in an incomplete information setting, they focus on the same preferred sectors which leads to undersharing in other sectors and sub-optimal results overall. Furthermore, allocating aid in proportion to the donor's preference for the sector does not maximize the donor's utility because the Cobb-Douglas utility function does not apply. That is to say that aid funding is not perfectly divisible, as in the Cobb-Douglas model, and preferred projects may require a minimum threshold of investment to work which might not correspond to

their “priority score.” There may also be network externalities between complementary projects which are not taken into consideration in donor preferences.

For instance, increased use of roads to go to market increases the profitability of the market, hence the welfare utility of the LDC and the donor’s utility in terms of aid efficiency and appreciation of development goals (α). However, these gains may require investment in other public goods such as waterways and public sanitation to increase access and ensure that the market does not spread disease. Empirically, donors favour social services over infrastructure and are influenced by the needs of their own bureaucracies and the need to show results to the taxpayer.

Efficiency

Even if ODA is doubled, aid absorption problems could significantly limit its efficiency (Rogerson 2004). Accepted criteria for aid allocation stipulate that allocation should be performance related and target reducing poverty. Other things being equal, more aid should go to countries with better policy and institutional environments, to countries recovering from conflict, and to countries facing external shocks. Two persisting handicaps to aid efficiency are self-interested tied aid requiring LDCs to pay for or privilege DC goods or services, often at net cost and to the detriment of their own economies, and secondly aid as a tool of political patronage. A third handicap is aid fungibility, the potential for LDCs to reallocate or misuse development aid.

A tension exists between poverty criteria and performance criteria, and the conditionality of aid versus constructive engagement with bad governments. The Collier/Dollar aid allocation model suggests that targeting countries based on poverty criteria, while less marginally efficient, reduces more poverty in absolute terms. The so-called “Monterrey Consensus” from the Monterrey Conference on development policy in 2001 concludes that “conditionality doesn’t work.” The tension lies in whether aid is seen as a political message or as a factor in the standard of living (which is nevertheless affected by political conditions). An optimal equilibrium between these criteria would be aid aimed at poverty but accompanied by goals for governance. Aid should be phased in and out to avoid unnecessary shocks to already fragile economies, and to limit the scope of governments to divert it. It also provides a short string by which to coax or threaten LDC regimes into respecting governance goals

The worst-case scenario, although not an uncommon one, is that aid is allocated based on non-development criteria, such as political patronage, commercial interests (e.g. tied aid) or regional stability. This creates more

incoherence between aid programs, more inefficiency, and more instability by reinforcing poor governance and creating shocks to LDC economies. The marginal efficiency of aid may be low or negative in a bad environment and may be subverted to reinforce poor governance. However, the Collier/Dollar aid allocation model demonstrates that poverty and per capita income criteria are actually more important than policy criteria as determinants of poverty-efficient aid allocations. Aid conditional on good policies and institutions has higher returns on poverty reduction, but omits many in need. Furthermore, conditional granting and withdrawing of aid rarely increases good governance but creates shocks to LDC economies.

**Table 1: Matrix of policy outcomes: Efficiency of Aid Allocation Criteria
Poverty Reduction**

<i>Benefit</i>		Unconditional	Conditional
	Targeted	Poverty level criteria: greater effect on poverty reduction, but low marginal efficiency. May be subverted to reinforce poor governance.	Mixed criteria: aimed at poorest but phased in and out according to policy goals. Combines poverty reduction and efficiency at a rate LDC economies can absorb.
<i>Waste</i>	Untargeted	Non-development criteria: more incoherence, inefficiency, and instability. May reinforce poor governance and create shocks to LDC economies.	Policy criteria: greater marginal efficiency but excludes areas under poor governance. Conditional granting and withdrawing of aid rarely increases good governance but creates shocks to LDC economies.
	<i>Waste</i>		<i>Benefit</i>

Donor and LDC priorities are often not the same, which leads to the aid fungibility problem. This is a dynamic game in which the LDC tries to learn the donor's preferences and redistribute their own funds away from preferred donor projects towards their own preferred projects. This is not to say that donor preferences are necessarily better for LDC welfare or that LDC preferences are necessarily worse. However the poor are usually politically weak, which means that the utility function of an LDC government may not be a social welfare function. Reallocation by an LDC is a sequential decision; however information is often incomplete due to lack of transparency and administrative capacity.

Halonen-Akatwijuka points out that a game with incomplete information limits the potential to shift aid because the LDC cannot fully anticipate what the donor will do (2004). This leads to a Bayesian equilibrium which favours the donors preferences. However the misallocation due to coordination failure in games with incomplete information is more harmful than the aid fungibility problem. An optimal strategy might be to increase transparency and use some of the methods used in EU Structural Funds and Regional Policy, which effectively monitor recipient spending and institutional capacity alongside aid. Methods include co-financing, where funds have to be matched or part-matched by the recipient, and aid ceilings, which limit aid to a fixed percentage of sector spending. These cooperative strategy tools would naturally have to be assessed on a case-by-case basis for each recipient.

Participation

Coordination between donors is important, as is efficiency, but aid must be “country-led,” i.e. responsive and responsible to the LDC in question. Donors must balance working with LDC authorities and working with poor, marginalised, or independent groups that may not be officially represented. Old development practices focused on injecting capital and installing western production and political processes. New development practices should focus on designing cooperative strategies for local production and decision-making processes to increase efficiency and stability. Poverty and productivity are directly affected by coordination failures and non-cooperative strategies. Examples include basic public goods like transport and health care, distribution to women, the poor, and minorities, and efficient allocation of factors of production.

Participation at the government level mitigates the aid fungibility problem, if donors and recipients can agree on preferences. Participation at the local level identifies surrogate public goods providers and the disenfranchised. Immediate poverty reduction is most likely to happen at the local level among the very poorest. This includes the world’s 750 million subsistence farmers, 60% of whom are women, whose lives are local community based. Lifting them out of poverty requires capital and technology, as well as international public goods like pro-poor trade agreements. However lasting changes require knowledge of local negotiation models and relative bargaining power and how resources are allocated within households and within the community.

A standard example of participation failure illustrates the point. A USAID project in Ghana introduced freezers to the fish-processing industry, traditionally run by women. Because the new technology gave it status, the industry was taken over by men, although it did not prove sustainable because the

freezers were too costly to run. This amounted to a disruption in local labour allocation and a net loss in income, particularly for women, which translated into less spending on childcare and healthcare, which are local female priorities. A more useful aid would have been encouraging a straw-mat industry to provide shade for household workers who pound the staple grains into flour for hours in the sun, which costs them hundreds of calories. Improving the staple grains would also improve overall nutrition.

Access to future assets

A definitive difference between rich and poor is access to future resources and the ability to absorb current shocks. With little training and undeveloped financial markets, the world's poorest are trapped in the short-term conjuncture they find themselves in and live precariously at the mercy of day-to-day shocks, which are significant in the agricultural sector. This makes them naturally risk-averse and resistant to development, and lowers the appeal of cooperative strategies because of the short time horizon and high commitment failure.

They furthermore lack the margin of manoeuvre to self-start projects or self-determine their mode of production as they have few assets and no access to credit. This makes them dependent on and often subordinate to the owners of capital where it exists, and acutely vulnerable to failures and losses. The poor are usually up against market and social norms if they try to break out of this short-term cycle and get access to credit or insurance. Access to future resources and hence a long time horizon is hence a determining cognitive and material factor.

Responding to plummeting coffee prices in 2003, Pablo du Bois of the International Coffee Organisation paints a bleak but plausible picture of the future in Central America. "Once farmers get into debt, they have to abandon their farms and either go to the cities or try to become illegal immigrants to the US, they try to plant something else like coca [cocaine] or they join the guerrilla movements. They are losing their livelihoods, and in these areas there aren't that many legitimate alternatives" (Garratt 2002). Acknowledging the constraints of volatile commodity markets, the Commission is undertaking commodity chain management projects in conjunction with its preferential "everything but arms" trade agreements with LDCs. These projects should encourage three channels to future resources: (1) micro-credit, (2) risk financing, and (3) property rights.

Micro-credit

In the streets of Calcutta, complex baby-lending systems exist among the socially excluded, farming out babies as value-added accessories to street begging. This indicates a well of untapped entrepreneurial skill that could do something more constructive if it had access to capital. The problem with conventional finance in traditional and emerging markets is that creditors have a monopoly and can charge exorbitant rates, but at the same time, are ill-informed about the viability of their loans. The ensuing Nash equilibrium means that only a minority of high-risk, high-return investments can afford the high premiums, whereas low-risk, low-return investments are shut out.

Micro-credit projects are a way of bringing creditors closer to borrowers and closing the information gap that prevents poor people from getting small, low-risk loans. Successful examples include the Grameen Development Bank in Bangladesh, which uses social networks to ensure the viability of loans, and numerous small-scale cooperatives such as the Kuapa Kokoo Ltd coffee cooperative in Ghana that pools members' resources to get critical mass.

Table 2: Matrix of mid-term credit outcomes: The Information Problem
Creditor

<i>Gain</i>		High premiums	Low premiums
	Low risk	High premiums/ low risk: Creditor cannot assess risk, so compensates with high premiums. Borrower's returns on low-risk investment may not cover premiums.	Low premiums/low risk > high-risk loans: more loans, more investment. Majority low-risk/low-return. Creditor compensates for lower premiums with higher turnover. Information gap reduced by local micro-credit: Creditor is closed to Borrow, can better assess risks. Borrower has more incentive to repay loans,
<i>Loss</i>	High risk	High premium/high risk > low risk loans: fewer loans, less investment. Majority high-risk/high return. Creditor compensates for risk and low turnover with high premiums	Low premiums/high risk: Creditor cannot assess risk and is vulnerable to Borrower default.
	<i>Loss</i>		<i>Gain</i>

Borrower: Non-cooperative strategy Transition to cooperative strategy

Risk Financing

Risk financing could be one of the most important public goods in LDCs, particularly in subsistence agriculture. There are two aspects of risk financing that require a coordination effort to provide: sustaining farm businesses in the face of frequent price and environmental shocks, and providing a safety-net for farmers to experiment with new techniques. Market-based solutions, including insurance, are inefficient to deal with high frequency/high severity risks, as are typical in agriculture (Gurenko & Mahul 2004.) Subsidised crop insurance exists in 140 countries, according to the Food and Agriculture Organisation, although most of it fails to reach poor farmers. Transaction costs may make insurance alone inefficient if frequency is high and severity (i.e. reimbursement) is low.

Risk financing needs to be tailored to the type and incidence of risk experienced by farmers and the minimum capital requirements needed to continue the business. Gurenko and Mahul propose a portfolio strategy combining insurance, savings, and contingent debt according to the severity and frequency of risk. Contingent debt is a pre-agreed emergency loan scaled to the farmer's minimum capital requirements and can be paid off over a long period of time. If it is not offered on the market, governments or cooperative groups could step in. Having a strategy to sustain the business despite adverse shocks is an important step in getting farmers to think cooperatively and long-term.

Property Rights

Property rights are way of transferring the legal and psychological security to the poor to develop their own environment. Establishing legal norms to transfer otherwise unused land to "squatters," who are usually otherwise landless, is an efficient way of allocating resources. It allows the poor to invest in land that would otherwise be ignored and deteriorate through migrant use, and gives them a basis to raise finance to invest in home improvement and business development. In essence, it gives them a longer time horizon to work with.

The Peruvian government has issued over a million land titles to the poorest slum-dwellers, on the advice of Peruvian economist Hernando de Soto, in a bid to control the deterioration of growing cities. A UN report estimates that 2bn landless people could be living in slums by 2030. In the case of slums, the transfer is simpler because any original owners have given up on getting any further value out of their land. Rural land-ownership may be more complicated and land devolution is often a source of conflict. However aid projects should bear in mind that many of the restrictions and red-tape in LDC administrations are the legacy of

colonial rule and institutional reform is required to meet current and local needs. Making property rights more accessible should be an important part of institution building.

The Status of Women

Fighting social exclusion is crucial to developing a healthy labour market and stable communities. Improving the status of women is particularly important. Women are usually the primary providers of healthcare, nutrition, and education, especially in subsistence and traditional societies, and often dominate major economic sectors in developing countries such as agriculture and textiles. Depending on the culture, they may be given a particular role in maintaining social cohesion and responsibility for the main family unit. As such, it is essential to raise women's decision-making power and access to resources to correspond to the level of their economic and social contribution.

Intrahousehold Resource Allocation

Allocation of resources in the household affects productivity, human capital, and social stability. Negotiating models and bargaining power are based on cultural norms and gender roles, particularly in traditional societies. Most of the literature now accepts the collective model of the household, composed of differentiated members, as opposed to the unitary or "income pooling" models. There are three major aspects of gender and allocation that need to be addressed: (1) the inefficiency observed in household allocation, (2) gender-based allocation preferences, and (3) gender casting in the work force.

Inefficiency

Household allocation can take the form of a non-cooperative strategy between competing members of the household with different preferences and assets. The result is found to be widespread inefficiency in domestic and agricultural allocation, notably across Africa. Inefficiency is thought to arise from commitment failure, which forces members of the household to work on their own behalf. Fafchamps finds that causes of commitment failure include short time horizon, low assets, unequal stakes in the household, and poor external enforcement (1998).

In theory, whoever controls the least assets should end up contributing the most labour to public goods in the household. Individual members should only

participate up to the point that their utility within the household is less than or equal to their utility outside the household. This is called their “threat point.” Ultimately the threat point depends on external social norms and the legal structure regarding property rights, divorce, social security, communication and employment networks.

Three possible threat points are (1) non-cooperation within the household, (2) separation from the household, (3) domestic violence. For an individual to negotiate with other members of the household, their threat-points must be credible. Broadly speaking, the first two options are less credible for a female partner with low human capital and little outside intervention, while the third option is more credible for a male partner barring outside intervention. The mistrust between less enfranchised members and dominant members may cause them to seek a Nash equilibrium that allows them to protect their own interests.

As women, children, and young men tend to have less bargaining power, they must rely on the will and capacity of male relatives to allocate their part of the deal to them. The male relatives, however, are limited in what they can promise in the future due to poverty, instability, lack of access to credit, and short time horizon. This leads to commitment failure or the expectation of commitment failure. As a result, the less powerful members of the family opt for a Bayesian equilibrium to ensure their own gains in the future, rather than to ensure the welfare function of the household as a whole.

In terms of farming, it is observed that women and young men work harder on their own plots than on the head of the household’s plots, although their own plots are less productive. Cultivating several smaller plots is again less productive than cultivating the same land as a whole. When men and women are divided into separate or complementary sectors, such as fishing and vegetable cultivation, they do not necessarily coordinate these sectors, but prefer to ensure their own returns. Furthermore, when a traditionally female sector becomes highly profitable, it tends to be taken over by men which erases the specialisation advantages accrued by the women in that sector (Quisumbing & Maluccio 1999.)

Allocation preferences

Cross-country studies suggest that women are more likely to spend money on nutrition, health, and education than man. Quisumbing and Maluccio found that women’s preferences in Indonesia, Bangladesh, South Africa, Ethiopia consistently favoured children, whereas increases in men’s income was likely to increase alcohol and tobacco consumption (1999). Part of the explanation may be that in societies where women have few other assets, they have an interest in ensuring that their children can look after them and stand up for them later in life. Furthermore, skills, education, and levels of health acquired by women have a

much stronger transmission effect on children, as women are the primary caregivers.

Gender casting

Division of labour in pre-industrial societies is often done by gender and age casting. This has the advantage of simplicity, sustainability and specialisation. The disadvantage is that skills are not always well allocated, although this matters less in a less differentiated economy. The wide variety of roles attributed separately to men and women suggests that some may be efficient, while others are simply habitual. Giving women jobs close to the home when they are likely to be pregnant or have small children may be efficient. In contrast, some tribes in the Gambia find it degrading for men to do river work, although it is nonetheless physically demanding.

Norms regarding training, labour roles, and remuneration may also be a means of reinforcing the inferior bargaining power of women in the household. Market “cartelisation” is a means by which employers (typically men) collude to exclude or marginalize a sector of the labour force (in this case women.) This is not a self-enforcing equilibrium because each employer could profit from secretly employing this sector for lower pay, so it requires social or legal pressure, sometimes extreme, to enforce it. This has been observed, in particular, in the enforcement of cast restrictions in India.

Policy implications

Aid projects should work towards providing the legal and social protections to give women more bargaining power in the household and more options should they choose to leave it. Possibilities suited to local norms include legislating for women to keep part of their dowry should they divorce, which gives them a credible threat point without them actually having to leave the household. Reducing the power of male relatives and increasing the assets of other members should engender more cooperative strategies, reduce inefficiency, and make distribution more equal.

Investing in female work sectors such as textiles, vegetables, and rice paddies (according to culture,) increases spending on children, housing, and nutrition, as long as it does not reach a threshold where the men wish to take over. Investing in training and education for women has a high transmission incidence on children. Investing in employment projects that shift the boundaries of gender casting slightly could improve the status of women in the workforce and improve allocation of skills.

Conclusion

The shortage of available development aid makes the efficiency of allocation important. Three levels of distribution are particularly significant: (1) the criteria and consistency of ODA between countries; (2) the access to resources over time in LDC markets; and (3) the bargaining power and spending preferences of different social sectors. This essay arrives at a few suggestions for priorities at each level. All of them necessarily come with the caveat that policies should be taken on a case by case basis.

ODA should be treated as an economic factor rather than a political tool, and be phased in and out to avoid shocks to LDC economies. Allocation should be systematic and multilateral to increase transparency, coordination, and objectivity. A reliable database of aid targets and allocation could increase co-ordination, while monitoring and co-financing methods could reduce misuse by bad governments. Targeting poor and populace countries regardless of governance criteria is less marginally efficient but increases poverty reduction in absolute terms.

Increasing access to resources for the poor is key to making investments last and encouraging a culture of development. Three important mechanisms are (1) micro-credit banks and networks; (2) subsidised risk-financing; and (3) accessible property rights, particularly in urban slums. Donors also have to look at how resources will be distributed at the local level. For example, investing in traditional female economic sectors will often translate into increased spending on health and childcare. Similarly, healthcare and training for women is often transmitted to children. Finally, increasing the legal rights or economic leverage of traditional dependents can make household units more co-operative and thereby more efficient.

Bibliography

ActionAid (2003) *Emergencies Impact Review*.

Barrientos, S. (2002) *Gender, Business and Poverty – Developing an Integrated Approach*. London: IBLF.

Beynon, J. (2003) *Poverty Efficient Aid Allocations - Collier/Dollar Revisited*. London: International Development Institute.

THE ALLOCATION OF RESOURCES IN DEVELOPMENT POLICY

Engel, P. & Maxwell, S. (2003) "European Development Cooperation to 2010." *Working Paper 219*, London: Overseas Development Institute.

European Commssion (2000) *The Contonou Agreement*, June.

European Commission (2003) *Annual Report 2003 From the Commission to the Council and the European Parliament on the EC Development Policy and the Implementation of external assistance in 2002*. Brussels, 3 September 2003 Commssion 527 final.

European Commssion (2004) Communication from the Commission to the Council and the European Parliament. Agricultural Commodity Chains, Dependence and Poverty – A proposal for an EU Action Plan. Brussels, 12 February 2004 Commission 89.

Fafchamps, M. (1998a) *Efficiency in Intrahousehold Resource Allocation*. FCND Discussion Paper No. 55. Food Consumption and Nutrition Division, International Food Policy Research Institute.

Fafchamps, M. (1998b) *Intrahousehold Access to Land and Sources of Inefficiency: Theory and Concepts*. Stanford University

Garratt, Sheryl (2002) "Wake up...and smell the money." *The Observer*, 8 September.

Griffith-Jones, S. (2003) *The Context for Capital Account Liberalisation; where goes the international financial system*. University of Sussex: Institute of Development Studies.

Griffith-Jones, S., Segoviano, M. & Spratt, S. (2002) *Basel II and Developing Countries: Diversification and Portfolio Effects*. University of Sussex: Institute of Development Studies.

Gurenko, E. & Mahul, O. (2004) "Enabling Productive but Asset-Poor Farmers to Succeed: A Risk Financing Framework." *World Bank Policy Research Paper 3211*, February.

Halonen-Akatwijuka, M. (2004) "Coordination Failure in Foreign Aid." *World Bank Working Paper*.

- Honohan, P. (2004) "Financial Development, Growth and Poverty: How Close are the Links?" *World Bank Policy Research Working Paper 3203*.
- Hnatkovska, V. & Loayza, N. Volatility and Growth. *World Bank Working Paper*.
- Kraay, A. (2004) "When is Growth Pro-Poor? Cross-Country Evidence." *World Bank Policy Research Working Paper 3225*.
- Maluccio, J. & Quisumbing, A. (1999), *Intrahousehold Allocation And Gender Relations: New Empirical Evidence. Policy Research Report on Gender and Development. Working Paper Series No. 2.* World Bank Development Research Group.
- Miyamoto K. (2003) "Human Capital Formation and Foreign Direct Investment in Developing Countries." OECD Development Centre, *Technical Paper No. 211*.
- Oxfam (2003) *From Donership to Ownership? Moving Towards PRSP Round Two*. UK: Oxfam.
- Oxfam (2003) *The IMF and the Millennium Goals. Failing to deliver for low income countries*. UK: Oxfam.
- Reisen, H., Soto, M. & Weithoener, T. (2004) Financing Global and Regional Public Goods Through ODA: Analysis and Evidence from the OECD Creditor Reporting System. *Working Paper No. 232.* OECD Development Centre
- Robert, J. (2003) *Poverty Reduction Outcomes in Education and Health Public Expenditure and Aid*. London: Overseas Development Institute.
- Rogerson, A. (2004) *The International Aid System 2005-2010: Forces For and Against Change*. London: Overseas Development Institute, January.

THE ECONOMICS OF NUCLEAR POWER

Thibaut Rebet

Junior Sophister

Since the Chernobyl disaster nearly 20 years ago, nuclear power has been judged harshly. In today's changed policy context, Thibaut Rebet undertakes a re-evaluation. He analyses the costs and benefits in relation to available alternatives with a focus on application to European energy policy. In doing so, he makes many forceful and under-appreciated points in defence of nuclear power and provides evidence of environmental safety, reliability, economic efficiency, and strategic importance for Europe.

Introduction

The recent Kyoto agreement on global warming means that Western countries need to find new methods of producing electricity which will reduce carbon dioxide emissions. At the same time, electricity is an input into almost all industry and it is therefore obviously important to minimise the cost of such an important input. Hence, there is a trade-off between direct economic costs and externality costs (such as pollution). This new policy context poses the question: can we afford to ignore the potential of nuclear power any longer?

The nuclear industry has been vilified since Chernobyl and its image has never recovered. It is considered by critics to be a dangerous, expensive, and unsustainable source of energy that is worse than our current methods of producing electricity. However, the facts point in the opposite direction. With the rise of global warming and geopolitical problems in the Middle East, we need a new source of energy that is not dependent on fossil fuel. Many prominent public figures, including scientists from the Royal Society in London and the founder of Greenpeace, have backed the idea of expanding our use of nuclear power.

Is this feasible and should European countries follow the path recently taken by Finland by investing in nuclear power? To find out, this paper will analyse the three major pillars of any energy policy:

1. The need to minimise negative externalities
2. The need for economic efficiency
3. The need for a predictable, stable, and independent supply

THE ECONOMICS OF NUCLEAR POWER

We will then debate the merits and flaws of nuclear power vis à vis its main competitors: fossil fuels, wind, and solar power.¹ We will conclude on whether Europe should follow the French and Finn's example by building new nuclear reactors, or the Germans - who have decided to completely decommission all nuclear power plants in the years to come.

Externalities

One of the most important aspects of a national electricity policy is to choose an energy source that has the smallest amount of negative externalities, the most important of which is polluting the environment. Nuclear energy is considered by many to have a very negative environmental impact, but is this really the case? In fact, despite its bad image, nuclear energy is one of the cleanest methods of generating electricity and can be considered a green energy source. As can be seen from the table below, nuclear power doesn't contribute to global warming and doesn't emit sulphur dioxide or nitrogen oxides, two of the worse types of pollutants.

Table 1: Atmospheric pollution and solid waste from world energy use (Millions of tonnes, 2000)

	SULPHUR DIOXIDE	NITROGEN OXIDES	PARTICLES	CARBON MONOXIDE	CARBON DIOXIDE	SOLID WASTE
COAL	100	>20	500	3	9000	>300
GAS	<0.5	2	<0.5	5	4000	minor
OIL	40	10	2	200	9000	15
NUCLEAR	0	0	0	0	0	0.04
HYDRO	0	0	0	0	0	0

Source: Union of Concerned Scientists, 2004.

Apart from Hydropower, (which has reached its limit in terms of capacity) the only energies which can compete with nuclear power are renewable energies (Science et Vie 2003). Fossil fuels are an ecological catastrophe and it is estimated that they are involved implicitly in the premature deaths of about 100,000 people per year in the EU alone (Mittelstaedt 2004). Considering that a

¹ Hydroelectrical power isn't being considered as there are very few large rivers in Europe which haven't been dammed.

large portion of all atmospheric pollution comes from the burning of fossil fuels for electricity production (60% in the case of sulphur dioxide [EEA1997]), the use of an alternative technology could save the premature deaths of tens of thousands per year, producing a large welfare benefit for society.

Most importantly, nuclear energy doesn't add CO₂ to the atmosphere. Over the last 150 years, human activity has increased the level of CO₂ in the atmosphere by 40% (Wikipedia 2005). The goal of this paper is not to go into the effects of global warming,² but if CO₂ is continuously released into the environment, the global consensus seems to be that global temperatures will increase and the climatic effects of this could completely change the face of the planet. Below is a diagram demonstrating the amount of CO₂ released by various energy sources.

Table 2: Grams of Carbon Dioxide equivalent per KWh of Energy produced

	INDIRECT FROM LIFE CYCLE	DIRECT EMISSIONS FROM BURNING
COAL	176 to 289	790 to 1017
GAS	77 to 113	362 to 575
HYDRO	4 to 236	None
SOLAR	100-280	None
WIND	10 to 48	None
NUCLEAR	9 to 21	None

Source: IAEA, 2000

Knowing that 60% of all CO₂ emissions in Europe come from electricity production, it can safely be assumed that it is a desirable public policy choice to use a source of energy that doesn't release large quantities of carbon dioxide into the atmosphere (Eurofer 2004). Renewable and nuclear power seem to be the only appropriate solutions if we want to respect the Kyoto protocol and try and avoid a continuing increase in global temperatures.

² For more details on global warming go to nrdc.com

Other Environmental Problems Linked to Nuclear Power

Radioactive Waste

One of the main worries people have about nuclear power is what to do with the radioactive waste that is generated by the reactors and secondly, what is the safety impact of storing this waste. However, even though no long-term solution has been found to eliminate the problem of waste management, the problem is much smaller than is commonly perceived. As can be seen below, the amount of deaths linked to radioactive waste over the long term are insignificant, especially when compared to the deaths caused by coal and solar power. The table below demonstrates this.

Table 3: Deaths per 1,000 MW plant per year of operation due to waste

NUCLEAR:	
-- HIGH-LEVEL WASTE	0.0001
-- LOW-LEVEL WASTE	0.0001
-- TOTAL	0.0002
COAL:	
-- AIR POLLUTION	25
-- RADON EMISSIONS	0.11
-- CANCER-CAUSING CHEMICALS	0.5
-- TOTAL	25.61
SOLAR PHOTOVOLTAICS:	
-- COAL FOR MATERIALS	0.8
-- CADMIUM SULFIDE (IF USED)	0.8
-- TOTAL	1.6

Source: Cohen, 1990.

One of the reasons for this low death rate is that the quantities of radioactive waste generated by a reactor are not large. In fact, the waste produced by a nuclear reactor is equivalent to the size of a coin per person, per year (Lauvergon 2003). It has even been calculated that “if the United States went completely nuclear for all its electric power for 10,000 years, the amount of land needed for waste disposal would be about what is needed for the coal ash that is currently generated every two weeks” (Cohen 1990).

Worldwide, 40,000 tonnes of waste are generated annually, 15,000 tonnes being spent fuel and the 25,000 remaining tonnes, low level radioactive materials such as protective clothing or shielding (Cohen 1990). The spent fuel used up in one year by the whole planet can be stored in an area measuring 10 X 20 X 10 meters and the low level waste in an area of 30 X 30 X 30 meters (Cohen 1990). These quantities are very small, especially when compared with the 30 billion

tonnes of materials released worldwide into the atmosphere each year by the burning of fossil fuels (Cohen 1990). In terms of chronic low-level radiation emissions, burning coal emits more radiation in the fly ash, containing uranium and thorium, than is routinely emitted from an operating nuclear power plant for any given amount of energy (Cohen 1990).

However, there is no doubt that nuclear waste is still the Achilles' heel of nuclear power. As has been mentioned, there is no long-term solution to the problem yet. Fast-breed reactors which would divide the amount of waste created by 30 are one solution, but their cost has meant that no large scale programme has been undertaken for the moment (Science et Vie 2003). Fuel reprocessing is another path which has been taken by the French and British but again, economic factors aren't in favour of this option (Science et Vie 2003). This leaves the last option of burying the waste deep below ground as the Swedes and Americans have decided to do (Science et Vie 2003). It is far from ideal, but has been shown to be safe and cheap. Another advantage of this solution is that it allows us to recycle the waste in later years because only 1% to 3% of the energy of spent fuel has actually been used (World Nuclear Association 2004). In a couple of decades, it may well become economically viable to use this spent fuel to create new fast-breed reactors.

Reactor Safety

The reputation of nuclear power as an unsafe energy source is grossly unfair and due mainly to the Chernobyl catastrophe. However, once we look at the figures presented below, it is possible to see that of all major electricity sources, nuclear is by far the source with the lowest number of fatalities, with the possible exception of renewables (for which figures aren't available). Additionally, these figures don't take into account premature deaths caused by pollution. If included, this would place traditional energy sources even further behind nuclear power in terms of safety.

Table 4: Comparison of accident statistics in primary energy production.
³ (Electricity generation accounts for about 40% of total primary energy)

FUEL	IMMEDIATE FATALITIES (1970-92)	WHO?	DEATHS TWY* PER ELECTRICITY
COAL	6400	Workers	342
NATURAL GAS	1200	Workers & public	85
HYDRO	4000	Public	883
NUCLEAR	31	Workers	8

Source: Uranium Information Centre, 2003.

So far in over 7,000 plant years in the United States and a similar number in the EU, there has only been one meltdown. It is estimated that on average, one meltdown will occur for every 10,000 years of operation (Edwards 1996). The consequences of a meltdown are also minimal as power plants in the west have a solid containment structure in contrast to soviet reactors, which were designed with military purposes in mind (Frot 2000). It is hence estimated that a major catastrophe with up to 50,000 fatalities will only occur once every 100,000 meltdowns, or once in every 1 billion plant years (Edwards 1996). Considering that 100,000 people die annually because of fossil fuels in Europe, this figure is extremely small.

The extent of land contamination due to a worst-case scenario meltdown also needs to be taken into account. This is another area where the media and environmentalists have exaggerated the true consequences of a meltdown. It is considered that a worst case scenario would contaminate land over a radius of just 60 square miles and that of these 60 square miles, 90% could be easily treated leaving only 20 square miles affected (Cohen 1990). The worst possible accident would cause economic damage of \$30 billion according to American researchers. However, the average meltdown would “only” cost \$200 million (Cohen 1990). However, this figure is placed in better context when we consider that the annual

³ “Basis: per million MWe operating for one year (i.e. about 3 times world nuclear power capacity), not including plant construction, based on historic data - which is unlikely to represent current safety levels in any of the industries concerned. The data in this column was published in 2001 but is consistent with that from 1996-7, where it is pointed out that the coal total would be about ten times greater if accidents with less than 5 fatalities were included” (UIC, 2003).

cost of property damage from coal burning alone is \$1 billion per year in the US and probably similar in Europe (no figures available) (Cohen 1990).

Economic Efficiency

Table 5: External and direct costs of electricity generation in the EU (m /kWh)

EXTERNAL COST ⁴							
	COAL	OIL	GAS	NUCLEAR	BIOMASS	SOLAR	WIND (NOT COUNTING BACKUP) ⁵
AUSTRIA			11 to 26		24-25		
BELGIUM	37-150		11 to 22	4-4.7	28-29		
GERMANY	30-55	51-78	12 to 23	4-4.7	28-29	1.4-3.3	0.5-0.6
DENMARK	35-65		15 to 20		12 to 14		0.9-1.6
SPAIN	48-77		11 to 22		29-52		1.8-1.9
FINLAND	20-44				8 to 11		
FRANCE	69-99	84-109	24 to 35	2.5	6 to 7		
GREECE	46-84	26-48	7 to 13		1 to 8		2.4-2.6
IRELAND	59-84						
ITALY		34-56	15 to 27				
NETHERLANDS	28-42		5 to 19	7.4	4 to 5		
NORWAY			8 to 19		2.4		0.5-2.5
PORTUGAL	42-67		8 to 21		14 to 18		
SWEDEN	18-42				2.7-3		
UK	42-67	29-47	11 to 22	2.4-2.7	5.3-5.7		1.3-1.5
DIRECT COST	32-50	49-52	26-35	34-59	34-43	512-853	67-72

Source: European Commission, 2000

⁴ EXTERNAL COSTS: radioactive waste disposal, future financial liabilities arising from decommissioning and dismantling of nuclear facilities, health and environmental impacts of radioactivity releases in routine operation, and effects of severe accidents.

⁵ WIND: as explained further on, due to the fact that wind cannot be controlled, backup energy sources are needed for operation when enough wind isn't blowing.

THE ECONOMICS OF NUCLEAR POWER

As can be seen in the above diagram, in terms of direct cost, nuclear power is beaten by gas, biomass, and coal. However, when external costs are taken into account, there is on balance only one winner. A further consideration in reading the above study is that it was undertaken 4 years ago when gas and oil prices were much lower than they are today. Hence, it is probable that today, in direct costs, nuclear power is even cheaper relative to gas and oil.

It should also be taken into consideration that nuclear energy offers greater price stability than its rivals. The main cost of a nuclear plant is the initial capital cost (UIC 2004). Other sources rely much more on the cost of the fuel used to operate the turbines. In today's world of fossil fuel price instability, nuclear power gives economies what they crave most, certainty.

Nevertheless, there is one major problem. The building of a nuclear power plant requires a massive capital injection. This is then compensated by very low running costs, meaning that over the life-time of a plant, the electricity produced is quite cheap. But private firms might not be willing or able to support the large amounts of capital needed, knowing that they will not get a return for 5 to 6 years and that profitability starts only after 20 or 25 years (UIC 2004). This means that for nuclear power to survive, it needs to be sponsored by the state. In today's liberalised electricity market, this poses a problematic policy conflict.

The need for energy independence and sustainability of supply

It is critical for an economy to have a sustainable and predictable flow of electricity. Energy is a crucial input into almost every industry, without it modern economies simply crash. The wisdom of having a sustainable electricity supply is evident in California, where electricity shortages in 2003 caused \$45 billion in higher electricity costs and lost business due to blackouts and a slowdown in economic growth over two years (Economist 2003). It is inconceivable for an economy to function without a sustainable electricity supply. Securing supply should thus be a central objective of any energy policy and all threats to the security of a stable electricity supply need to be minimized. The three key elements in doing this are: developing energy independence, reliability, and long-term sustainability.

Energy Independence

Firstly, Europe needs to maximise energy independence. Europe is no different to California in that it has an energy-intensive economy and limited natural resources with which to generate electricity. The costs of producing electricity using our limited resources are well above world prices (IAEA 2000).

Hence, Europe is dependent on such regions as the Middle East for its oil supplies and Russia for its gas supplies. This is far from ideal for Europe as both these regions can be highly unstable (and as recent events have shown). The lack of control of our energy supply means that we are strategically vulnerable to external shocks: for example the 1970s oil crisis which caused massive increases in the cost of oil and brought the global economy into recession.

The fact that Europe cannot be guaranteed a natural, safe energy supply has a major impact on energy policy. There are large costs associated with energy independence but the net benefit can be massive. Energy independence needs to be considered as an insurance policy and the extra cost linked to energy independence can be considered as an insurance premium on protecting the economy from external shocks. Like insurance, the net benefit may never materialise but the policy is sensible because the potential risks of energy dependence are simply too great.

A trade-off exists between the risks of energy dependence and economic efficiency. Therefore Europe must not choose supply sources simply according to efficiency criteria but also needs to consider which sources minimise dependence on countries outside our sphere of control. The current situation in the oil market, where the price of a barrel of oil has increased from \$15 to \$50 in less than five years, is a perfect example of why this policy needs to be taken seriously (Economist 2005). It is clear that oil and gas cannot provide this stability. The only energy sources that can are nuclear, renewable, and to a lesser extent, coal power.

Reliability

Secondly, Europe needs to choose sources that are capable of matching current electricity supply with fluctuating demand. This is to say, we need a base of power which can be relied upon at all times to generate electricity to meet demand and this is not the case with all sources. Here nuclear energy needs to be compared to its competitors.

FOSSIL FUELS: This source of energy has become the most common in the world due to the fact that fossil fuel burning plants can be used 90% of the time during each year (Science et Vie 2003). Also, these sorts of plants can be turned on or off instantly, meaning that electricity companies can quickly match supply and demand. This is especially important in the electricity market as electricity cannot be stored cheaply (with the exception of hydroelectrical power, which can be stored using dams), meaning that excess generation is simply wasted. For these reasons, fossil fuels will have a share of the energy market in Europe for a good number of years to come.

THE ECONOMICS OF NUCLEAR POWER

WIND POWER: Reliability is a major problem associated with wind power. Wind turbines in fact only produce electricity 20%-30% of the time (Country Guardian 2004). This is because wind is unpredictable and a certain wind speed is needed to get mills turning. This wind speed may not always be maintained and picks up quite often at night, when electricity demand is at its lowest. A study done by an organisation called Country Guardian gives empirical results demonstrating these problems (2000). They can be observed in Northern Denmark where 21% of electricity is generated using wind power. The windmills often don't produce enough electricity and the shortfall has to be imported from Sweden. These problems mean that wind power needs to have backup electricity-generating units to produce up to 80% of the average electricity generated by windmills. The only realistic backup energies for countries which don't have large hydroelectric resources is fossil fuels, as it is necessary for the units to be put into operation very quickly to avoid an interruption in supply.

SOLAR ENERGY: As can be imagined, the problems linked to solar energy are similar to those faced by wind energy.

NUCLEAR POWER: This source of energy has a load factor of 80% and future reactors will be able to produce electricity 90% of the time (Science et Vie 2003). This is second only to fossil fuels. However, nuclear power does face a problem. It takes 24 hours to get a plant up and running (Science et Vie 2003). This means that nuclear plants cannot easily adjust to fluctuating demand. This is why nuclear plants tend to be turned on constantly except during maintenance when other sources, usually fossil fuels, tend to be used to adjust for demand.

Long Term Sustainability

We need to take the long-term future and sustainability into account. Many electricity sources rely on natural resources that will be used up in the not too distant future, or which will otherwise become prohibitively expensive. It is senseless having an energy policy that encourages a particular source of energy if in 20-30 years the policy is going to lead to a dead end; the main reason for this is economic.

FOSSIL FUELS: Current world reserves of coal outstrip demand by a ratio of 200:1. Hence, in the medium run there isn't a great deal to worry about when it comes to coal resources. The situation for oil gas is less encouraging. According to BP, there are 67 years worth of proven gas reserves left and 41 years of oil (2004). However, these numbers need to be taken with a grain of salt as they only count "proven reserves." Actual reserves are probably significantly higher.

WIND AND SOLAR ENERGY: These resources are renewable and supply is unlimited.

NUCLEAR POWER: There are about 4 million tonnes of conventional uranium resources currently available. Current consumption is about 75,000 tonnes per annum meaning that we have conventional reserves that will last us 30 years at the current rate. There are other reserves of up to 10 million tonnes that aren't currently viable but would be if the price of uranium doubled. This would allow 200 years of use at current levels. Unconventional sources of uranium such as seawater could provide enough uranium to produce the electricity supplies of the world for 7 million years at a cost of 2 to 6 times the current cost of uranium. As uranium represents only about 2% of the generating costs of nuclear power, even seawater uranium is feasible (Uranium Information Centre 2003). Hence, nuclear power is not limited by resource constraints.

Conclusion

The conclusion seems evident. No energy is perfect and the best solution is to spread electricity production between various sources.

Fossil fuels have shown themselves to be environmentally catastrophic but due to their direct price advantage and convenience, they will be around for a while, especially gas, which surely has a role to play due to its cheap price and the fact that fossil fuel plants are very quick in responding to demand.

Power generation using natural renewable energy sources, such as solar and wind power, does not emit CO₂ and is therefore viewed as an effective means of mitigating climate change. However, these natural energy sources also present problems including the large amount of land needed, intermittent supply, and high price. Continuing investment in this resource will help reduce costs and renewable resources need to be an integral part of Europe's electricity production. Nevertheless, for the time being, renewables simply aren't up to scratch to produce large amounts of electricity efficiently.

This leaves us with nuclear power, which seems to be the best source available. Nuclear power does have its problems, but it is the cheapest source and still does not pollute the environment. Additionally, using nuclear power would help us achieve a stable supply and some sort of energy independence vis à vis the Middle East and Russia. It is the conclusion of this paper that nuclear energy does have a future and that European countries should follow the path of France, Finland, and Lithuania by fully embracing nuclear power.

THE ECONOMICS OF NUCLEAR POWER

Table 6: Advantages and disadvantages of nuclear power

	ADVANTAGES	DISADVANTAGES
NUCLEAR POWER	• Cheapest solution when direct and external costs are taken into account • Most concentrated source of energy generation • Waste is more compact than any other source • Causes the least direct deaths per TWh • No atmospheric pollution, saving thousands of lives per year • Would help reduce political dependence on Middle East and Russia	• Requires larger capital cost; means private companies might shy away • Requires a resolution of the long-term, high level waste storage issue in most countries • Needs to improve public image problem

Bibliography

BP (2004) “Statistical Review of World Energy 2004.” Available from
<<http://www.bp.com/subsection.do?categoryId=95&contentId=2006480>>

Cohen, B. (1990) “The Nuclear Energy Option.” New York: Plenum.

Country Guardian (2000) “The Case Against Windfarms.” available from
<<http://www.countryguardian.net/case.htm>>.

Edwards, G. (1996) “A Race Against Time Interim Report on Nuclear Power.”
Available from <http://www.ccnr.org/CANDU_Safety.html>.

EEA (1997) “Air and Health.” Copenhagen available, from
<<http://reports.eea.eu.int/2599XXX/en/page010.html>>.

Eurofer (2004) “Competitiveness and Trading Emissions Scheme.” Available
from <http://www.eurofer.org/positionpaper/compet/competitiveness_et.htm>.

European Commission (2003) “External Costs: Research results on socio-
environmental damages due to electricity and transport.” Brussels:
European Publications

- Frot, J. (2000) "The Causes of the Chernobyl Event." Available from <www.ecolo.org/documents/documents_in_english/Causes.ChernobyJF.doc>.
- Hore-Lacey, I (2003) "Nuclear Issues Briefing Paper # 75," Uranium Information Centre. Available from <<http://www.uic.com.au/nip75.htm>>.
- International Atomic Energy Agency (2000) "The Security of Energy Supply." Available from <www.iaea.org/Publications/Magazines/Bulletin/Bull424/article2.pdf>.
- Lauvergon, A. (2003) TV programme "Complément d'Enquête." France 2, 24 Novembre.
- Mittelstaedt, M. (2004) "Death toll from dirty air rising," 9 July, *Globe and Mail*.
- Science et Vie Magazine (2003) "Hors Serie: Le siecle du nucleaire." December, Paris.
- The Economist (2005) "Fuel is Gold." 10 March, *The Economist*.
- The Economist (2003) "Bring me your powerless masses." 21 August, *The Economist*. Union of Concerned Scientists (2004). "EnergyNet." Available from <http://www.ucsusa.org/clean_energy/energynet/index.cfm>.
- Uranium Information Centre (2003) "Safety of Nuclear Power Reactors." Available from <<http://www.uic.com.au/nip14.htm>>.
- Uranium Information Centre ii (2004) "The Economics of Nuclear Power, briefing paper 8." Available from <<http://www.uic.com.au/nip08.htm>>.
- Wikipedia.com (2005) "carbon dioxide." Available from <http://en.wikipedia.org/wiki/Carbon_dioxide>.
- World Nuclear Association (2004) "The Nuclear Fuel Cycle." Available from <<http://www.world-nuclear.org/education/nfc.htm>>.

THE MULTIFUNCTIONALITY OF AGRICULTURE: WHAT DOES IT MEAN AND DOES IT JUSTIFY CONTINUED SUPPORT TO AGRICULTURAL PROTECTION?

Niamh O'Farrell

Senior Sophister

Niamh O'Farrell examines the use of the multifunctional nature of agriculture to justify state support for the sector. She questions whether or not the commodity and non-commodity outputs are actually 'joint' in production and contends that the positive externalities are often over-valued, while scant regard is often paid to the negative by-products of agricultural production.

Introduction

Multifunctionality is the key concept driving European agriculture. Its importance is even greater in terms of international trade relations. The EU justifies its continued support to agriculture using the concept of multifunctionality. As the EU comes under increasing pressure to reduce its support to farmers the concept of multifunctionality warrants close examination.

In this essay I will first define the economic concept of multifunctionality. I will then outline the two differing views of multifunctionality, one of which is advocated by the EU and the other by the OECD. I will then critically examine the key elements of multifunctionality and apply them to agriculture. In this section I will use a case study to highlight some points. I will then look at multifunctionality in terms of its international ramifications and the on-going trade-liberalisation agenda of the WTO. I will conclude by outlining the OECD's analytical framework for multifunctionality and the implications this has for continued agricultural assistance justified by multifunctionality.

Multifunctionality refers to the fact that an economic activity may have multiple outputs, i.e. most economic activities will have, in addition to their intended output, other (often unintended) outputs and effects (OECD 2001). An example of this in agriculture is the scenic benefit of cows grazing on Alpine pastures. Such a sight (in theory) increases the utility of passers-by, in particular tourists. Another example is the preservation of rural societies (their traditions and culture) which farming permits. Agriculture also has many negative spillovers

such as pollution and land erosion; I will return to this issue later. The multifunctional nature of agriculture has, in recent years, become a hotly debated issue. However as the opening definition suggests, the term does not relate solely to agriculture. Why then has the multifunctional nature of agriculture aroused such interest and controversy? The OECD suggests that the spillover effects of agriculture, such as its effect on rural employment and sustainability, and its effect on the environment, are more important than those of other sectors of the economy. More skeptical commentators suggest that multifunctionality is used as a pretext for continued agricultural protection.

The OECD outlines the two main approaches to multifunctionality. The first is to interpret multifunctionality as a characteristic of an economic activity. An economic activity's multiple, interrelated outputs or effects are what give it its multifunctional character. These outputs can be intentional or unintentional, positive or negative, complementary or conflicting. Some of the outputs are valued in existing markets, while others evade the market mechanism. Multifunctionality interpreted in this way is not specific to agriculture, and there is no implicit notion that all economic activities must be multifunctional. This view can be termed the 'positive' concept of multifunctionality. The positive approach is the one chosen by the OECD.

The second way of interpreting multifunctionality is in terms of the multiple roles assigned to agriculture. In this view, agriculture is seen to have the role of fulfilling certain roles in society. As such, multifunctionality is not just seen as a characteristic of the production process, but it takes on a value itself. Maintaining a multifunctional activity or making an activity which is 'more' multifunctional can become a policy objective. This view can be termed the 'normative' concept of multifunctionality. It is clear from the EU's comments on multifunctionality that it has a normative approach to multifunctionality:

"Apart from its production function, agriculture encompasses other functions such as the preservation, management and enhancement of the rural landscape, the protection of the environment... These functions are not simply externalities of the agricultural production function, i.e. undirected side-effects, not embedded into an institutional and political context. It is a fact that European society does care about the multiple functions of agriculture and therefore policies to ensure their supply have been established" (European Commission Oct. 1999).

The two approaches, while not mutually exclusive,¹ highlight the difference in views on the importance of agriculture's multifunctional nature. For the purpose of this essay I will focus on the OECD's positive approach. The two key elements of multifunctionality are firstly the existence of multiple commodity and non-commodity outputs that are jointly produced by agriculture and secondly the fact that some of the non-commodity outputs exhibit the characteristics of externalities or public goods, with the result that markets for these goods do not exist or function poorly (OECD 2001). I will now look at each of these aspects in turn.

Jointness

Joint production refers to situations where a firm produces two or more outputs that are interlinked so that an increase or decrease in the supply of one output affects levels of the others (OECD 2001). Multifunctionality hinges on the concept of jointness as, without it, there is no technical or economic link between the commodity and the non-commodity outputs and thus no agricultural policy issue to be explored. If jointness does not exist it is possible to provide non-agricultural provision without agricultural production taking place. But even if separation of the commodity and non-commodity outputs is technically possible, it may still make sense to produce the products jointly due to 'economies of scope.' This means that joint production of two or more commodities is cheaper than separate production. On the other hand, if jointness does exist, it may confer a cost advantage i.e. the production of the non-commodity output is cheaper when it is produced with the agricultural commodity. Examples of jointness in agriculture are rural employment and the maintenance of landscape. However jointness is often assumed when in reality it is dubious. An obvious example of where jointness does not exist is in the maintenance of historical buildings and cultural heritage sights. These sights can be maintained irrespective of agricultural activity.

The sustainability of rural communities resulting from rural employment generated by agriculture is often put forward as one of the more 'obvious' multifunctional outputs of agriculture. In fact in developed countries increases in agricultural output and employment are inversely correlated. This is due to advances in technology and the mechanisation of jobs. Jointness between agriculture and rural sustainability through employment is therefore not a clear-cut issue.

¹ The OECD states that a positive approach does not exclude a discussion of the normative approach to multifunctionality.

THE MULTIFUNCTIONALITY OF AGRICULTURE

Along with rural employment, the preservation of the environment is cited as one of agriculture's multifunctional characteristics. However, as with employment, this assumption is far from clear. Additionally, as mentioned earlier, agriculture has numerous negative spillovers. Intensive farming was in fact a direct result of CAP payments. Farmers were paid guaranteed prices for their agricultural produce, which served as an incentive to increase farm inputs (such as fertilizer) beyond the normal returns dictated by the market. The results of such practices led to soil erosion and large fields with few trees or hedges. Excessive amounts of fertilizer led to pollution of soil and water and unpleasant smells. On the other hand, there are examples of agriculture having positive spillover effects, such as rice production on terraced paddy fields which is credited with preventing soil erosion and flood prevention.

Food security is also mentioned as an important multifunctional benefit of agriculture. However this argument is of decreasing importance for most developed countries especially given that most countries import a large proportion of their food anyway. Winters (1987) states that if food security really mattered to industrialised countries they would tackle it via strategic stockpiles rather than output policies. Food security remains an important issue for Less Developed Countries (LDCs) however. Alas, in most cases their food security issues have more to do with non-agricultural factors such as lack of inputs and poorly developed distribution and transportation systems.

The above examples show that the issue of jointness - a central tenet of multifunctionality - is far from a tightly defined, easily quantifiable issue. In many cases the non-commodity outputs of agriculture can in fact be produced independently of agriculture. In other cases the spillovers from agriculture have negative effects. Jointness is a critical concept as the extent of jointness creates opportunities for and impediments to policy targeting and decoupling (Cahill 2000). If multifunctionality is used to justify continued support to agriculture yet one of its central tenets is highly questionable, then one must conclude that justifying support based on it is very problematic.

Externalities and the public good nature of multifunctionality

The elements of multifunctional agriculture are externalities and, in most cases, public goods that are produced jointly with food in agricultural processes (OECD 2001). Therefore, these effects do not have a monetary value and no compensation is paid for producing them. Governments, and more particularly the EU, regard agricultural support as an indirect form of payment to farmers for providing these non-commodity outputs. As I have previously outlined the

problems with jointness in agriculture, I will now look at the issues associated with government provision of public goods.

The multifunctional nature of agriculture provides various public goods, for example the preservation of rural communities and landscapes. These multifunctional aspects of agriculture are valued by society and, as such, a case could be made to justify continued agricultural support.

An externality is a cost or benefit arising from any activity which does not accrue to the person carrying out the activity. For example the effects of pesticide use on the biodiversity of agricultural land is an externality produced by agriculture.

The non-commodity outputs from agriculture are, for the most part, public goods. Public goods are by definition non-rival in consumption and their benefits are non-excludable. Non-rival means that one agent consuming a commodity does not prevent other agents from consuming the same product (examples from outside of agriculture include street lighting and national defense). Non-excludable means it is not possible to hinder any agent's consumption of a public good. These two characteristics mean that no markets exist for public goods, thus it is necessary for governments to intervene in the market to ensure the optimal provision of those goods. Examples of public goods in agriculture would be the preservation of traditional farming techniques and culture and the preservation of the environment. The EU regards agriculture as part of its formative history and as such wishes to preserve it. The environmental 'benefits' related to the multifunctionality of agriculture as I stated earlier are dubious as many of these supposed public goods are in fact negative externalities.

Agricultural support is not by any means the most efficient way of providing such public goods. I will prove this point in two ways: first, using a case study and second by giving examples of cases where direct payments are the best incentive for providing public goods.

Yrjölä and Kola conducted a survey of consumers' attitudes towards and willingness to pay (WTP) for the multifunctional elements of agriculture (2004). The survey was conducted using the contingent valuation (CV) method, which elicits consumer preferences for public goods by constructing a hypothetical market for the public good. The aim of the CV study was to estimate consumers WTP for the public goods by asking them how much they would pay for certain government actions. Yrjölä and Kola's survey was conducted using questionnaires on a computer aided interviewing system. The households surveyed were selected on demographic grounds and were considered a representative sample of all Finnish citizens of 18 to 75 years of age. The results showed that food safety and welfare of animals were considered very important issues the most often, the state of the rural environment was considered to be important, and the maintenance of

the rural landscape was considered to be the least important element of multifunctionality. When citizens were asked about the key roles of agriculture in society at large the ensuring of viable and permanent settlement in rural areas and the adequate production of healthy and high quality food products were regarded as being the most important aspects of Finnish agriculture.

The average WTP for multifunctional agriculture was roughly €94 per citizen per year. The aggregate WTP for an optimal bunch of multifunctional agriculture varies between €189mn and €377mn. The annual amount of agricultural support in Finland in 2003 was €1.79bn. If multifunctionality is used as the sole justification for agricultural support then in this case the government is over-valuing its benefits enormously. Even allowing for such caveats as the likelihood of citizens to under-value public goods, the difference between the two amounts is vast.

The above case study highlights how costly current agricultural support is, and how it pays excessive amounts for the desired benefits of multifunctionality. The only way in which multifunctionality would justify continued agricultural support would be if the supports were more efficient and directly aimed at preserving the public goods valued by society. Aside from the fact that the jointness between commodity and non-commodity outputs is highly disputed, it is possible to produce the desired non-commodity outputs independently of production, and indeed in a more cost effective way. For example Japan currently supports its rice producers to the tune of six times world market price. Part of the justification for this is that paddy fields are multifunctional in the sense that they prevent soil erosion and flooding. There are however a range of alternatives that can provide the same benefit. Such alternatives, like chemically leaching ground water tables are significantly less expensive than providing agricultural support to farmers. If governments want to reward rice farmers for their contribution to flood control they could do so directly i.e. by provide cash payments for each acre cultivated as opposed to broad agricultural support (ABARE Aug 1999).

Conclusions

Against the backdrop of continued WTO negotiations calling for increased trade liberalization the EU's trading partners are suspicious of multifunctionality being used in a blanket fashion to justify all agricultural support. Indeed, as Swinbank notes it was the need to engage in a new round of agricultural trade negotiations that brought multifunctionality to the fore (2001). The EU has made extensive use of the 'green box' policies, which are agricultural

supports deemed acceptable by the international community, i.e. supports that are minimally trade distorting. Supports aimed at the non-commodity outputs of agriculture fall into this box. The EU has been able to move expenditure from the constrained amber box to the unconstrained blue and green boxes. This has led the EU's critics, particularly in developing countries, to conclude that the rules are too lax. Coupled with this administrative loophole is the poorly defined concept of multifunctionality, which is often employed as a justification for blanket support. In this essay I have shown that the tenets upon which multifunctionality is based are far from definitive.

The OECD analytical framework provides us with three key questions that allow us to evaluate what the optimal intervention should be:

- Is the non-commodity output jointly produced with an agricultural commodity and, if so, to what degree can its link with commodity production be changed?
- Is there market failure?
- Have non-government options such as market creation or voluntary provision been explored as the most efficient strategy?

(2001)

These criteria highlight the importance of the concepts of jointness and public goods in the multifunctionality debate. I have outlined the problems pertaining to both. Jointness between commodity and non-commodity outputs is highly questionable. Externalities can be both positive and negative, with the latter causing serious damage to the environment and in many cases over-riding the assumed 'positive' externalities. Government provision of public goods is also problematic for two main reasons. Firstly, it is very difficult to value public goods and this can lead to under or over supply. Secondly, government expenditure is influenced by bureaucratic and political pressures, which can have little if any correlation to public demand for such goods. This fact is a noteworthy aspect of multifunctionality. Agricultural support is greatly influenced by domestic politics and interest groups. As Winters notes pressure groups for agriculture are widely believed to be the most organized and most influential in Western economies (1987). According to Winters "Policy-makers tend to favor complex and obscure methods of intervention whose costs are hidden, but whose benefits are plain" (ibid). One can easily apply this to multifunctionality. The benefits seem to be clear to the uninformed observer i.e. agricultural support helps maintain the viability of rural areas. However on closer inspection one can conclude such benefits are not as forthcoming as policy-makers claim and that multifunctionality is an inefficient and expensive way to provide non-commodity outputs. Providing

blanket agricultural support to farmers with the aim of providing the optimum amount of non-commodity outputs is indeed a 'complex and obscure method.' Providing direct and targeted payments for non-commodity outputs, regardless of jointness, is a more transparent, effective, and efficient means of ensuring supply of these non-commodities.

Lastly, I would like to comment on the concept of agriculture contributing to rural economies. Agriculture is a sector with many structural problems such as declining prices, low elasticity of demand etc. Indeed it is well documented that many European farms would have disappeared long ago had it not been for the generous CAP. Given these facts I find the idea of agriculture single-handedly propping-up the economies of rural areas extremely problematic. I think that the European model of agriculture is, in many ways, romantic and ultimately unrealistic. In my opinion the rural communities of the EU, and indeed worldwide, need a modern economic approach to tackle their problems. Such an approach would have numerous policies targeting all sectors of the rural economy, not just agriculture. If rural communities are to be maintained I believe that such a multi-pronged approach is necessary. Rural viability should not be used as a synonym for agricultural support, especially when such support is unrealistic. To conclude, I believe the present system of agricultural support is not justified by multifunctionality.

Bibliography

ABARE (1999) *Multifunctionality - A Pretext for Protection*, November. The Australien Bureau of Agricultural Economics.

Abler, D. (2002) *Multifunctionality: The question of jointness: Applying the OCED framework-A review of literature in the United States*. Paris: OECD <www.oecd.org/agr/mf/doc/usa_abler_revised.pdf>.

Cahill, C. and Shobayashi, M. (2000) *The Concept of Multifunctionality of Agriculture: Results of OECD Research*. Paper to the Agricultural Economics Society of Ireland.

European Commission – Directorate General of Agriculture, Stella Zervoudaki, ed. (1999), *Contribution of the European Community on the Multifunctional Character of Agriculture*, Oct. Brussels: European Commission Info-Paper.
<www.eu.int/comm/agriculture/external/wto/document/ip2_en.pdf>.

OECD (2001) *Multifunctionality: Towards an Analytical Framework*. France: OECD Publications.

Prestegard, S. (2003) *Policy Measures to Enhance a Multifunctional Agriculture: Applications to the WTO Negotiations on Agriculture*. Oslo: Norwegian Agricultural Economics Research Institute <www.ecostat.unical.it/2003/agtradeconf/contributed%20papers/prestegard.pdf>.

Prestegard, S. (2004) *Multifunctional agriculture and the design of policy instruments: Application to the WTO negotiations on agriculture*. Oslo: Norwegian Agricultural Economics Research Institute <www.nilf.no/publikasjoner/notater/en/2004/n200408hele.pdf>.

Swinbank, A. (2001) *Multifunctionality: A European Euphemism for Protection?* University of Reading <www.apd.rdg.ac.uk/agecon/research/workingpapers/as1.pdf>.

Winters, A. (1987) *The Political Economy of Industrial Countries' Agricultural Policy*. France: OECD Publications.

Winters, A. (1990) *The So-Called "Non-Economic" Objectives of Agricultural Support*. France: OECD Economic Studies 13.

Yrjölä, T. & Kola, J. (2004) *Preferences of Consumers in terms of Multifunctional Agriculture*. Helsinki: University of Helsinki <www.ifama.org/conferences/2004conference/papers/kola1040.pdf>.

TIME IS MONEY: AN ENQUIRY INTO THE EFFECTIVENESS OF ROAD TRAFFIC MANAGEMENT SCHEMES AND CONGESTION CHARGES

Karen Mayor

Senior Sophister

This project attempts to highlight the economic arguments for road pricing and its application: the congestion charge. The theoretical case for congestion charging is outlined and a look is taken at the application of this theory in Hong Kong, Stockholm, and London. It is concluded that road pricing seems to be the way forward in transport economics.

Introduction

The last few decades have seen the advent of deregulation and competition in bus, rail and air transport worldwide. Increased pressure from consumers has ensured that a better service is available through competition and market forces in these areas. The case of road transport is however quite different. Indeed, government intervention is still regarded as necessary to secure investment in road infrastructure. In parallel, increased wealth and employment has seen the number of passenger cars increase phenomenally. This has put increased pressure on the roads and the public transport system. The latter being in most cases underfunded and inefficient has resulted in a definite switch to passenger cars. For instance, between 2003 and 2004 the number of new cars licensed in Ireland grew by 6.9% (CSO 2004). Infrastructure has not kept up and serious congestion problems are now widespread in major urban hubs.

The road congestion problem was underlined in the field of economics as early as the 1960s in the Smeed Report, which stressed the need for road pricing in London. So why has road pricing taken so long to be accepted by the general public and implemented by the government?

I will first take a look at the economic background of road pricing and study the effects of marginal costs. Next, I will attempt to underline the theoretical concepts of road traffic management and then road pricing. The problems associated with the implementation of congestion charges will then be emphasized.

Finally, through the examples of the cities of Hong Kong, Stockholm and London I will investigate whether road pricing has stood up in practice.

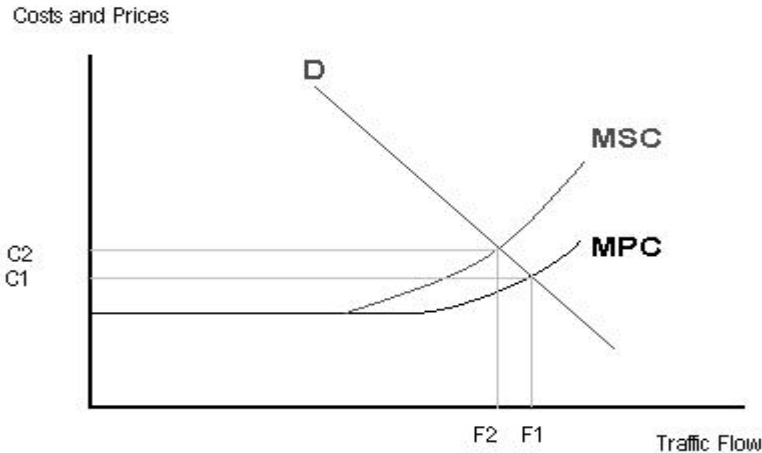
The problem: Marginal Costs of Passengers

The following description of the costs behind the congestion problem follows that of Professor P.J. Drudy in *Transport in Dublin: Policy and Practice* (O'Sullivan 1991).

Congestion appears when too many passenger cars attempt to take the same route at the same time. Each traveller has a marginal private cost (MPC) of travelling. This accrues only to him and represents his costs in terms of time, petrol and insurance etc. for a single trip. However, as more and more people use the same road, congestion slows down these individual travellers and their personal additional costs increase. The demand curve (D) on the graph represents the demand for "travel" and is a decreasing function of traffic flow. People will travel more when the flow is lower. Thus the intersection between the demand curve and the marginal private cost is the final traffic flow, F1, with associated costs, C1.

Up to now we have only taken into account the private cost to the traveller. However, his trip is also imposing costs on other people. First there is the time cost to other transport users due to the additional car on the road as well as their increased safety costs. There are also externalities or neighbourhood effects on third parties not availing of travel. These include noise and visual nuisance as well as air pollution. If we take these costs into account we must include a marginal social cost (MSC) curve. The MSC diverges from the MPC when traffic flow is high¹. Public welfare is thus maximised when the demand curve intersects the MSC and consequently when traffic flow is at F2 (below F1) with the cost and price of travel at C2 (higher than C1).

¹ However, in theory the MSC curve is always going to be slightly higher than the MPC curve as noise, visual, and pollution nuisances occur whenever a car is taken onto the road.

Figure 1:

So, in order to maximise social welfare, the cost and prices of road travel must increase and traffic flow must be reduced. There are two ways of achieving this. The former can be achieved through road pricing and the latter through increased supply of road infrastructure. We are now going to examine these two solutions.

Traditionally, the government's view on congestion has been to view it as an infrastructural problem. Thus increasing construction of roads was seen as a way to reduce congestion (on the graph, this would amount to shifting the MPC and MSC outwards to the right). However, in practice, you must also take into account the change in consumers' behaviour. Indeed, with increased road space, traffic volumes are likely to increase as consumers view the loss in congestion as an incentive to switch to road travel. They thus cause a shift in the demand function. Congestion would then reappear and more roads would have to be built to alleviate the problem and so on. Consequently road construction would only be a short-term solution. The provision of more roads increases the service but does not apply the price to go with it. This is not only extremely costly but it also encourages welfare degrading behaviour. Indeed, the environmental and social externalities involved will also increase. Moreover, this type of policy can also have a negative effect on the use of public transport as people switch to personal car use deeming it more efficient.

The provision of additional road space as a solution to congestion was a policy adopted in many countries during most of the 70s and 80s. In Ireland, the

National Development Plan of 1989-1993 planned a total investment in transport infrastructure of 1427.2 million pounds or 1.06% of GDP (Barrett 1991). Looking back it is now evident that such a self-defeating strategy was not the solution and proves Anthony Downes' "fundamental law of traffic congestion"² (1992).

What is traffic management?

From the previous analysis, it would thus seem that road traffic requires a certain amount of management and pricing. Traffic management schemes are various and involve administrative policies and road pricing. I will first take a look at various existing road management schemes.

Traffic calming involves reducing the speed of traffic in residential areas with speed-bumps, special paving, indirect routes, and wider pavements. This is an attempt to tackle safety issues, usually in residential areas. It can however induce congestion in urban areas as travellers converge to the same routes in order to avoid the "slower" residential ones. The benefits are nonetheless improved safety and environment for residents.

Traffic bans are becoming more topical. They are used to reduce to total amount of traffic in a designated area. They can be applied according to the type of vehicle, time of day, (peak times) or type of movement (through journey or access) (Elsom 1996). Probably the most famous type of traffic ban is that of the cities of Athens and Mexico. There, cars are banned from the city centres depending on whether their license plates end with an odd or even number. However, as with any type of regulation, consumers can try and deviate. The problem in this case is that people will decide to buy an extra car in order to circumvent the ban. The fact that the policy is hence inefficient and causes more cars to be on the road is not the only problem. Indeed, the additional cars will generally be cheaper ones and consequently older and more polluting thus increasing the externalities due to road traffic as well as congestion.

Bypasses and tunnels are another way of redirecting traffic from the city centre. This was the original goal of the Dublin Port Tunnel which was constructed to bring heavy goods vehicles from the outskirts of Dublin directly to the Port thus avoiding unnecessary traffic in the city centre. Obviously the effectiveness of such a policy depends on engineers' accuracy at estimating the appropriate height of the tunnel!

Cleaner fuel car incentives are quite common in Scandinavian countries. They involve subsidising electric or hybrid vehicles. This deals with the problem

² Which is that it is impossible to reduce city centre traffic jams and other vehicle externalities by investing solely in road and transit infrastructure (Downs 1992).

of externalities but also, in some cases such as Norway, owning an environmentally friendly car can help you avoid congestion. Indeed, these cars are allowed to drive in the bus lanes and moreover do not need to pay certain road tolls. Obviously, this is still only feasible as electric cars are a minority but providing incentives to buy them is a good way of reducing the externalities of car travel. They do not, however reduce the number of cars on the road and this type of incentive can actually be deemed contrary to road congestion policies as it entices consumers to buy cars.

Finally, *parking* has been deemed an issue when it comes to traffic management. Several schemes exist in relation to parking, these include parking meter systems, ticket issuing parking meters and disc systems. However, these may render a small income but do not solve the problem of congestion. Indeed, even if on-street parking is limited by policies, this will not necessarily have an effect on through traffic. In Ireland,

“builders of new offices were required to include a high minimum number of parking spaces so as to reduce the competition for on-street parking. Since congestion can be caused by moving as well as parked cars the high minimum policy had a built-in contradiction which was not realised until the late 1960s” (Barrett 1991).

The conclusion we can draw from these various traffic management schemes is that although some of them might lead to a reduction in externalities, it would still seem that the most efficient way to reduce congestion would be to give motorists an incentive to not take their cars into town. This leads us to the case of road pricing.

Road Pricing in Theory

It would now be the general consensus that congestion is a price problem and not an infrastructural or supply problem. Following conventional neo-classical economic theory, solving this problem should thus be left to the price mechanism. However, left to itself the market produces too much urban motoring. An increase in general wealth induces an increase in car ownership and consequently, through increased congestion, a decrease in welfare.

Thus the main idea behind road pricing is to seek to increase welfare by internalising externalities and as a result include the social costs of urban motoring in the price charged. What are the gains to be made by reducing the externalities of

road traffic? These have been calculated in a number of different ways by different agencies but the basic theory stays the same: shadow-prices.

Shadow-prices are a way to correct market prices in order to reflect social costs (Barrett 1991). In the case of congestion the following would have to be taken into account: time savings which could be related to earnings gained by time saved, the spill-over effects of air pollution on health and infrastructure, as well as noise and visual nuisances on the population living in the surrounding areas. This last point is characteristic of neighbourhood effects as the people affected by the problem are not necessarily the ones using the product.

Other taxes on transport such as petrol tax and car tax are not efficient in reducing the externalities involved as, in the case of car taxes, the tax is not related to use at all. Thus the price mechanism needs to directly target the cause of the congestion, i.e. the people that are using their cars in certain zones at peak times.

As a consequence, an efficient congestion charge would be one that takes into account all these negative spill-over effects and charges motorists the true cost of their journey. Making them aware of this price would lead them to evaluate the marginal utility of their trips and consequently force them to postpone their less urgent travel needs to off-peak times. It would transfer taxation from those who purely own vehicles to those who use them the most.

To summarize, the basis of a congestion scheme is to charge all drivers entering the city centre or even charge them for the amount of time spent in the city centre. The cost of the charge would have to be high enough to deter unnecessary trips and would represent the true cost of a journey to society. Graphically depicted as the difference between the MPC and the MSC at the latter's intersection with the D curve.

Difficulties related to the implementation of a congestion charge

As early as the 1960s, road pricing was already being discussed in the United Kingdom. Indeed, the Smeed report calculated the cost of congestion at 88 pence per mile which was deemed very high. G. William and B. Mackie referred to its "impeccable academic pedigree". So why then has it taken so long to actually emerge? While in theory a congestion charge might have an "impeccable academic pedigree", in practice it faces a number of difficulties.

The first is *technical*. Indeed, how do you collect the charge? Smeed proposed to have meters in cars. However, these could be subject to tampering and the cost of installing them could be quite high. There are also manual and electronic methods possible, the latter making it necessary for cars to be equipped with a charge card. Theoretically, these methods would be able to vary the charge according to the time of day or level of congestion. Electronic road pricing permits

were introduced in Singapore in 1975 and Austria also experimented with electronic cards in 1994 in Salzburg. The administrative issues of road pricing are still rife and care must be taken to avoid using a method that will be easily taken advantage of.

There are also *equity* issues at stake. Indeed, people believe they are already paying too much for their personal transport use. Car tax, fuel tax, insurance costs and on top of it all congestion charges are likely to make car use extremely expensive. But as Elsom put the question, “will this congestion charge simply create less congested roads for better-off motorists?” (Elsom 1996). This is the equity issue at hand. Certainly, if only better-off motorists can make the journey into the city centre the charge would be deemed discriminatory. The issue of urban road pricing was controversial in Switzerland when the Touring Club Suisse claimed the proposed urban toll in Bern was *antisocial* (Böbel & de Rahm 2004).

Granted, the lower income brackets may be unfairly disadvantaged by a road charge. However, this brings us to the issue of what the generated revenue will be used to finance. In Norway, for instance, the revenue, by law, may only be used to finance the building of road infrastructure and remedy environmental degradation caused by the transport system itself. Consequently the revenue is being used to correct another anti-social aspect of transport that hits motorists and non-motorists alike: decreased welfare due to externalities. The general public does not tend to appreciate what it cannot measure and therefore if the revenue were used to subsidise public transport the aforementioned equity effect could be eliminated in the public eye.

Road traffic management and congestion charge schemes are never going to work if sufficient and efficient *public transport* is not made available to the public as an alternative to personal car use. A congestion charge acts as a disincentive to use a personal car and a major shift to public transport would undoubtedly be induced. Thus, a combination of bus and rail transport as an alternative is necessary for a congestion charge to work. This involves a major investment in public transport that in certain cases can be deemed too costly. But when all external costs are accounted for it is usually beneficial to the population as a whole. Moreover, the charge itself might be a good source of income that could allow some of the investment to be recouped. Nevertheless, politicians must be wary of emphasizing this fact as the primary purpose of a congestion charge is *in theory* to alter behaviour and not gather revenue.

Public and academic interest in this matter have made it more publicised in the media and the success of certain experiences has helped change mentalities and improved the view the general public has of road charges. This is crucial, as political commitment is needed to make a road pricing project feasible. Public dislike of what is seen as another tax is usually a deterrent in the political arena.

But, heightened problems in the past few years in relation to pollution in big cities have resulted in the public opinion agreeing that something must be done.

Case Studies

It is now accepted worldwide that measures to alleviate urban traffic difficulties need to be implemented in order to remediate externalities such as noise, air pollution, visual intrusion, safety, and congestion. Over the last few decades major cities have implemented different road management schemes. The methods used vary widely and with retrospect have had differing conclusions. I am going to concentrate on projects put into practice that have either failed or succeeded.

Road pricing gone wrong: Hong Kong and Stockholm

Hong Kong is an interesting case of a congestion scheme gone wrong. In 1983, Hong Kong experimented with

“electronic license plates which were recorded by an inductive loop installed in the road at the toll collection points. A central computer registered each time the vehicle passed and a bill was sent to the vehicle owner each month” (Elsom 1996: 149).

This caused problems, not at an administrative level as cars without the special plates were identified and fined, but with the public. Indeed, citizens were concerned about the amount of information on their movements this gave the government. A ‘big brother’ scare ensued and the authorities were forced to cancel the scheme. This problem can now be remedied by the use of prepaid cards for the charge as those used in Austria. But the problem remains that public support of a governmental proposal must exist.

The second road pricing experience gone wrong is that of the city of Stockholm. In this case the project was not even implemented as the objections came from within the government! In 1992, the Dennis agreement was put forward in Parliament. It was comprised of a combination of different congestion charges (different rates along different ‘rings’ around the city) and a system of road tolls (Böbel & de Rham 2004). Political disagreement over the use of the generated revenue caused the bill to be revoked. Some parties wanted the revenue to be earmarked for road investment while others preferred to use it to decrease the general level of taxes. A new proposal was submitted in 2004 and will be subject

to referendum in 2006. This is a sign that the need for a congestion charge does exist and hopefully the new proposal will be passed.

These two cases show how important it is to have both public and political support for a congestion charge scheme to work. These are also two of the factors explaining the success of the London congestion charge.

The London congestion charge: a phenomenal success

As with most major urban capitals, London, over the past 2 decades has experienced major growth in population employment and business. This has put increasing pressure on the public and private transport systems. Alongside insufficient investment, these phenomena have increased overcrowding and unreliability in public transport, as well as congestion.

On the 17th February 2003, a congestion charge of £5 came into effect in the centre of London. The London congestion charge applies to vehicles entering the Central London district on weekdays from 7am to 6.30pm. They are charged electronically. It is part of a much larger Greater London Authority scheme that seeks to restructure the city of London's transport sector.

In the initial scheme it is underlined that "in central London, in particular, increasing the capacity of the transport system cannot be based upon the private car – the necessary road building program would be financially and environmentally unacceptable" (Mayor of London 2001).

Hence increasing the supply of infrastructure is not feasible to solve the congestion problem. Road pricing cannot, however, be introduced as a stand alone measure. Other policies need to be implemented in order to make it more efficient. Indeed, the goal here is to change consumer behaviour and not to make a profit (although that is a favourable side effect). In order for consumers or passengers to agree to give up their cars there must be an efficient public transport system in place as a substitute. This fact seems to have been well understood in the Mayor of London's proposal as the 10 year strategy will also seek to "increase the capacity of the road system by up to 40% over the next ten years" and "increase the capacity of the bus system by 40% over the next ten years" as bus services are considered an efficient use of space (2001).

Effects

So what has happened since the congestion charge was put in place? After 8 months, it was noted that "traffic speeds had increased 37%, congestion had dropped 40% during charging hours and round-trip journey times reduced by 13%" (Deloitte and Touche 2003). There seems to have been a small diversion from walking to buses and a large diversion from cars to buses. The Scheme seems

TIME IS MONEY

to have generated significant traffic benefits and decreased congestion has improved bus reliability. It has also generated gross revenues of £160-180million per annum as well as

“journey time savings, reliability improvements, accident reductions and other direct travel benefits that amount to the equivalent of some £150-210 million per year across London, excluding any secondary benefits that might accrue from the use of the scheme revenues and amenity benefits” (Mayor of London 2004: 9).

Hence, the Scheme seems to have avoided the pitfalls presented earlier. Indeed, residents within the zone are entitled to a residents’ 90% discount thus avoiding complaints from local residents. Significant investment has been made in the bus and underground services in order to avoid overcrowding which would cause objections from new and existing public transport users.

In relation to the equity problem and the impact on lower income households, it seems that the proportion of lower income households that have made a change in their travel arrangements after the scheme is 17% compared to more than 30% of higher income households (Mayor of London 2004: 28). The equity issue, from a political standpoint is thus no longer valid.

Finally, by law, the net revenues from the charge must be spent on proposals that conform to the Transport Strategy for 10 years from the date on which a scheme comes into force. This will further calm public opposition to the charge as it is public knowledge where the revenue is going.

The Scheme was carefully planned and implemented and the first condition, public support, was present from the beginning as Londoners were tired of long waiting times and anxious to avoid the historically terrible effects of excessive pollution in London. All these factors explain the success of the London Congestion Charge and why numerous other countries are now looking to imitate it.

Future Plans

In August 2004, a Revised Transport Strategy was issued which laid out the plan to further extend the congestion charge zone to the west of the current zone. If the plan was accepted it would take effect in late 2006. The Transport Authority believes it can meet its supplementary target of reduction in absolute traffic levels of 15% on weekdays. It has also planned to further increase bus capacity in order to cope with demand. The announcement of a rise in the charge to £8 by Ken Livingstone (Blitz 2004) has caused some concern. The Mayor

believes it would cut congestion by a further 5-13% and increase revenues. However he is now facing increased opposition from retailers who are facing a rise to a £7 charge for commercial fleet vehicles and a potential loss of custom. Londoners have also called for improvements in registration and payment methods. There is also inevitably going to be a limit on what people are willing to pay. The success of the Scheme to date does not shield it from potential problems in the future and looking at past international experience, Ken Livingstone should probably be wary of disgruntled electors if he is to be allowed to finish his ten year plan.

Conclusion

The success of the London congestion charge has prompted cities such as Paris and Barcelona to look into the effectiveness of a congestion charge in their cities. However, problems remain as to the implementation of road pricing as we saw through the cases of Hong Kong and Stockholm. The purpose of a charge is to make people aware of the true cost of a trip and thus forcing them to travel only at non-peak times or when absolutely necessary. This rationale of road pricing is clear to economists who are aware of the importance of the external costs of transport. It is now up to the politicians to convince the public that implementing a congestion charge is not their way of simply boosting revenue by imposing another tax.

Bibliography

Barrett, S.D. (1982) *Transport Policy in Ireland*. Ireland: IMI.

Barrett, S.D. (1991) *Transport Policy in Ireland in the 1990's*. Ireland: Gill and MacMillan.

Blitz, R. (2004) "Congestion charge rise to £8 planned by London Mayor." 1 December, *Financial Times*.

Bobel, I. and de Rham, C. (2004) *Road Pricing, Traffic Congestion and Economic Welfare: A Note*. Monaco: International University of Monaco.

Central Statistics Office (2004) <www.cso.ie>.

TIME IS MONEY

- Deloitte and Touche (2003) *Road user pricing could help ease and manage International Traffic Congestion*. Europe: Deloitte Research.
- Downs, A. (1992) *Stuck in traffic: Coping with Peak Hour Traffic Congestion*. Washington DC: Brookings Institution.
- Elsom, D. (1996) *Smog Alert: Managing Urban Air Quality*. London: Earthscan.
- Gwilliam, K. & Mackie PJ (1975) "Economics and Transport Policy." London: Unwin.
- Mayor of London (2004) *The Mayor's Transport Strategy Revision*. London: Greater London Authority.
- Mayor of London (2001) *The Mayor's Transport Strategy*. London: Greater London Authority.
- O'Sullivan, J. (1991) *Transport in Dublin: Policy and Practice*. Dublin: An Taisce – The National Trust for Ireland.
- Smeed Report (1964): *Road Pricing: The Technical Possibilities*, London: HMSO

THE EVOLUTION OF THE AVIATION SECTOR TOWARDS CONTESTABILITY AMONGST AIRPORTS

Jessica Loughnane

Senior Sophister

The dramatic evolution of the aviation sector in the last two decades is examined by Jessica Loughnane in this essay. The role that low-fares airlines have played in this liberalisation is examined as is their effect on the Dublin-London air route. A look is also taken at the barriers to contestability that remain within the aviation sector.

Introduction

The aviation sector has undergone fundamental transformation in recent years. Liberalisation of the European and US skies alongside the emergence of competitive, innovative low-cost airlines¹ has resulted in a radically new aviation market defined by efficiency, productivity and competitive practices. The consequences of these improvements have had far reaching effects. Air travel is no longer reserved for the privileged few who could afford the inordinately expensive flights of the previous era, and the destinations available to consumers have multiplied greatly to include every corner of the world. This is a radical departure from the historically costly and inefficient aviation sector of the previous forty years, which had opted out of 'normal market economics'. A combination of reduced airfares and a more efficient, productivity-orientated outlook from airlines has greatly affected the role of airports. Airlines are now price sensitive; airports can no longer charge rates in the knowledge that airlines will simply pass on the added cost to passengers. A competitive market has emerged among airports as a result of deregulation and increased scrutiny by airlines of the cost structure within airports. The dominance of the traditional hub airports during the previous era has been eroded; low cost airlines have taken an innovative approach to air travel and have chosen to base their activities in cost conscious 'peripheral' airports within an hour or two of the most popular European cities via ground transport. Ryanair notoriously started this trend by using airports such as Beauvais, Charleroi, and

¹ Such as Ryanair, a highly successful European low-cost carrier, which copied to some extent the model of Southwest, an American low-cost airline that had achieved market dominance in the USA.

THE EVOLUTION OF THE AVIATION SECTOR

Frankfurt-Hahn, airports a few hours from Brussels, Paris and Frankfurt respectively. Due to the rapidly changing economic environment of the airlines, numerous spillover effects have touched the airport sector.

The changing nature of the market structure for airports cannot be analysed in isolation. One must examine the evolution of the aviation sector as a whole in order to fully comprehend the radical transformation of this industry in recent years. This essay endeavours to outline the background against which aviation took place prior to deregulation, and the effects that this had on all sectors in the industry. The deregulation of domestic skies within the EU has resulted in a radically altered market structure, enabling low cost carriers to emerge, the importance of which cannot be underestimated for the industry but in particular for airports. Low cost airlines have played a pivotal role in ensuring competitive practices are adopted among airports, in particular the role of Ryanair is discussed due to its first mover advantages within Europe and the market dominance it has achieved.

The aviation industry before deregulation

The Chicago conference of 1944 set the tone of the aviation sector until the mid 1980s. Aviation was conducted on a bilateral basis with predetermined capacity and price levels for national 'flag-carriers'. Thus the sector became characterized by numerous market distortions in the form of government interventions and regulations, exceedingly high fares, large quantities of government subsidies and loss-making airlines. The situation was aptly described by Dr. Barrett as a 'Noah's Ark system' with two airlines, two airports and two governments in agreement over fares, frequency of flights and routes (2005). Resistance to change came from many quarters. Airlines wished to maintain the status quo as huge economic rents and supernormal profits were created by the lack of competition in the sector; existing airlines had created an oligarchic market in which they could dominate (Barrett 2000). Bizarrely this lack of competition also created a scenario whereby airports allowed national airlines to gain de facto control of the airports via slot allocation committees who distributed slots for take off and landing on the basis of 'grandfather rights'.² It is estimated that at current slot prices, an airline, like Aer Lingus, that operates in Heathrow gains an estimated monopoly rent of 10% per slot (Kirlazidis 1994). Airports did not

² Airlines through the system of grandfather rights cultivated a strategic advantage over any potential entrants, for example, Aer Lingus have grandfather rights in Heathrow Airport which initially hindered Ryanair's access to Heathrow and therefore London, however Ryanair developed a strong market in Stanstead Airport after deregulation and now dominate this route.

engage in a competitive market to ensure airlines used their facilities. Airports were viewed as public utilities³ rather than as a business and therefore the inefficiencies and high costs caused by bilateral trade agreements were endured as no alternative market structure was entertained by national governments. National governments were slow to impose change to facilitate a competitive market in this area as aviation was intrinsically linked to foreign policy, national defense and national identity and this accounts for the willingness of governments to fund ailing national airlines and to tolerate an uncompetitive market. Thus national governments used non-economic rationale to justify their continuing support and regulation of the aviation sector (Barrett 2000).

Liberalisation of Air Travel

The move towards deregulation developed first in the US with the Airline Deregulation Act of 1978. This removed government intervention in the sector by allowing airlines to determine their own prices and route free from any interference. This created an opportunity for Southwest airlines to develop into a dominant low-cost carrier within the US domestic line and thus providing the inspiration for other similar European companies such as Easyjet and Ryanair (Barrett 2004). Deregulation in Europe occurred at a slower pace, airlines had achieved regulatory capture⁴ over member states, entrenching and strengthening their incumbent advantages. New entrants were excluded through market distorting factors such as unfair slot allocation at airports and government subsidies. This changed however when liberalization was instigated in 1986 with a case brought before the European Court of Justice, 'Nouvelles Frontières'. This case was highly instrumental in ensuring deregulation of the aviation sector as the Court came to the conclusion that air transport within the Single Market could not be treated any differently to other sectors of industry regardless of any special significance that member states may attach to it. The case ensured that any 'barriers' to trade in existence within the industry were to be eliminated, at least on paper, such as trade distorting government subsidies (Kyrrou 2000). Prior to EU liberalisation, some important bilateral agreements took place ensuring open skies between countries such as Britain and the Netherlands in 1984 and Ireland and the UK in 1986. The rest of Europe deregulated at a more gradual pace in three

³ A public utility provides basic services to a market such as electricity or water; this company usually enjoys a monopoly position due to economies of scale etc. In recent times however there has been a growing trend towards privatising these companies, such as Eircom and British Rail.

⁴ A situation whereby the government instead of regulating the activities of an industry in the interest of all parties involved, the government is actually influenced by one particular firm giving it an unfair advantage, for example Aer Lingus, CIE and taxi drivers in the 1990s.

stages, 1987, 1990 and 1993 (Graham 2001). An agreement was also reached with EFTA and the EU to create a free trade area between the two in aviation.

Contestable Markets

Airline markets are thus very near to providing a good example of contestable markets according to Baumol (1982). The theory of contestable markets was developed in the 1980s by Baumol and the key requirements to ensure contestability include, entry into and exit from an industry are free, there is a distinct absence of sunk costs,⁵ and any current production techniques employed by incumbents are available to new entrants. In a contestable market the price producers charge is equal to the marginal cost of the product, therefore there is an absence of supernormal profits. This ensures that an influx of new entrants attracted by supernormal profits are avoided. Regulatory restrictions on a contestable market are limited. Baumol does not believe that the number of firms in an industry is indicative of the level of contestability; a perfectly contestable market can exist with a small number of firms provided that there are no barriers to entry (Barrett 1994). The EU now has the most deregulated aviation market in the world; any airline with a valid Air Operators Certificate can operate within the EU at market-determined prices (Gillen & Lall 2004). Any bans on new airlines have been eliminated, price competition has been introduced and collusion between airlines is now strictly prohibited. Liberalisation is highly successful; one only has to look at the radical reduction in fares resulting from the deregulation of the Anglo-Irish skies, in 1987 passenger numbers had increased by 92% since 1985 and fares fell by approximately 70% (Barrett 2004). Despite these numerous advances, factors remain which hinder the aviation industry from reaping the full benefits of contestability.

Barriers to Contestability

Despite Baumol's assertion that the aviation sector is a very close example of contestable market, obstacles to contestability do exist, these mainly occur as a result of the lack of competitive practices among airports. Although the emergence of low-cost airlines is radically altering the airport sector by encouraging competitive behavior, barriers remain to hinder the liberalization

⁵ A sunk cost is irretrievable; it constitutes an opportunity cost associated with the decision to participate in an industry. It acts as a barrier to trade in an industry like aviation as it discourages potential entrants.

process and hamper the expansion of the new low-cost carriers. Structural barriers to contestability among airports include hub airport dominance, ground handling monopolies and CRS. Mergers, predatory pricing and state aid constitute strategic barriers.

Slot allocation at airports remains problematic. Grandfather rights ensure that incumbent airlines continue to dominate hub-airports and this restricts the ability of new entrants to enter into these markets. Alternatives to slot allocation committees include distributing slots via a lottery, or franchising the slots and lastly auctioning the slots to the highest bidder and thus ensuring the most efficient use of a scarce resource (Miller 2004). Although slot scarcity is a problem, low-cost airlines such as Ryanair have circumvented this issue by using 'secondary' airports in the vicinity of hub-airports to service their passengers. The Commission, despite taking a generally 'laissez faire' attitude towards slot allocation has formulated some regulation in regard to the issue. While still maintaining the principle of 'historic precedence', airlines must use their slot allocations or the airlines will forfeit the right to use them. The approach of the EU has little impact on the negative effects of slot allocation, as reform should be directed at the manner in which allocation is carried out. EU regulation still enables airlines to keep competitors out of certain airports by using their slots inefficiently. Airlines can maintain their slots with the use of smaller aircraft, uneconomical passenger numbers, and by using profits from other routes to maintain route domination in areas that make a loss. These strategies enable airlines to hinder competition and are therefore a barrier to contestability. Any attempts to reform the allocation of slots have been met with heavy criticism from incumbent airlines; this is because traditional, dominant carriers view their share of slots as an asset to their company. Airlines at hub-airports view slots as part of their 'inheritance'. The stance of the airlines on this issue obviously creates a paradoxical situation whereby the airports undertake the costly investment in the infrastructure of the facility but the airlines claim ownership without any real justification (Kirlazidis 1994).

Another obstacle to contestability is ground handling monopolies. Often incumbent airlines with grandfather rights hold exclusive rights to provide ground-handling services to its competitor. This allows airlines with such privileges to unfairly further consolidate its advantageous position by charging competitors high prices for such services. Tendering for such services would eradicate this inequality and ensure that the most cost-efficient company would provide the service. Reform of slot allocation and ground-handling monopolies are a fundamental aspect to ensuring the full benefits of deregulation are reaped within the EU. Ground-handling services remain a barrier to contestability, as 'self-handling' is rarely permitted in airports and therefore some airlines have created a monopoly provision of services. Despite formally declaring the need to ensure fair

competition between airlines in this area, the Commission cites that ‘practical constraints’ hinder the ability to implement liberalisation fully in this area. Frankfurt, Milan and Athens pose particular problems in relation to ground-handling monopolies, with official complaints lodged with the Directorate General (Kyrou 2000).

Air traffic control (ATC) deficiencies also hinder the full realisation of contestability; delays are increasing in European airports, approximately one hundred planes at any given time are delayed waiting to take off or have to circle their intended destination to receive clearance to land. The root of the problem lies in the fact that ATC in Europe is controlled by forty-two different centres and this obviously causes greater delays (Kirlazidis 1994). The creation of a single controlling body to supervise and co-ordinate ATC would have a positive impact on the industry within the EU.

Mergers and cartels also prevent the full benefits of contestability to be realised. The Directorate General in the EU is responsible for ensuring that cartels, mergers, alliances, and state aid do not inhibit the free market. The abuse of a dominant position is prohibited in article 82⁶; activities such as predatory pricing⁷, setting prices too high⁸, and refusing to allow access to a market⁹ are all prohibited within the EU. Article 81 prohibits collusion; firms must not undertake restrictive practices (Kyrou 2000). The Commission does recognise the ill effects of uncompetitive agreements between airports and airlines and the problems that affect airlines resulting from deficient airports. The general stance of the Commission in relation to agreements between airports and airlines is highlighted by the case concerning Charleroi airport and Ryanair. The European Commission in 2004 came to the conclusion that the agreement between the airport and airline concerning airport charges and taxes amounted to illegal state aid, which the airline would have to repay. Ryanair had in return for generating increased traffic through the airport¹⁰ agreed with BSCA (Brussels South Charleroi Airport) that the airline would receive a reduction in airport taxes, a rebate in ground handling

⁶ Article 82 defines what an abuse of a dominant position involves, it was formerly known as article 86.

⁷ Predatory pricing occurs when, for example an airport, wishes to decrease another airport’s profitability to ensure they exit the market or when an incumbent airport endeavours to inhibit the entry of a new airport.

⁸ In an uncompetitive market, for example airports prior to deregulation, the airport due to lack of competition has the ability to set prices above a market determined price.

⁹ Airports within the aviation sector hold a vital market position; slot allocation provides a good example of preventing a new airline to enter the market by ensuring that access to the airport is unobtainable.

¹⁰ Ryanair has a proven track record in generating passenger numbers at secondary airports, Frankfurt Hahn prior to Ryanair’s arrival had passenger numbers of 450,000 in 2001 but once the airline established itself at the airport in 2002 passenger numbers rose to 1.5m.

services¹¹, and a commitment from the airport that taxes and regulations such as opening hours would remain static for 15 years. The Commission viewed this agreement to be in direct conflict with the principles of the Common Market as it distorted competition among airlines in particular. The Commission's argument is disputed by Groteke and Kerber who point out that any airline offering the same chance to maximise capacity at Charleroi and generate similar revenues for the airport from charges and non-aeronautical revenue sources would have reached a similar agreement with the airport authority (2005). Ryanair as a low cost airline with a clear business model seeks out similar business concepts from the airports it chooses to use. The airports it seeks to use must be cost effective, simple in design, ensure quick turn around times, and limit delays. The Commission used the case of Charleroi to highlight that airports are not permitted to charge airlines different prices, financial support is permitted only in relation to the creation of a new route and any other financial support is viewed as an illegal aid in violation with the Common Market (Groteke & Kerber 2005). Despite the Commission's misgivings regarding the relationship between Ryanair and BSCA one only has to look at the bilateral agreement between Aer Lingus and Sabena¹² prior to deregulation to believe that competition has led to a significant reduction in prices and hence a increase in consumer welfare.

Airports must be allowed discretion and freedom to behave as commercial enterprises; the Commission must not create a 'regulatory straightjacket' despite the noble desire to create "fair competition for everyone in the single market of air transport" (Groteke & Kerber 2005). Airports must act in a proactive manner in order to establish a contestable manner. The business model of airports like Frankfurt Hahn, which spent 27m euro on renovations to ensure Ryanair based itself there, should be replicated. As airfares have reduced, the proportion of airport costs in tickets has risen. In order to stop costs from spiraling, airports must engage in price competition as Charleroi has, and increasingly airports should tender contracts for services to ensure efficient and competitive practices. By relying on low cost carriers to attract more passengers and generate revenues; the bargaining power of these individual airports are greatly reduced. Ryanair stopped its service to Rimini airport and moved to Acona airport (one hour south of Rimini) after a dispute regarding costs. Airlines such as Ryanair tender contracts for services thus enabling them to move quickly into

¹¹ Ryanair at Charleroi paid 1 euro per passenger whereas other airlines using the airport paid an amount between 8 euro and 13 euro.

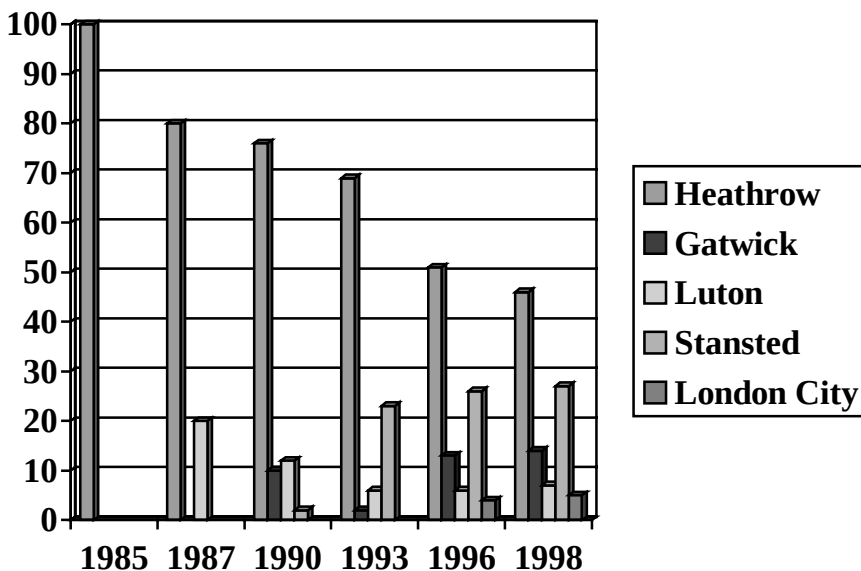
¹² Aer Lingus and Sabena airlines agreed not to engage in price competition, thus keeping fares high at 650 pounds.

market openings; this renders them ‘footloose’ and therefore able to move airports. A ‘regulatory straightjacket’ greatly reduces the ability of airports to act in a competitive manner.

Benefits of Competition illustrated by a Case Study of London’s Airports

In order to illustrate the many positive effects associated with airport competition it is necessary to look at a case study of the London-Dublin route. Prior to liberalisation in 1986, Heathrow airport dominated the market with a limited contribution from Gatwick airport. Since deregulation this route has become the busiest international route for scheduled services in the world, the development of airports in competition with Heathrow has greatly enhanced this route. Stansted, Luton, Gatwick and London City airport all compete against Heathrow for market shares. Slot allocations in Heathrow prevent the entry of new airlines into this airport and hence since deregulation there has been a marked increase in the use of smaller airports in the London region. Figure 1 highlights the growing diversification of passengers to the five different London airports. The dominance of Heathrow over this route has been eroded over the period 1985-1998. Ryanair has played an integral role in diverting passengers from the traditional hub airport, Heathrow, towards ‘secondary’ airports like Stansted (Barrett 2000). Table 1 highlights the contribution that Ryanair has made to passenger growth rates at Stansted and thus demonstrates that low cost airlines provide a pivotal lifeline to secondary airports.

Figure 1: The impact of airline competition of the Dublin-London Route between 1985 -1998



Source: based on figures from the UK Civil Aviation Authority.Barrett, 2000, p20.

Table 1: Stansted Airport and Ryanair's contribution to passenger growth from 1990-1999

	Total Passengers	Ryanair Passengers	Ryanair Share %
1990	1.2	-	-
1991	1.7	0.2	17
1992	2.3	0.6	26
1993	2.7	0.7	26
1994	3.3	0.8	24
1995	3.9	1.0	26
1996	4.5	1.3	29
1997	5.4	1.5	28
1998	6.8	2.1	31
1999 (est)	7.7	3.2	42

Source:Barrett, 2000 pp.21

The role of low cost Airlines in creating a competitive airport market

The London market highlights the integral role that low cost airlines have played in securing increased competitive practices in the airport service market. Hub airports are not compatible with the demands of these low fares airlines, the large airport structure with numerous terminals and business lounges do not suit the no frills attitude of the likes of Ryanair. Gold plating is considered an unnecessary expenditure that is not supported by consumer demand; the airports traditionally justified these expenses and increasing costs to airlines as a necessary response to consumer demand. However the increasing transfer of passengers away from expensive hub airports like Heathrow to the 'secondary' airports of Stansted and Gatwick is an example of the willingness of passengers to switch to airports with fewer facilities in order to avail of lower prices. Though uncompetitive and inefficient practices are still adopted by Heathrow and Gatwick, annual increases in airport charges between 1997 and 2002 were kept below inflation rates.

European hub airports such as Charles de Gaulle in Paris are close to capacity and therefore the combination of high charges and the unfair system of grandfather rights provides little allurements for low cost airlines. These airlines prefer to use 'secondary' airports in order to decrease costs, create a separate identity in the market, and service new catchments areas. The economies of scale involved in establishing an airline at an airport may inhibit airlines entering into hub airports due to the costs involved etc, therefore adding to the attraction of less important airports. Low cost airlines require a different level of service from airports than their competitors, for example fewer check-in desks are required. Ryanair in Dublin airport despite generating 25% of the passengers only use 11% of the check-in desks. The availability of slots, the lack of congestion, the good transport facilities on the surface and the lower frequency of delays attract low cost airlines to non-hub airports (Barrett 1994). Underused and overlooked airports are in abundance in Europe. These airports are often more compatible with low cost airlines business models, with a lack of gold-plating and single storey terminals. Fewings highlights that a large pool of suitable alternatives to hub airports exists in Europe alone (Barrett 2004). Ex-military airports are ideally suited for low cost airlines, in France 32 such facilities exist, 34 in the UK and 28 airports in Germany. Fewings also examined the availability of peripheral airports near existing dominant airports, of the 10 EU countries he examined, 131 airports within one hour of surface travelling time of existing hub airports were found (Barrett 2004). The extent of underused airports within Europe is illustrated in table two, compiled by Fewings.

Table 2: Level of airport and runway provision in Europe in 1998

Runway Length	Number of airports per million inhabitants	
	Over 1600m	Under 1600m
Austria	0.8	0.0
Denmark	1.9	0.4
Finland	4.1	0.0
France	1.0	0.1
Germany	0.3	0.1
Greece	2.5	1.2
Iceland	22.5	26.2
Ireland	1.1	2.5
Italy	0.6	0.1
Norway	5.3	6.5
Scotland	1.6	2.1
Sweden	4.3	0.7
UK	0.7	0.3

Source: Barrett, 2000, pp.19

Opportunities do exist for the construction of new airports, despite the well-worn arguments to the contrary that maintain construction is too costly and time consuming. The London City Airport construction project only cost 7m and was completed in 40 weeks. However any new airport construction must take into account the negative environmental effects on the surrounding area such as noise pollution, the lack of land, congestion, and waste and noise disturbance. To combat the ill effects of airports the surrounding land should be acquired, aircraft and slots should be used efficiently, public transport to and from the airport should be increased and the price of car parks should be increased to encourage use of public transport.

Conclusion

While low-fares airlines have altered the structure of the aviation sector by vastly reducing fares and this in turn has made aviation less vulnerable to economic climate changes, the aviation market remains an uncertain entity. The economic implications of political unrest, terrorism and health epidemics have far reaching consequences.

Recent global events such as 9/11, the SARS outbreak in China and the war in Iraq have caused the demand for air travel to fluctuate. While air transport is no longer considered a 'luxury good' due to the new business dynamic introduced largely by low cost airlines, the industry must continue to strive to increase efficiency and productivity. The progress of airports in relation to

creating a contestable market has proceeded slowly. The barriers that remain are largely administrative and with the support of the European Commission, airports and the aviation sector will continue to work towards contestability (Barrett 2004).

Bibliography

- Abeyratne, R (2000) "Management of airport congestion through slot allocation." *Journal of Air Transport Management*, Vol.6, pp. 29-41.
- Banister, D & Joseph, Berechman (2000) *Transport Investment and Economic Development*. London: UCL Press.
- Barrett, S (1987) *Flying High: Airline Prices and European Regulation*. , Aldershot: Avebury.
- Barrett, S (1991) *Transport Policy in Ireland in the 1990s*. Dublin: Gill and Macmillan.
- Barrett, S (1993) "Air Transport Markets," Banister, D & J Berechman (eds), *Transport in a Unified Europe- Policies and Challenges*. North Holland: BV Publishers.
- Barrett, S (1994) "Aviation and the pursuit of Contestability." *Journal of Economic Affairs*, Vol.42, No.2
- Barrett, S (2000) "Airport Competition in the Deregulated European Aviation Market." *Journal of Air Transport Management*, Vol.6, pp.13-27.
- Barrett, S (2003) "Airports as Multimodal Interchange Nodes, European Conference of Ministers of Transport," Economic Research Centre.
- Barrett, S (2004) "How Do the Demands for Airport Services Differ between Full-Service Carriers and Low-Cost Carriers?" *Journal of Air Transport Management*, Vol.10, pp. 33-39.
- Barrett, S (2005) *Lectures in Transport Economics*, Trinity College Dublin
- Baumol, W.J. (1982) "Contestable Markets: An Uprising in the Theory of Industry Structure", the American Economic Review

- Forsyth, B (2004) "Locational and monopoly rents at airports: creating them and shifting them." *Journal of Air Transport Management*, Vol.10, pp .51-60.
- Freathy, P (2004) "The commercialization of European airports: successful strategies in a decade of turbulence?" *Journal of Air Transport Management*, Vol.10, pp. 191-197.
- Gillen, D & Lall, Ashish (2004) "Competitive advantage of low-cost carriers: some implications for airports." *Journal of Air Transport Management*, Vol.10, pp. 41-50.
- Graham,A (2001) *Managing Airports: An International Perspective*. Oxford: Butterworth-Heinemann.
- Groteke, F & Wolfgang Kerber (2005) "The Case of Ryanair-EU State Aid Policy on the Wrong Runway." *ORDO*, Vol.55, pp. 313-331.
- Kirlazidis, T (1994) *European Transport: Problems ad Policies*. Aldershot: Avebury.
- Kyrou, D (2000) *Lobbying the European Commission: The Case of Air Transport*. Aldershot: Ashgate.
- Miller, J (2004) "The Contestability of Markets." *Student Economic Review*. Vol. 18. pp. 211-222.

DETERMINING THE CORRECT PRICE OF A CONGESTION CHARGE FOR DUBLIN

Joe O'Doherty

Senior Sophister

After outlining the theoretical case for a congestion charge in Dublin, Joe O'Doherty estimates, using three different methods, what such a charge should be. In determining the optimal charge, he firstly examines congestion charges elsewhere, secondly he employs empirical estimates of the market fundamentals, and finally he looks at other examples of transport pricing in the economy.

Introduction

A "large increase in driving has been identified" in Dublin in recent years (Dublin Transportation Office 2004: p.i). Transport policy has not kept pace with this increased demand and the inevitable result has been a congested road system. Such congestion was predicted by many; "Gridlock beckons" wrote *The Economist* (2002). Efforts to improve the situation have been discussed by politicians, consultants and academics but it is my conviction that the most comprehensive solution will involve a system of congestion charging.

This essay will be divided into four sections. The first will outline the theoretical case for congestion charging. The next three sections will discuss recognised methods of determining a charge:

- Looking at possible international comparisons,
- Using empirical/quantitative methods, and
- Looking at similar examples within the Irish economy.

The conclusion will draw inferences from each method in order to assist in determining the correct charge for entry to the Dublin City road network.

The theoretical case for congestion charging

Urban road transport economics is fundamentally reliant on basic economic principles. That is, its basis involves a transaction that equates to an exchange of resources. Undertaking a journey should result in an increase in the

DETERMINING THE CORRECT PRICE OF A CONGESTION CHARGE FOR DUBLIN

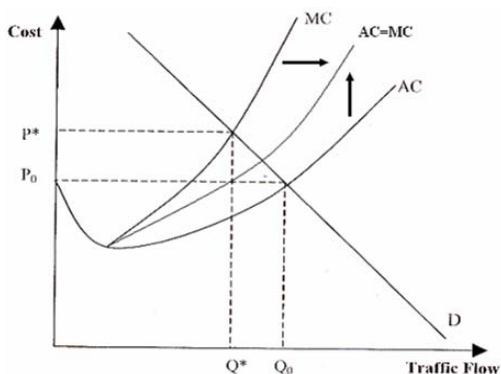
utility of either the individual or society in general. Countering this, there are costs associated with road transport. These costs “are distributed across individual and social dimensions” (Foster et al. 2003: 226).

Individual costs include vehicle maintenance, fuel, insurance, tax, and, in many areas, tolls and road-charges. Social costs (externalities) affect the commons and society in general. Cole groups these social costs into three categories: “environmental pollution, (noise, fumes, vibration, visual intrusion, etc.), social group severance, and congestion costs” (1998: 90).

In a world of ever-increasing numbers of users of road transport networks it is generally agreed that the combination of social costs outweigh the individual costs associated with a given journey as well as in aggregate (Button 1993: 114). That is, as the number of drivers using road networks increases, the average cost for each driver (total costs divided by total number of users) decreases. At the same time ‘the amount of road space decreases and travel time will subsequently rise’ (Foster et al. 2003: 228). This is the marginal cost of having extra road users, and it rises with each additional user. In short, as the number of drivers increases, the average cost decreases, but the marginal cost increases at the same time (Button 1993: 114).

At the margin new entrants place a lower value on the use of the existing road space. This problem would not exist if only average costs could be equated with marginal cost. There are two ways of achieving this. Firstly, by increasing the amount of road space per vehicle the marginal cost of undertaking a journey is reduced. Secondly, by increasing the cost of a journey – by introducing a shadow price – the average cost of that journey is obviously increased. At the same time, by the law of demand, the number of users will fall.

Figure 1:



Button, K (1993) *Transport Economics* Fig 5.8, p.114

This is not the only advantage of the second method over the first. Increasing road space is both costly and time-consuming. It can be harmful to the environment and unsightly to have wider roads. Finally, it is not always possible to construct better roads in a built-up area. In short, in order to try and reduce some social costs (congestion and social group severance costs) and thus reduce the marginal cost of undertaking a journey you may end up increasing other costs; such as higher taxes, environmental, and maintenance costs, and achieving little overall.

The second method of equating marginal and average costs relies on increasing the individual cost of undertaking a journey. It is apparent from the increasing levels of urban congestion (particularly in the Dublin area) that new users still value the benefits of driving in urban areas. If some of the social costs associated with driving could become individual costs many of the economic and social problems associated with urban road transport could be overcome. For this reason a 'congestion charge' should be levied for entry to the Dublin City road network.

Many questions arise in relation to such a charge. Where exactly should it be applied? Who, if anyone, should be exempt? When should it apply? Should it replace motor taxes? How much should it be? It is this last question that will be the primary focus of the remainder of this essay, leaving the other questions to be discussed elsewhere.

International Comparisons

The most obvious way to implement a system of congestion charging is to copy an existing system; however there are equally obvious problems associated with this approach. To start, every city is unique and any system implemented will have correspondingly unique characteristics. For example, the council of Trondheim in Norway charge 15Kr (€1.81) for entry to the city's road system via booths at twenty entry-exit points (BBC). Dublin, a much larger city, would require more booths and have resultantly higher initial and running costs if it were to adopt such a system. The charge would thus be more. Does this suggest that larger cities require a higher charge? If one were to look at congestion charging in London, a bigger city than Dublin, one might be tempted to answer 'yes', as they charge £5 (€7.25) for entry. However, the answer is more complex. The price for entry to any city is rarely arbitrarily set, and although it might be affected by the relative size of the city, it will have much more to do with the ambition of those levelling the charge as to what the resulting revenue will be spent on. Only then should population or size be considered. Officials in Trondheim plan to remove the

charge (after 12 years of tolling) because the initial purpose of the charge – subsidising the construction of orbital routes around the city – is now complete, whereas London’s mayor, Ken Livingstone, plans to increase the charge to £8 (€11.60) in order to further subsidise public transport, widen the charging area and improve the road system (The Economist 2005). Although it was stated above that the intricacies of any proposed congestion charging system would not be discussed in this essay, it is assumed that it would be levelled in order to equate individual costs and social costs in the short term and the long term. As such, any proposed system would be closer to the British than Norwegian model. Other British cities have implemented congestion charging for similar reasons to those offered by Mr. Livingstone. Edinburgh City Council had calculated a charge of £2 (€2.90) a day to drive in the city, but this was rejected by the people of the city in a poll in March. Durham, a considerably smaller city, has already levied a charge at this price and Nottingham, whose council has employed a consultancy to assist in tailoring a charging system to their requirements, is at an advanced stage in introducing a charge (BBC). The BBC also noted in 2003 that “councils in cities such as Leeds, Birmingham, Bristol, Cambridge, Chester, Reading, Milton Keynes, and Derbyshire have drawn up plans to impose charges” and that other British and European cities “could follow London if the scheme succeeded” (BBC). “Success” in these terms surely compares any potential new congestion system with Singapore, where authorities have levied a varying charge as part of a much larger plan to reduce congestion in one of the world’s most urbanised countries. This example has since been mimicked by the likes of San Diego (Meredith and Jones 2001: 223). It has proven to be largely successful in achieving its goal, but is greatly assisted by a government that faces little real opposition in charging motorists up to 59¢ per mile travelled. Again, Dublin’s circumstances are closer to those of the British cities, although San Diego’s are also similar. Taking those cities that have comparable reasons to Dublin’s for implementing a charge, and *then* allowing for population differences the correct charge should be €7 per day. This result is derived in the appendix.

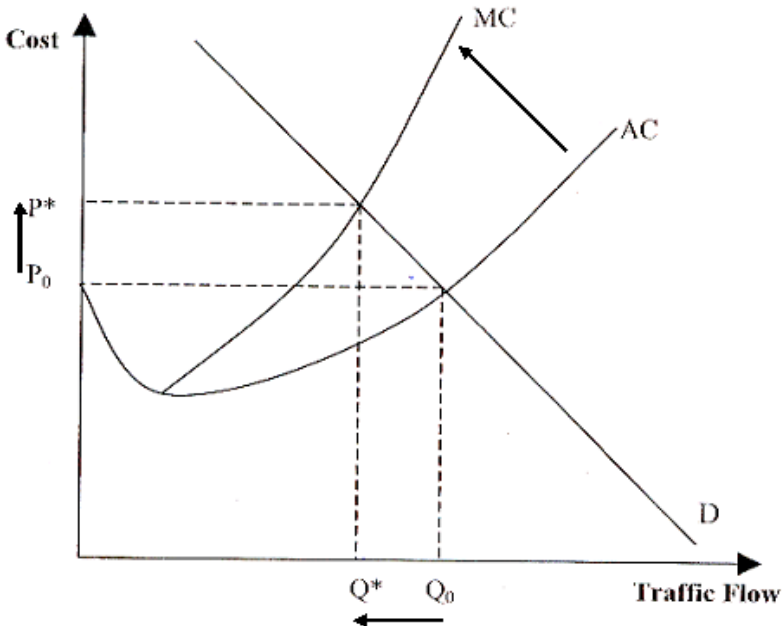
An empirical/quantitative method

Another way of determining a shadow price is to form a quantitative model. As explained above, the purpose of congestion charging should be such as to “equate the social and individual costs” by levying a Pigouvian Tax (Button 1993: 114).

In the below diagram, the demand curve, D, illustrates how there will be greater demand from road users at lower costs and a higher resultant level of

traffic. Before the introduction of a charge the number of vehicles, given a fixed amount of road space, will be Q_0 . The cost to each road user is P_0 . Increasing this by $(P^* - P_0)$ will increase the cost for each user to P^* and reduce the number of vehicles to Q^* . This has the combined effect of equating AC and MC

Figure 2:



A report by Oscar Faber Consultants in 1999 suggested a charge of €3.81 for cars (subject to certain stipulations). I will use a simplified form of their analysis in order to determine a theoretically correct price for the use of roads in Dublin City. The Oscar Faber Report assumed a constant elasticity of demand equal to -0.5 . Foster et al used this figure in their subsequent analysis, yet they suggested a charge of €13.25 for cars to enter Dublin. The assumption that demand elasticity is at this level for road shadow-prices and tolls is countered by Mankiw who, when citing from *The Washington Post*, posits that consumers are much more responsive to the imposition of a toll than price changes in other areas (Mankiw 2000). The suspicion that Oscar Faber Consultants and Foster et al. have set the value of demand elasticity too low is supported in a paper on Spanish tolls by Anna Matas and José-Luis Raymond, who state that “price elasticity of demand for tolls could be as high as -0.83 if alternative transport is available” (Mathas &

DETERMINING THE CORRECT PRICE OF A CONGESTION CHARGE FOR DUBLIN

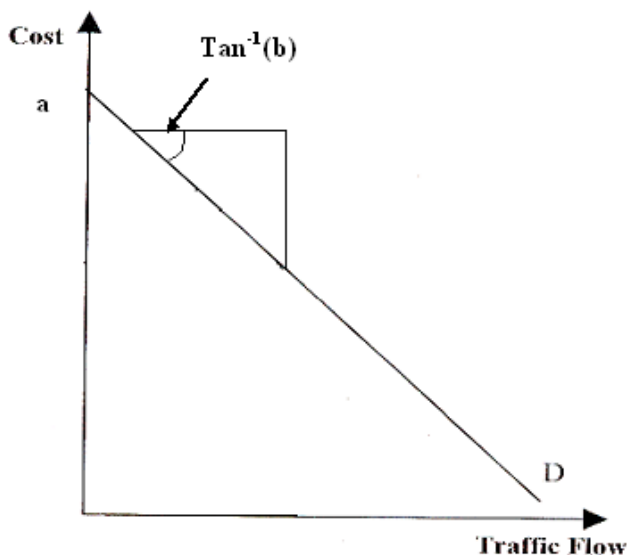
Raymond 2002: 2)(Oscar Faber Consultants 1999; 2003). This is the case in Dublin, with both public transport and orbital routes reducing the necessity for driving through the city centre. I will thus assume a value of -0.75 for the elasticity of demand.

The model which follows is similar to Foster et al. (2003):

$$Q_d = a + bP,$$

Where Q_d is the demand for travel in Dublin, P is the cost of undertaking a journey in the city centre, a is the intercept and b is the slope coefficient.

Figure 3:



Q_s , the available supply of road space in Dublin, is 90,000 vehicles per day (Oscar Faber 1999: 18). This is assumed to be inelastic, as it cannot be adjusted in the short term. Foster et al. adopt a value of 211,400 for Q_d (2003). However, in a presentation to TCD economics students in January 2004 Owen Keegan, Director of Traffic and Assistant City Manager, showed that there had been a 16% drop in traffic entering the city centre between 1999 and 2003 (Foster et al. 2003). This amounts to a demand for road space in Dublin of approximately 177,700 vehicles

per day. P , the average cost of undertaking a journey in Dublin, is assigned a value of €11.54 (per day, €4200 per year) by Foster et al.¹. This is the value I will use and, at the moment, this represents all the individual costs for a driver in Dublin.

We thus have values for Q_s , Q_d , P and E (the elasticity of demand) and are almost ready to calibrate the model. In order to find a value for b , the slope of the demand curve, we make use of the fact that

$$E = dQ/dP \text{ and that } E = dQ/dP \cdot P/Q.$$

$$\text{Thus } b = dQ/dP = E \cdot Q/P$$

$$\Rightarrow b = -0.75(177700)/11.54$$

$$\Rightarrow b = -11548.96$$

$$\text{Also, if } Q = a + bP$$

$$\text{Then } a = Q - bP$$

$$\Rightarrow a = 177700 + 11548.96(11.54)$$

$$\Rightarrow a = 310975$$

The calibrated model is then:

$$Q_d = 310975 - 11548.96P$$

For marginal and average cost to be equal, supply and demand must be equal too.

$$\text{Thus } Q_s = Q_d = 90000$$

If Q_d is to equal 90000 we need a new (higher) value for $P = P_T$, or P -total, the combined individual and social costs.

$$Q_d = 90000 = a + bP_T$$

$$\Rightarrow P_T = (90000 - 310975)/(-11548.96)$$

$$\Rightarrow P_T = €19.13$$

The social cost that is currently not paid for directly by road users is

$$P_T - P = 19.13 - 11.54$$

$$= €7.59$$

$$\approx €7.50$$

This is the quantitatively correct congestion charge for entry to the Dublin road network.

¹ Adopted from "The route to sustainable commuting" by the Dublin Transportation Office 2001.

Similar examples within the Irish economy

The third method of determining a shadow price is to look at examples from within the same economy. As well as subsidising the cost of road transport in Ireland, the Irish government also subsidises other forms of transport, such as bus and rail within the country.

Rail

In the Booz Allen Hamilton (2003) critique of the Irish Rail Network in Autumn 2003 they suggested that CIE required €8.5bn in subsidies over the following 19 years. CIE are hoping this will encourage growth in passenger numbers to 44mn per annum, meaning that on average each passenger would be subsidised by the government by €10.17.

Bus

State subsidies for busses (Bus Eireann and Dublin Bus) are €275m per annum and passenger numbers are 295m per annum, meaning an average subsidy of 93¢ per passenger (transport.ie; Bus Eireann; Dublin Bus).

Subsidies for trains are eleven times more (per passenger) than for busses. Taking a weighted mean for the two suggests that the government values public transport at €2.13 per passenger. If this were used to calculate congestion charge for motorists, assuming 1.5 people per vehicle², a congestion charge of around €3 is what emerges (AA Ireland 2005).

Conclusion

Having discussed the theoretical case for congestion charges, I have used three different methods of determining shadow prices in order to derive a potential charge for Dublin. Firstly, by investigating other instances of congestion charging I came up with a figure of €7 for entry to the Dublin City road network. Secondly, I used quantitative methods and derived a price of €7.50. Lastly, I discussed other cases where government subvention for transport has implied a gap between average and marginal costs, requiring a shadow price. Subsidies to rail and bus companies suggest that a potential congestion for Dublin could be levied at €3 per vehicle. It must be stated, however, that this method of derivation is largely

² www.aaireland.ie

inaccurate and has provided a result – according to the results of the other two methods – far too low to achieve the goals desired from congestion charging.

The various arguments for and against congestion charging are largely ignored in this essay. Issues such as political will, the redistributive effects of levying a charge, the 'Big Brother' nature of electronic congestion charging, and changes in business revenues are neglected in order to focus on the theoretical and quantitative arguments involved with the level of the charge itself. The fundamental principle remains that by limiting the demand for road space using the price mechanism congestion in Dublin can be reduced. The intricacies of such a system will be discussed elsewhere, but by using comparative examples (€7), forming a quantitative model (€7.50) and by looking at other cases in the Irish economy (€3) I have attempted to determine the correct level of a congestion charge for Dublin.

Appendix

City	Population	Price (€)	Price per person (€)
London	7172091	7.25	1.01086×10^{-06}
London (new)	7172091	11.6	1.61738×10^{-06}
Edinburgh	448624	2.9	6.46421×10^{-06}
Durham	87709	2.9	3.30639×10^{-05}
Trondheim	154351	1.81	1.17265×10^{-05}
Singapore	3263200	2.1	6.4354×10^{-07}
San Diego	1223400	1.72	1.40592×10^{-06}
Dublin	1058264		

The average of the charges imposed by London (£5), Edinburgh, Durham, and San Diego, divided by their respective populations, is multiplied by the population of Dublin. This returns a figure of €11.10. Durham, due to its low population, has a lot of influence on the overall average. Thus, €3.13 is the weighted average of the charges imposed by London (£5), Edinburgh and San Diego. In order to account for the other cities twice as much as Durham, we get the average of the previous two results, which is €7.11 (the mean of €11.10 and 3.13). The charge for Dublin should be amended to the more round figure of €7 for practical payment purposes.

Bibliography

AA Ireland (2005) <www.aaireland.ie>.

DETERMINING THE CORRECT PRICE OF A CONGESTION CHARGE FOR DUBLIN

BBC (2005) <www.bbc.co.uk/london/congestion/>.

Booz, Allen & Hamilton (2003) *The Irish Rail Network: a critique*. Dublin: Booz, Allen & Hamilton, Ireland.

Bus Eireann (2005)
<www.buseireann.ie/site/news_centre/pressreleases.asp?action=vieo&news_id=192>.

Button, K. (1993) *Transport Economics*. Aldershot: Hants.

Cole, S. (1998) *Applied Transport Economics*. London: Kogan Page.

Dublin Bus (2005) <www.dublinbus.ie>.

Dublin Transportation Office (2004) *First User Monitoring Report, September*
<www.dto.ie>.

Dublin Transportation Office (2001) *The Route to Sustainable Commuting*.
<www.dto.ie>.

Foster, K. et al. (2003) "Road Congestion Pricing: theory, analysis and critique – the case for Dublin City." *Student Economic Review*, Vol. 17, pp. 225-244.

Keegan, O. (2004) *Presentation to TCD Transport Economics Students*. 28 January 2004.

Mankiw, N.G. (2000) *Principles of Economics*. London: Harcourt Brace College.

Matas, A. & Raymond J. (2002) *The Demand Elasticity on Tolled Motorways*. Barcelona: University of Barcelona.

Meredith, S. & Jones N. (2001) "Road Pricing - An Economic Analysis." *Student Economic Review*, Vol. 15, pp. 207-227.

Oscar Faber Consultants (1999) *A study of road pricing in Dublin*.
Unpublished report available from Oscar Faber offices.

The Economist (2005) "*Fares Please*" The Economist 01/01/2005.

JOE O'DOHERTY

The Economist (2002) *Getting There Faster*. The Economist 31/08/2002.

The Sunday Business Post (2003) *Six Provincial Air Routes may go up for Tender*. The Sunday Business Post 11/05/2003.

Transport.ie (2005) <<http://www.transport.ie/viewitem.asp?id=5551&lang=ENG&loc=1803>>.