

## **THE PRICE OF WHEAT IN BRITAIN AFTER REPEAL: THE GOLDEN AGE FOR 19<sup>th</sup> CENTURY BRITISH AGRICULTURE?**

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*Following the repeal the controversial Corn Law Act of 1815 the price of wheat in Britain failed to behave as many landlords and farmers of the day had predicted. Conor O'Toole considers the fundamental features of both demand and supply which could have contributed to the sustained high prices.*

### **Introduction**

The Corn Law Act of 1815 and its subsequent revisions<sup>1</sup> were deliberate attempts to artificially keep the post-Napoleonic Wars grain price at higher than market levels. The Acts are considered some of the most controversial pieces of legislation in British economic history and have subsequently become the subject matter for interesting and fiery political economy debates. The landmark Repeal of the Corn Laws in 1846 has been labelled the catalyst for Britain's move to free trade at the end of the 19<sup>th</sup> century and to many it is seen as the spark that ignited the Great Victorian Trading boom that occurred in the late 19<sup>th</sup> century (Rothstein, 1960).

Repeal caused major unrest among the landowners and farmers who had benefited from the protectionist tariffs, through high rents and commodity prices. "Terror gripped the English farmer when he realised that his wall of protection had been removed" (Hansen cited in Van Vugt, 1988: 412). It came as a surprise to many, that in the period after repeal, prices remained at high levels and British agriculture had something of a renaissance period. Fay (1921: 26) proclaimed that British farmers "surmounted the repeal of the corn Laws on a scale of ascending prices".

The focus of this paper is to investigate the main reasons why prices remained buoyant in this period. There are a number of factors that have been attributed as the causes of a continuation of high grain price levels: International Supply shocks such as the Crimean War, the American Civil War, and the reduction in exportable surplus of Britain's traditional trading partners; and demand shocks such as a booming world population, and the spread of the industrial revolution. Each of these factors will be

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<sup>1</sup> It was revised in 1828 and a sliding scale tariff was introduced.

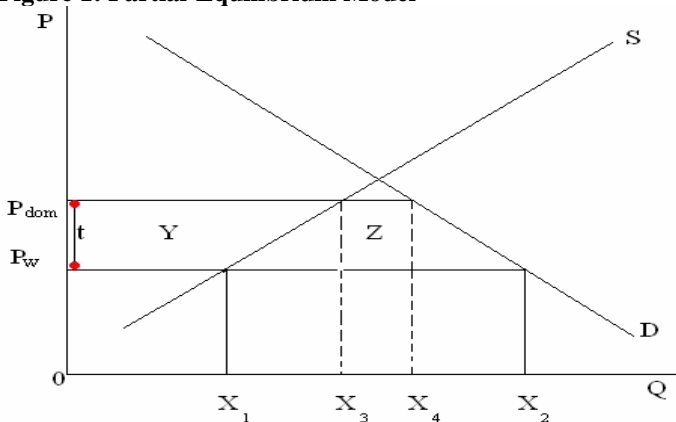
## THE PRICE OF WHEAT IN BRITAIN AFTER REPEAL

discussed and a short empirical clarification of some of these traditional arguments will be provided.

### The Economic Effects of the Corn Laws

To begin, a short explanation of the economic effects of the Corn Laws is given. A simple partial-equilibrium model<sup>2</sup> can be used to describe the effect of imposing an import tariff such as the Corn Laws.

**Figure 1: Partial-Equilibrium Model**



Source: Kindelberger, 1975

An import tariff,  $t$ , raises the domestic price ( $P_{\text{dom}}$ ) above the world price  $P_w$ , reduces trade from  $X_1X_2$  to  $X_3X_4$ , expands production to  $X_1X_3$  and reduces consumption by  $X_4X_2$ . Producer's rents increase by the amount  $y$ .

The free trade argument, which underpinned the feisty rhetorical protests of Richard Cobden, his Anti-Corn Law league associates and other proponents of Repeal, was that the Corn Laws were keeping prices artificially high (at the  $P_{\text{dom}}$  level in the above diagram). This was reducing consumption to below equilibrium amounts. They extolled that Agriculturalists were being rewarded for producing output at uneconomic prices and that the reallocation of economic resources would bring the economy closer to optimal productive efficiency. Kindelberger (1975) affirms the Anti-Corn Law league's perspective stating that Cobden and

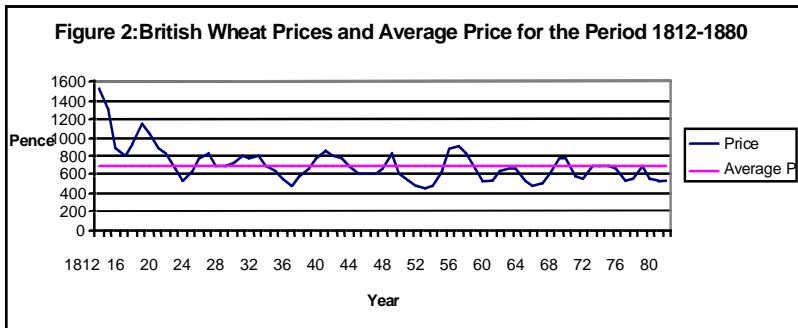
<sup>2</sup> Taken from Kindelberger, the rise of free trade in Europe 1820-75

Bright regarded the Corn Laws as a tax on food that was taking as much as 20% of the earnings of a hand-loom weaver. Williamson (1990) finds that the Anti-Corn Law league was correct and that a move to free trade in the 1830's would have augmented manufacturing employment by an impressive 23%.

### Wheat Prices after Repeal & the “Golden Age” of British Agriculture

The price of wheat did not dramatically fall after Repeal, leading some traditional historians to believe that the Corn Laws had no effect on material wheat prices, and that “the whole Corn Laws thing is made to seem pointless and much ado about nothing” (Fairlie 1965 cited in O'Rourke and Williamson, 1999: 81). Economic historians have subsequently found that the Corn Laws did affect material prices.<sup>3</sup> Williamson (1990: 127) found that “British and continental wheat markets were well integrated, and that the Corn Laws drove an explicit wedge between domestic and foreign prices”.

It is useful to look at wheat prices in England and Wales for the 19<sup>th</sup> century.



Source: (BR Mitchell, 1988)

The above graph shows initially a dramatic decline but then a steadying of prices around means levels. Overall prices display marginal, downward tendencies. As we can see there was a fall after repeal but then prices rose again and remained at relatively constant levels from 1860 to 1879 when the market began to bottom out. Repeal was supposed to lead to disastrously low

<sup>3</sup> See (Fairlie, 1969), (Williamson, 1990), (O'Rourke, 1994)

## THE PRICE OF WHEAT IN BRITAIN AFTER REPEAL

prices. This didn't come to pass and British Agriculture experienced a sort of renaissance period in this epoch.

It is now time to turn our attention to the reasons for this "Golden Age" and for the continued high grain prices. The most supported reasons for the "renaissance" of British agriculture and relatively high price levels after Repeal are "the Crimean War, the American Civil War, a booming world population and the spread of the industrial revolution" (O'Rourke and Williamson, 2000: 81).

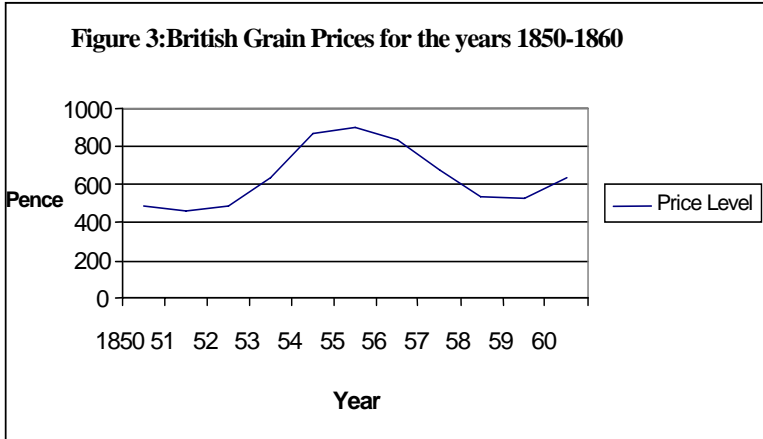
Each of the factors will be investigated in turn and their effect on prices discussed. Also analysed is the reduction in exportable surplus of Britain's traditional trading partners.

### **Crimean War**

The disruption to grain supplies caused by war between Britain and Russia in the Crimea is one of the main factors believed to have helped maintain high prices in the post-repeal grain market. Fay (1921: 26) states that "the higher [price] level was maintained and intensified in 1855 by the outbreak of the Crimean war, which obstructed some of the usual sources of supply especially Russia". Fairlie (1969: 105) concurs with this view saying that "after 1853, the crucial factors were the outbreak of the Crimean War, the removal of Russia from the market, and the temporary inability of the US to make up the deficiencies"<sup>4</sup>. Paul (1958: 398) attributes the raising of the price of breadstuffs in this period to the Crimean War and the American Civil war which "temporarily distracted the two major wheat exporters of the world". Looking at the diagram below of British price levels, it is very easy to see why it's believed that the Crimean War had a short run supply effect.

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<sup>4</sup> The latter being a point that we will return to later in this section.

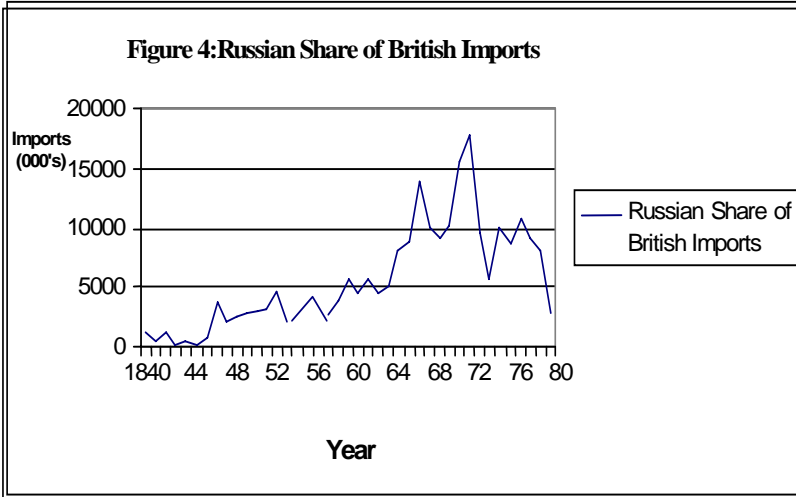


Source: (BR Mitchell, 1988)

The peak coincides with the Crimean War Years. Referring back to Figure 2, this peak can be seen to be out of line with general price trends. The Price in England and Wales, in the 5 years previous to the Crimean War (1849-1853), was 531p, 483p, 462p, 489p, and 639p respectively. During the years of the Crimean War, prices rose to 869p, 896p and 830p and tapered off thereafter. Looking at a graph of Russia imports of grain into the UK, we can see that these price-rises co-inside with a reduction of the Russian Share of British imports.<sup>5</sup>

<sup>5</sup> These Statistics come from BR Mitchell. There is no data for UK imports from Russia for the year 1855. It has been assumed that they were of negligible amounts if there were any at all.

## THE PRICE OF WHEAT IN BRITAIN AFTER REPEAL



Source: (BR Mitchell, 1988)

To shed further light on the affect of the Crimean War on Grain prices, two basic Ordinary Least Squares Econometric Regressions were conducted.

The first Test was a regression of the Price ratio<sup>6</sup> between UK and Odessa in Russia for the period 1831-1859 against the explanatory variables Time, Time<sup>2</sup>, and a binary Dummy variable that was given the Values of 1 for the Period of the Crimean war and 0 for all other years.

The Regression Equation is as follows:

$$\text{Log}(P_{uk}/P_{od}) = \beta_0 + \beta_1(\text{Time}) + \beta_2(\text{Time}^2) + \beta_3D + u$$

It produced the following results:

$$\text{Log}(P_{uk}/P_{od}) = -7217.6 + 7.8643(\text{Time}) - .00214(\text{Time}^2) + 1.1430(D)$$

(t-statistics)    (-1.9447)    (1.9544)                    (-1.9626)    (4.6669)

The variable that is important for this analysis is the coefficient of the Dummy variable. The sign of this variable is positive which signifies that the price ratio was positively affected by the Crimean War. This variable is statistically significant at the 95% level. It is also economically significant.

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<sup>6</sup> The Price Data that was sourced from a combination of BR Mitchell and Fairlie 1965.

These findings show that during the Crimean War Period there was upward pressure on the ratio of British/Russia Wheat Prices.

The second regression conducted, regressed the Russian Share of total British Imports of Wheat between the years 1840-1880 against the exact same explanatory variables.

The Regression Equation was:

$$\text{Log(Import Share}_{\text{Russia}}) = \beta_0 + \beta_1(\text{Time}) + \beta_2(\text{Time}^2) + \beta_3D + u$$

The following results were obtained:

$$\begin{array}{ccccccc} \text{Log(Import Share}_{\text{Russia}}) = & -10916.4 & + & 11.6798(\text{Time}) & - & 0.00312(\text{Time}^2) & - & 5.2373(D) \\ \text{(t-statistics)} & & & (-1.1765) & & (1.1705) & & (-1.1629) & & (4.0352) \end{array}$$

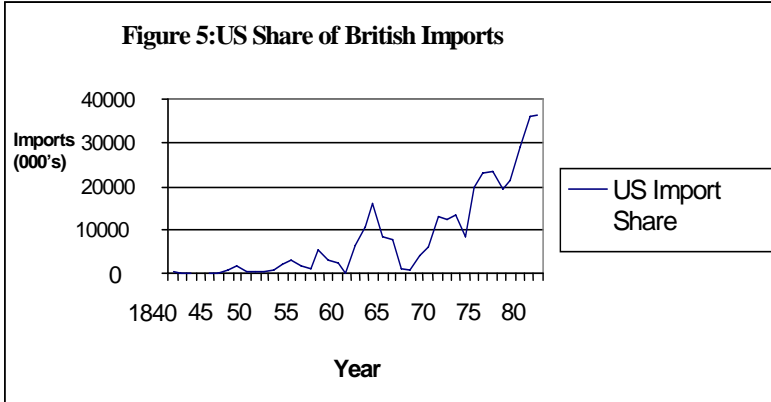
The Dummy variable is significant at the 95% level and it is also economically significant. The sign on the variable is negative. The interpretation of this is that during the Crimean War period, the share of total British imports accounted for by Russia declined.

Comparing the results from the two regressions above, the situation is characterised by a falling import share and upward price pressure. These findings are in agreement with the general consensus that the Crimean War had a positive influence on British Prices and helped sustain the British Wheat Industry in the Short term.

## **American Civil War**

The direct effect of the American civil war on British grain prices is less straight forward. It is mentioned by O'Rourke and Williamson (2000), Williamson (1990), and Fay (1921) as contributing to the maintenance of high price levels. Fay mentions the American Civil War as a factor that helped keep prices high. For the American Civil war to exert upward pressure on prices in Britain, it would need to have caused a reduction in exports, reducing supply thus increasing prices. The evidence for this does not stand up to scrutiny. American wheat exports to Britain actually increased during the Civil war years to historically high levels and decreased afterwards.

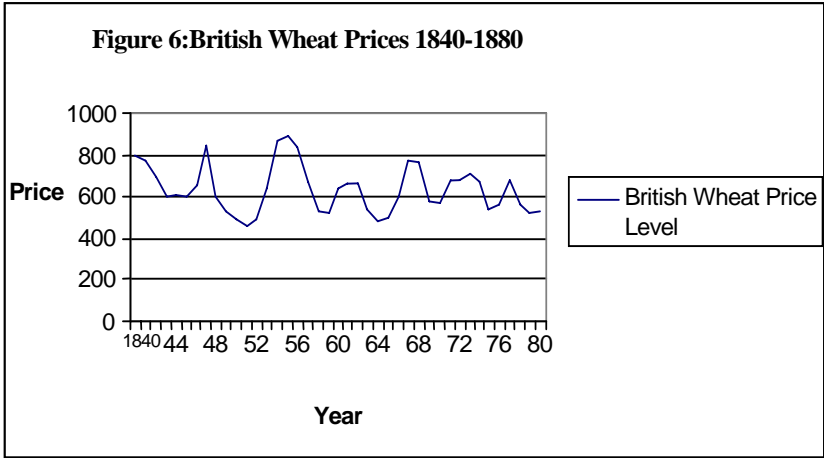
## THE PRICE OF WHEAT IN BRITAIN AFTER REPEAL



Source: (BR Mitchell, 1988)

In the above figure we can see that during the civil war year's exports to Britain actually increased. The greatest exports to date from the US to Britain occurred in 1861, 1862 and 1863 during the war. Exports slipped after the war to low levels in 1866, 1867, 1868 and 1869. This would seem to agree with Rothstein's (1960) view that "during the corn crises, Crimean War and the first three years of the Civil war shipments of American wheat and flour were heavy and made up a large proportion of British and Continental imports, yet fell to comparatively low levels during the intervening period". Falkus (1966: 419) also offers an explanation for this, mentioning a "short but ominous" burst of competition during the civil war, whereby grain usually sent from the northern to the southern states went instead to Europe. A look at average British price movements shows that prices during the American civil war were lower than after the war.





Source: (BR Mitchell, 1988)

The years of high prices in Britain, 1861 and 1862, coincided with high export from the US. This does little to confirm the view that the American Civil war had a direct upward effect on prices by reducing supply levels. There is seemingly no reduction in supply.

Using the same regression as was conducted previously for the Russian Import share, the US Share of total British Imports of Wheat 1840-1880 was regressed against the variables Time, Time<sup>2</sup>, and a Dummy Variable to see if the share of imports was statistically and economically different during the Civil War period.

The Regression Equation was as follows:

$$\text{Log}(\text{Import Share}_{\text{US}}) = \beta_0 + \beta_1(\text{Time}) + \beta_2(\text{Time}^2) + \beta_3D$$

$$\text{Log}(\text{Import Share}_{\text{US}}) = -15819.1 + 16.8437(\text{Time}) - .0044789(\text{Time}^2) + .22466(D)$$

(t-statistics)	(-1.5870)	(1.5716)	(-1.5548)	(0.20397)
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Unfortunately in this Regression, the co-efficient on the Dummy Variable is not statistically significant. However, it is still useful to look at the sign of that co-efficient. It is positive. If the American Civil war was supposed to have sustained British agriculture's mini-revival then we would expect to see decreasing imports in this period and thus a negative sign. The positive co-efficient signifies an increase in the import share in this period.

## THE PRICE OF WHEAT IN BRITAIN AFTER REPEAL

This finding concurs with the qualitative data outlined above that the American civil war was a period of increased exports to Britain. This would imply that it did not directly put upward pressure on prices.

One possible explanation for how the civil war may have helped sustain Wheat price levels is espoused by Rothstein (1960, p. 402) who states that “adjustments in the domestic market after the civil war kept exports to a minimum for years”. This would have added upward pressure on prices. This point needs further investigation that is outside the scope of this paper.

### **Decreases in Traditional Supply Sources**

The third supply factor that influenced prices in this period was the change in productive capacity of Britain’s traditional supply sources. After 1838, North West Europe became collectively deficient in bread grains (Fairlie, 1965). British sources of supply before 1938 were virtually confined to north Western Europe, being primarily Poland, the German littoral, and to a lesser extent the Atlantic coast of Denmark, Netherlands and France. Russia and the US formed only minor reserve sources as of yet (Fairlie, 1965). During the Course of the mid 19<sup>th</sup> century, these traditional sources of British wheat, especially Prussia and the other German states declined to be suppliers after the 1830’s, no longer produced an exportable surplus. Fairlie notes this point and says “Britain’s traditional suppliers not only ceased to be able to meet her needs but were to some extent competing for available supplies from elsewhere e.g. the Russian Black Sea and Volga steppes and the US, as scarcity became widespread by the time the Corn Law league began to agitate” (Fairlie, 1965: 568). She goes on to assert that repeal came not only at a time of famine conditions in North West and Central Europe (1845-47), when some European prices were higher than British prices but with the need technically to facilitate supplies from new areas to cover the increasing demands of a booming populations. The radius of supply, mainly North West Europe, (Fairlie, 1965) was becoming too narrow to satisfy the demands of a developing Europe.

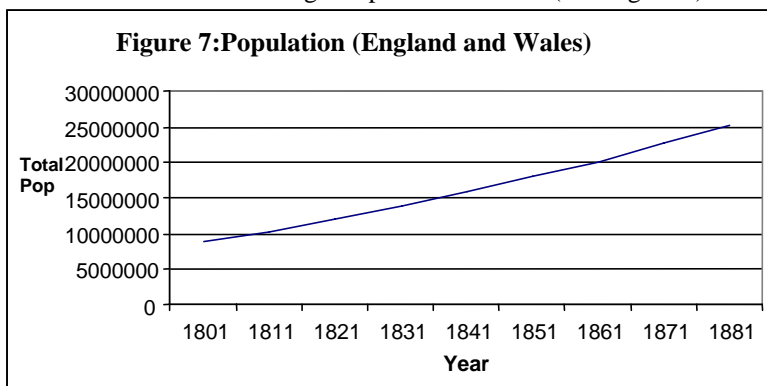
Another problem was the displacement of corn production in the traditional wheat exporters by more profitable crops. In particular Sugar beet, flax, tobacco, oilseeds, sheep and cattle were beginning to take up any spare productive capacity that might have been formerly used for grain. “The profitability of alternative crops coupled with Industrialisation, and population growth would effectively eliminate the exportable surplus” (Fairlie, 1965: 569) thus reducing supply even further. The psychological terror of British farmers, that their were European Grain Surpluses that piled

up on the market shores of Poland and Germany waiting for the signal to depart for Britain once the free trade conditions allowed, never materialised after Repeal.

Having looked at the major supply shocks of the era, the factors that exerted pressure from the demand side now need examination.

## Population Boom, Consumption increases and the Industrial Revolution

Attention must now be turned to the factors that caused continuous increases in demand during this period. At this time population levels in Britain and the Continent were increasing at a phenomenal rate (See Figure 7).



Source: (BR Mitchell, 1988)

The population was 13.89m in 1831; this increased to 25m in 1881. The expanding population was creating huge pressures for foodstuffs as consumption levels increased. Slicher van Bath (cited in Fairlie 1969: 107) states that “continuous population growth in Europe put continuous pressure on food resources and after the potatoe failures of the 40’s there was renewed upward pressure on cereal foodstuff’s”. Consumption statistics from BR Mitchell show that per capita consumption of wheat remained relatively stable during this period. It was 0.9lbs a day in 1830, 0.85lbs in the 1840’s and 1.03, and 1.05 lbs in the 60’s and 70’s and 80’s respectively. Fairlie (1965) also calculated consumption data for the period 1831-1971 and finds that annual average wheat consumption per capita in England and Wales held steady at around eight bushels during the period. With Consumption holding at constant levels and population rising rapidly, there was a huge increase in consumer demand that needed increases in supply to

## THE PRICE OF WHEAT IN BRITAIN AFTER REPEAL

keep comparative statics. This demand pressure was one of the reasons for the continued high prices. In the Period 1846-79, the radius of supply was still confined to greater Europe and to a small extent the United States. It was not until the transportation revolutions and the expansion of this radius of supply to include Canada, the prairies of the US, Argentina, Australia and other new World nations that wheat prices began to fall rapidly and decrease the pressure on limited European cereal productive capacity.

Another factor that caused increases in demand was the continuous process of industrialisation that was sweeping through Europe at the time. Fay mentions a growing industrial population at home as a “remoter influence” for the general rise in prices. These changes were providing an alternative source of employment for workers and they also offered Landlords a more lucrative investment opportunity than farming. The rates of return from investing in the booming railroad industry were much higher than the traditional returns such as Agriculture. This sapped both the capital and the labour from their traditional arenas and had negative consequences for cereal productive capacity. Industrial changes were accompanied by the pattern of continental land usage. Internal grain markets consequently became more attractive to remaining cereal growers in Poland and Germany (Fairlie, 1965).

### **Conclusion**

After the Repeal of the Corn Law's, the price of Wheat in Britain did not fall dramatically. The farmers and landlords that had predicted a catastrophic bottoming out of the market were proven wrong, and British agriculture went on to enter a Golden Age that lasted until the Great European Grain Invasion of the late 19<sup>th</sup>. The reasons for the sustained high prices were: a booming population and increased industrialisation on the demand side and the Crimean War and the reduction in exportable surplus by Britain's traditional suppliers on the supply side. The affect of the American Civil War is less clear cut and needs further quantitative analysis. The evidence put forward by this paper shows that it had a short run price depressing effect as it increased total exportable surplus, but in disrupting the internal development of the American interior it may have had a time lagged influence causing upward price pressure. For it was from this source that the main supply of the Grain invasion came in the later part of the century. As Fay (1921, p.27) notes of the bogey that descended on the wheat market after 1880 “Its feet were ships of steel, its arms railroads stretching over the prairies, and in its belly was Chicago Wheat”.

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