

HIV/AIDS in China: Applying the Scientific Concept of Development

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Abstract

An unprecedented increase in income inequality has directly fuelled the spread of HIV/AIDS. This is because it has caused large-scale migration and led to a boom in the commercial sex industry. This paper, among other things, provides new evidence to show how migrants may be spreading HIV. Perhaps most importantly, it shows that many migrants originate from regions with the highest HIV prevalence rates. It also explores how migrants are more likely to engage in risky behaviour, thus increasing their own susceptibility and chances of onward transmission. This is particularly true of female migrants

Conventional metrics of economic activity, such as GDP growth, do not capture changes in income inequality, externalities or the development of the informal sector. These omissions, however, are all of central importance to understanding the rapidly unfolding HIV/AIDS epidemic in China. Policy makers have been widely criticised for focussing solely on conventional measurements of economic activity as an indicator of positive development. In response the new Chinese leadership developed what they call the 'scientific concept of development'. This broader idea of development provides greater insights into the causes of the HIV/AIDS epidemic as well as giving reason to address it. The 'concept', while welcomed, must now be applied via more concrete policy action if its true value is to be realised.

A summary of this paper was presented to a major gathering of academics, policy makers and journalists at the Xiamen International Conference on the Scientific Concept of Development, July 16th -17th 2005.

艾滋病在中国：应用科学发展观

中国的人体免疫缺损病毒 HIV/艾滋病 AIDS 扩散传染已经变得严重了。其发展已经经历了两个过程（‘登录’，1985-88，‘散布’1989-94），目前发展到了第三阶段‘扩张’。据联合国估计到 2010 年大约会有 1 千万中国人感染艾滋病，除非中国采取紧急措施。本文探寻艾滋病扩散传染在最后扩张阶段的一些重要特征，着重着眼于流动人口在散播过程中所扮演的角色，并根据科学发展观来探讨中国的艾滋病扩散问题。

经济增长（按标准指标测算）对中国贫困的减少产生了巨大影响。在九十年代，超过 1.5 亿人从完全贫困中走出来。经济增长还改善了其它社会指标，例如基础教育，婴儿死亡率，孕产妇保健。然而，经济增长的同时也带来了许多新问题，其中包括环境退化，贪污腐败，及社会不平等。这一系列伴随着中国增长的负面“外延问题”都没有包含在国民核算中。本文说明快速蔓延的艾滋病自身其实应当被认为是一种经济改革增长的负面产物。

为什么经济发展会造成艾滋病快速蔓延哪？这是因为收入不均衡造成大规模的人口流动。史无前例的收入不均衡增长，伴随着快速的社会经济变革，从而加速了艾滋病的扩散。本文展示人口流动作为艾滋病传播重要渠道的新证据。首先，展示流动人口怎样从艾滋病高发地区流向迄今未感染地区并加大当地感染机率。其二，指出流动人群怎样趋向于从事危险行业而加大其感染及传播机率。此危险行业增长的同时还引发了与社会主义市场经济有关的伦理道德问题。

从经济学家的角度来讲，新艾滋病传染被认为是一种没有体现在传统测量经济活动中的负面外溢。由于传染和死亡之间的时间滞后，艾滋病的影响还是会在相当长的一段时间后最终严重影响到出生率。这样按传统经济发展计量，疫疾蔓延在当前还不是很明显。然而，从广义的以人为本的发展观念来讲，疾病的蔓延现今已成为中国发展的最大挑战。目前，广义的科学发展观的提出为政策制定者们提供了从事解决艾滋病蔓延根本问题的目标。因此，这个概念必须被采纳并且应迅速地将其从抽象的概念转化成具体的政策行为。

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Introduction

China's HIV/AIDS epidemic is already serious. It has gone through two stages ('entry', 1985-88, 'spreading' 1989-94). It is now in the third 'expansion' stage. The UN estimates that 10 million Chinese may be infected with HIV/AIDS by 2010 unless immediate action is taken. This paper explores some important features of the final expansion stage of the epidemic. In particular, it looks at the role of migrants in the spread of HIV/AIDS. It also considers China's HIV/AIDS epidemic in the light of the 'scientific concept of development'.

Economic growth has had an enormous impact on poverty reduction in China. Over 150 million people were raised out of absolute poverty during the 1990s alone (UNDP, 2003). It has also given rise to an improvement in many social indicators, such as primary schooling, child mortality and maternal health. Economic growth, however, has also brought with it many new problems, including such things as environmental degradation, corruption and greater social injustice. Income inequality, a range of 'negative externalities' and a burgeoning informal sector have accompanied Chinese growth. These are not registered in the conventional metrics of economic activity, such as per capita real GDP, which have become of such concern to government leaders. This paper, therefore, also considers how the scientific concept of development may be useful in further understanding and addressing the HIV/AIDS epidemic.

A few studies (though surprisingly not many) have already described and commented on China's HIV/AIDS epidemic (Zhang, 2004; Wu, Rou and Cui, 2004). A lot more studies have looked at migration (Yu, 2003). Some, though far fewer, have also looked specifically at female migration, which is of growing significance (Gaetano and Jacka, 2004). Finally, some other studies have concentrated purely on commercial sex work (hereafter CSW) (Gil et al, 1995; Pan Suimin, 2004). The linkages between migration, women, CSW and HIV/AIDS, however, are evidently very close. This study looks at all of these subjects in more detail, emphasising the linkages between them. It stresses in particular how uneven economic development unites and drives these different components of the HIV/AIDS epidemic. Firstly, it considers the meaning of the scientific concept of development and how this relates to China's growing income inequality, migration and HIV. Income inequality, externalities and the informal sector are all missed in conventional measurements of economic activity. But, as noted, they are all of central importance to understanding the HIV/AIDS epidemic. Secondly, using data on migration and HIV infection rates, it investigates new evidence suggesting a large majority of China's migrants have originated from regions with more severe HIV/AIDS epidemics. This is worrying. It suggests the negative externalities involved in migration (and the communication of disease this entails) may be far larger than previously realised. Thirdly, it considers how risk behaviours change after migration. It stresses, in particular, the nature of CSW in the informal sector, a factor so central to full-blown epidemics in other Asian nations (Thailand, for example). CSW has grown rapidly, it argues, because the market conditions, in terms of both supply and demand, are highly favourable to its development. On the supply side it is the increasing numbers of female migrants that supply China's commercial sex industry. On the demand side urban male disposable income has risen fast. Wealthy middle class urban males (and what may be considered more productive sectors of the economy) may be adversely affected by the epidemic.

Unfavourable demographic features, moreover, particularly the imbalanced sex ratio, also pose a serious longer term danger. The conclusion points to the value of the scientific concept of development in further addressing the underlying forces driving the HIV/AIDS epidemic. Inequality, negative externalities and the informal sector all play important parts.

This study draws upon two months of fieldwork in Beijing, Kunming and Chengdu during August and September 2004. In Beijing representatives of various UN agencies (UNAIDS, UNDP, UNESCO, UNFPA) were interviewed. Members of Renmin Daxue were also consulted. Health Departments responsible for HIV/AIDS policy in both Yunnan and Sichuan Provincial Governments were also interviewed. Yunnan and Sichuan provinces were chosen as they have serious HIV/AIDS outbreaks.

The spread of HIV/AIDS and the growing CSW industry poses a great dilemma for Chinese leaders. It also raises many ethical questions regarding the current path of the socialist market economy. So far a blind eye has been turned to the existence of CSW. State owned units and local governments have themselves even been involved in its development.¹ The HIV/AIDS epidemic was also ignored until recently. The growing pressure to combat HIV/AIDS and commitment to a 'human centred' development approach now forces authorities to openly accept its existence and in turn confront the growing 'fractures, stresses and strains in society' that the HIV/AIDS epidemic reveals (Barnett and Whiteside, 2002: 73).

The 'scientific concept of development' and inequality

The scientific concept of development (SCD) endorsed by China's leadership is recognition that measurements of economic activity (such as real per capita incomes) are inadequate as a single metric of the health of a society and its people. Social scientists, of course, have long recognised the inadequacies of such metrics. This is partly because:

- i. Inequalities are not captured by income/output statistics;
- ii. Certain types of work may not be measured (the informal workforce, those outside of national accounts).
- iii. Certain types of activity are not accounted for (externalities. i.e. pollution, transmission of communicable diseases).

Publications like the UN Human Development Reports (HDR) emerged during the 1990s in response to the dissatisfaction with conventional measures, particularly as applied to developing countries: 'Any measure that values a gun several hundred times more than a bottle of milk is bound to raise serious questions about its relevance for human development' (ul Haq, 2003: 103). The HDR advocated alternative measures, such as the composite human development index (HDI).² The HDI has

¹ Until quite recently some governments taxed 'escort' services. Until 1998 there were as many as 43 cities that levied personal income tax on sex workers (Pan Suiming, 1999: 3).

² There were a number of perceived advantages:

- i. It is multidimensional;

gained popularity, but there is also considerable debate around the value of alternative measures of development (c.f. Srinivasan, 1994; Streeten, 1994). The ethos of the HDI, like China's scientific concept of development, is that economic development should be seen as a means, not an end in itself. More recently the Millennium Development Goals (MDGs) have built on this human centred concept of development. They are based around eight goals (there are also 18 targets and 48 indicators) for developing countries to achieve by 2015. These goals are closely linked to health (child mortality, maternal death rates, HIV/AIDS/tuberculosis and Malaria), gender (female education rates) and education – components central also the HDI. The development goals, like the HDI, have received criticism because of their perceived weaknesses.³

China's scientific concept is, as the name suggests, conceptual. It is, therefore, far less explicit than the composite measure put forward by the UNDP's HDI or the Millennium Development Goals. The idea of the scientific concept of development was only endorsed quite recently by the Third Plenary Session of the 16th Central Committee (convened in Beijing in October, 2003). It is an important statement of intent from the new leadership. The scientific concept of development can be summarised in the following statement: *'take people as the main thing, establish a concept of comprehensive, coordinated, sustainable development, and promote comprehensive economic, social, and human development'* (quoted in Fewsmith, 2004: 3).⁴ More explicit details of the scientific concept of development are hard to find. The following points are taken from recent statements in the media by the top leadership. According to these the concept should:

- i. Adopt a human or 'people-centred' development strategy.
- ii. Take economic development as central, but also promote political and cultural advancement to achieve comprehensive socioeconomic development.
- iii. Balance rural and urban development.
- iv. Balance economic development with population growth, resource availability and environment protection – to achieve sustainable growth.

More generally, the concept aims to create 'a new development of Marxism in pace with the times' and to build a 'well-off society' by 2020 (Wen Jiabao). Hu Jintao has stressed this is necessary as the next 15 years 'will be a crucial period' witnessing 'fundamental changes in the country's economic and social structures' (Hu Jintao, quoted in PLA Daily, 17th April 2005). The underlying message is that China should '*not solely stress the speed of economic development*' but also be more generally

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- ii. Focuses policy makers on ultimate objectives of policies.
 - iii. More meaningful as a national average as inequalities in incomes are usually far greater within countries than health and education;
 - iv. International differences may be more manageable. Average income of South only 6% of North. But life expectancy is 80% and literacy rate 66%.
 - v. The HDI can be disaggregated by region, gender etc.

³ These include criticisms of the particular goals set, the problems of unrealistic targets, lack of data to monitor progress, that they divert attention of aid givers and NGOs from other important areas. Most importantly, perhaps, they do not say how these goals are to be achieved and what the actual balance between human and economic development is. On the whole, though, they have been welcomed as a step forward.

⁴ A People's Daily article, for example, notes that 'At first glance, growth seems equal to development, but in fact it is not' (Fewsmith, 2004: 3).

aware of the problems such development will throw up (Hu Jintao, quoted in PLA Daily, 17th April 2005). The rapid spread of HIV/AIDS, a consequence of China's rapid but uneven development, must be considered one such major development problem.

As mentioned, conventional measures of economic activity do not account for economic inequality, register externalities (both positive and negative) or the informal sector. Inequality, externalities and the informal sector, however, are central to understanding China's HIV/AIDS epidemic. The scientific concept of development, therefore, is an important step in broadening policy-makers awareness beyond a narrow focus on economic activity and the speed of economic development. In particular, its focus on rural/urban inequality must be welcomed. It has yet, however, to commit to more specific goals or targets like those found in the MDGs. The *concept*, therefore, leaves considerable room for interpretation from those who must work on implementing it. This is a current weakness. The *concept* must be applied in practice if its true value is to be realised.

Inequality

An important element of the scientific concept of development is its recognition of China's growing inequality and the negative consequences this may have for society. To understand the HIV/AIDS epidemic it is also important to understand growing income inequality in China and its consequences

Few countries have experienced China's sustained economic growth. About 150 million individuals were raised out of poverty during the 1990s. No countries have at the same time experienced such unequal growth.⁵ The Gini coefficient, an internationally used measure of inequality, rose from a low 0.28 in 1981 to 0.39 in 1995 (World Bank, 1997: 1). By 1998 the UNDP estimate it had risen to 0.40 and by 2001 it was 0.45 (HDR, 2004: Table 14; HDR, 2003; 284)). Another estimate argues the Gini coefficient rose from 0.21 in 1978 to 0.40 in 1998 (Yao Shujie, quoted in Nolan, 2004: 18). In recent years the coefficient has been edging closer to 0.5. This alarming level of inequality places China, in terms of unequal distribution of income, alongside countries such as Mali, Niger, Zambia, Guinea-Bissau, Malawi, Nigeria and a number of other nations that score very poorly in terms of overall human development (UNDP, 2003: 285). According to the World Bank the increase in China's Gini coefficient was by far the largest of all countries for which comparable data are available, '*such a large change is unusual*' (World Bank, 1997: 15).⁶ Inequality in China was found to be significantly greater than other East Asian nations by the mid 1990s (Kan and Riskin, 1998). Indeed, a feature of the 'East Asian Miracle' was that it was remarkably equitable (World Bank, 1993).

The increase in the Gini-coefficient has been caused largely by the growing rural/urban divide. Rural reforms spurred China's growth in the early 1980 and rural incomes grew rapidly in this early period. By 1985, however, rural incomes stagnated and began to trail the increases in urban incomes. This trend reversed only briefly in

⁵ Other nations of the 'East Asian Miracle' grew in a balanced way.

⁶ More recently a World Bank representative to China has noted the 'The gap is widening too fast. If we don't give enough emphasis on the poverty relief and inequality in the countryside, many problems will occur.' (Pieter Bottelier, former World Bank representative in Beijing, CD, 5th November 2003).

1995 (Table 1).⁷ Between 1997 and 2002, however, there is estimated to have been a 22% fall in farm prices. Some have estimated that real farm incomes actually declined between 1998 and 2001 (Nolan, 2004: 17).

From 2000 to 2005 the negative trend in relative farm incomes (*vis a vis* urban incomes) continued, despite an increasing emphasis on policies favourable to the rural sector. In 2004 average per capita income grew by a healthy 6.8 per cent in the farm sector (to \$353.7). This was the fastest annual pick-up since 1997. At the same time, however, urban residents per capita incomes rose by 7.7 per cent (to \$1,135). According to the most recent estimates, urban incomes stand at 3.21 times those of a typical rural dweller (Li Deshui, Commissioner of National Bureau of Statistics, quoted in China Daily, 1st February 2005).⁸ China's officially recorded rural-urban income ratio reflected in Table 1, furthermore, fails to capture the full extent of disparities in living standards between city dwellers and rural residents. This is because publicly provided services such as housing, pensions, health, education, and other entitlements increase urban income estimates substantially.⁹

Table 1: rural/urban income ratios

Year	Column A - Per capita annual net income of rural household, Rmb	Column B - per capita annual disposable income of urban households, Rmb)	Column C (B/A)	Estimates of 'floating population' in millions
1982	30
1985	397.6	739.1	1.9	40
1989	601.5	1373.9	2.3	60+
1990	686.3	1510.2	2.2	Stagnant
1991	708.6	1700.6	2.4	65
1992	784.0	2026.6	2.6	...
1993	921.6	2577.4	2.8	80
1994	1221.0	3496.2	2.9	...
1995	1577.7	4283.0	2.7	80-100
1996	1926.1	4838.9	2.5	80-100
1997	2090.1	5160.3	2.5	...
1998	2162.0	5425.1	2.5	80-100
1999	2210.3	5854.0	2.6	...
2000	2253.4	6280.0	2.8	...
2001	2366.4	6859.6	2.9	...
2002	2475.6	7702.8	3.1	...
2003	2622.2	8472.2	3.2	150

Source: China Statistical Yearbook (2004: 357); Yu Zhu (2003).

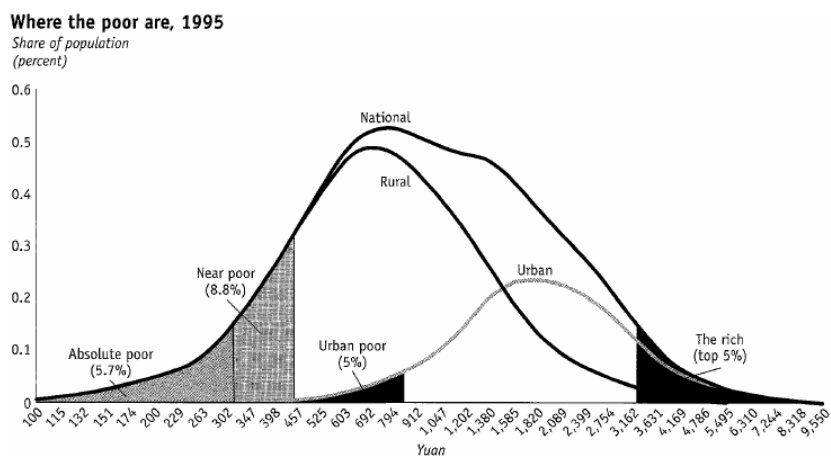
⁷ A raft of policies to promote farm income have been implemented in recent years. As a result the rural/urban income gap did not increase in 2004 according to one report. On top of this favourable weather and increasing grain prices in 2003 increased rural incomes. In 2005 central authorities have again designated 'sustained, increased incomes for farmers' as a top task. Document No 1, a CCP and State Council key document, appeals for tax cuts, subsidies and other policies. Tax cuts, exemptions and subsidies translated into a direct benefit of 45.1 billion yuan (US\$5.4 billion) to farmers in 2004 (China Daily, 1st February 2005)

⁸ Only slightly down from the same gap (3.23 times) in 2003.

⁹ 'According to State Statistical Bureau data, rural-urban disparities accounted for more than one-third of inequality in 1995 and about 60 percent of the increase in inequality between 1984 and 1995 (figure 2.1). Adjusting these data for some of the shortcomings noted in box 1.1 reveals an even starker picture. Adjusted, rural-urban disparities accounted for more than 50 percent of inequality in 1995 and explain 75 percent of the increase between 1984 and 1995. The data adjustments yield two important changes: they lower inequality within rural and within urban areas but maintain the trend increase, and they magnify rural-urban disparities. The overall impact of the changes is an increase in total inequality' (World Bank, 1997: 15).

The stark contrast in incomes that grew up between rural and urban areas during the 1990s is captured nicely in Figure 1. By the mid 1990s the absolute poor and near poor constituted 14% of China's population (Figure 1). Their incomes were far lower than even the poorest urban residents. For much of the 1990s, as incomes in urban areas have increased, the urban population distribution (represented by the right hand curve in Figure 1), has been moving outwards faster than that of the curve representing the rural population. According to the World Bank rural-urban disparities accounted for more than 50 percent of inequality in 1995 and *explained 75 percent of the increase in inequality between 1984 and 1995* (World Bank, 1997: 15).

Figure 1: the income gap between China's rural and urban populations, 1995.



(World Bank, 1997: Sharing Rising Incomes; 44)

Economic incentives to migrate from rural to urban areas have therefore greatly increased. The number of migrants in China has increased with direct correspondence to the rural/urban income gap (Table 1). Some predict up to 300 million migrants by 2010 (Lague, 2003, quoted in Smyth, 2005). A significant share of the Chinese population still lives in the countryside but rural incomes are likely to remain depressed and incentives to migrate grow. For China, moreover, 'it will be many decades before China's rural surplus labour supply is exhausted' (Nolan, 2003: 63). It is symbolic and telling that in only two and a half decades of market opening China's income distribution has come to look quite similar to that of the United States.¹⁰ China, of course, has far lower levels of absolute income. This does not bode well for the future of Chinese socialism.

Table 2: income distribution in China and United States

Income groups	China	United States
Income share held by highest 10%	33.06	30
Income share held by highest 20%	49.99	46
Income share held by lowest 10%	1.8	2
Income share held by lowest 20%	4.66	5
Income share held by second 20%	9	11
Income share held by fourth 20%	22.13	22

¹⁰ Though according to the UN's Human Development Report it had a significantly lower Gini coefficient.

Source: (<http://devdata.worldbank.org/dataonline/>)

Hu Jintao's valedictory speech as the new premier warned that 'agricultural, village and farmers' problems relate to the overall situation of China's reform, opening and modernisation' (quoted in Nolan, 2004: 18). The growth of the HIV/AIDS epidemic and progression from rural to urban areas, considered next, highlights exactly this point. Growing rural/urban inequality does indeed have important implications for understanding transmission of HIV/AIDS and 'human centered' development.¹¹

The speed at which inequality has grown is alarming. Economic growth, accompanied by inequality, has been a major factor driving the HIV/AIDS epidemic. While economic growth has had some remarkably positive outcomes for the Chinese people, greater recognition of its problems are also needed. Unequal growth has led to massive migration, large-scale CSW and a surge of new HIV infections.

Migration and HIV/AIDS

Estimates of the vast floating population now range upwards of 100 million (Jacka and Gaetano, 2004: 1). Much is made of the scale of migration in China and its possible impact for spreading HIV (Gill, 2002). The exact relationship between migration, behavioural change and HIV transmission, however, has been quite poorly described. Interestingly, no studies have yet examined in detail the basic relationship between the origin and destination of migration and HIV prevalence. Closer investigation shows that it is in fact regions with the highest numbers of HIV infections that are also those with the largest number of outward migrants. The following sections consider the origin and destination of migrants and speculates the negative externalities involved in transmission by migrants could be larger than previously realised.

One problem with examining the migration/HIV relationship is that data on the floating population is still rather limited and imperfect. The Ministry of Labour and Social Security and Ministry of Public Security do collect data on migrants that register as temporary dwellers in their place of origin. Many migrants, of course, may not register. Migrants that move shorter distances for shorter periods of time, for example, may not bother. Data from the Ministry for Public Security registered approximately 40 million migrants in 1998. This compared with some unofficial estimates of approximately 80 million (Zhu, 2003: 490). Official statistics, therefore, give only a rough estimate of the floating population. However, with such statistics the 'problem of under-numeration is a less serious problem in the case of long-distance migration' (Zhu, 2003: 490). For this reason, and also because long-distance migration is more important in the national spread of HIV in China, Table 3 concentrates solely on data for 'inter-provincial' migration. There were 46.5 million registered floating rural labourers at the end of 1998. Of these approximately 30.5 million were 'inter-provincial' migrants. The majority of China's registered migrants are therefore inter-provincial migrants.

¹¹ The scientific concept of development, it has been observed, 'aims to address the difficulties of the interior' (Fewsmith, 2004: 2). It is also based upon the view that the 'public's reaction toward the expansion of the gap in income allocation is becoming stronger' (Wang Mengkui, quoted in Fewsmith, 2004: 6).

Migrant data in Table 3 is based on year end 1998. There are no reasons to believe 1998 is an unrepresentative year. Ideally, inter-provincial migration from earlier years should be used to see if origin and destination trends have significantly changed over time. The HIV data is taken from sentinel surveillance data of the Chinese Centre for Disease Control. While there are many problems with China's sentinel surveillance programme it is the only available data and therefore gives the best indication of regions with more serious outbreaks (Global AIDS Programme, 2002). Coupled with anecdotal reporting the sentinel surveillance information provides a valuable if still inadequate picture of the situation.

As well as showing share of registered inter-provincial migrants for China (column 2), Table 3 also shows inter-provincial migrant share relative to the provinces' share of China's total population. This gives an indication of outward migration relative to province size (a figure over 1 representing a disproportionate share of outward migration). Column four shows the destination of migrants as a share of the national total. The remaining four columns provide evidence on the severity of the HIV/AIDS outbreak in the province

Table 3: ‘floating population’ by place of origin and destination (end of 1998) compared with HIV sentinel surveillance information and outbreaks of HIV

Province	Origin of registered inter-provincial migrants (% share of national total)	Colum2/province's % share of total population	Destination of registered inter-provincial migrants (% share of national total)	Reported infections in 2002 (China HIV/AIDS case report)	IDU infection rate > 5% at one sentinel surveillance site or more	Blood plasma driven epidemic (provinces with average 10-20% infection among FPDs)	HIV detected among STD patients in sentinel sites (year 2000).
Shanghai	...	0	6.82				
Jiangsu	2.71	0.47	6.56				Yes
Zhejiang	1.88	0.52	8.94				
Fujian	0.72	0.27	3.56				
Guangdong	0.45	0.08	37.64	1001-5000	Yes		Yes
Shandong	2.36	0.33	2.15			Yes	
Hainan	0.02	0.03	0.51				
Beijing	0	0.00	7.47	501-1000	Yes		Yes
Tianjin	0.05	0.06	1.91				
Hebei	2.66	0.50	1.52			Yes	
Liaoning	0.27	0.08	1.67				
Guangxi	5.3	1.40	0.94	1001-5000	Yes		Yes
The coastal region	16.42	0.40	79.68				
Shanxi	0.25	0.10	1.83			Yes	
Inner Mongolia	0.54	0.28	0.93				
Jilin	0.07	0.03	0.57				
Heilongjiang	0.1	0.03	1.52				
Anhui	13.9	2.77	0.59	501-1000		Yes	
Jiangxi	8.1	2.38	0.39		Yes		
Henan	14.94	1.98	1.19	1001-5000		Yes	Yes
Hubei	4.12	0.86	1.65			Yes	
Hunan	10.11	1.92	1.05	<i>101-500</i>	Yes		
<i>The central region</i>	52.12	1.46	9.72				
Chongqing	6.02	2.43	0.42				
Sichuan	13.66	1.99	1.2	1001-5000	Yes		
Guizhou	4.16	1.39	0.63	501-1000	Yes	Yes	
Yunnan	0.28	0.08	3.05	5000-10000	Yes		Yes
Tibet	0	0.00	0.47				
Shaanxi	3.42	1.18	0.94			Yes	
Gansu	3	1.46	0.3				
Qinghai	0.19	0.46	0.37				
Ningxia	0.7	1.59	0.27				
Xinjiang	0.02	0.01	2.95	5000-10000	Yes		
<i>The west region</i>	31.47	1.36	10.6				
<i>Total</i>	100		100				

Source: Zhu Yu (2003); China HIV/AIDS case report (2002); China Ministry of Health and UN Theme Group on HIV/AIDS (2003: 9, 10), columns 5-9; CDC Sentinel Surveillance Data, as reported by UNAIDS.

Origins and destinations of China's inter-provincial migrants

Of the registered 30.5 million 'inter-provincial' migrants recorded in 1998 (Table 3) about 70% were from counties that were considered 'mostly rural'. Nearly 80% of these migrants moved to cities (Zhu 2003: 490).¹² It is, of course, highly significant that 80% of China's estimated 840,000 HIV infected individuals lived in rural areas during the late 1990s (Wu, Rou and Cui, 2004: 8). Indeed, one factor that makes the epidemic in China different is that 'the epidemic of HIV among IDUs began in the rural areas and then spread to urban areas' (Wu, Rou and Cui, 2004: 8). In the late 1990s nearly 85% of inter-provincial migrants originated from central and western regions. In 2001 four provinces in western and central regions accounted for 77% of all reported HIV infections (Yunnan, Guangxi, Xinjiang and Guangdong) (Hesketh, Zhu and Duo, 2002). The more detailed breakdown of inter-provincial migration shown in Table 3 shows that it is exactly those provinces with the most serious HIV outbreaks that have supplied most of China's long distance migrants.

The following analysis briefly reviews the migration and HIV/AIDS situations for the six provinces with the highest shares of outward migrants. Provinces that have received migrants, interestingly, have also experienced heightened HIV rates among high-risk groups, though they are not covered here (see Guangdong and Beijing, for example).¹³

Henan

Henan is China's most populous province (about 7.5% of China's population). It also supplies the greatest share of registered inter-provincial migrants in China (roughly 15%). Relative to its overall size, therefore, it still supplies a disproportionately large number of migrants. The ratio expressing the percentage share of outward migrants to the province's percentage share of China's total population is among the highest in China (see column 3, Table 3). Only several other provinces have a higher share of outward migrants relative to their populations (Sichuan, Chongqing, Anhui, Jiangxi). This indicates not only large numbers, but a greater propensity to migrate among these provinces.

It is unsurprising that Henan has a large number of migrants in both absolute and relative terms. It is a poor province whose population migrates for work. It is also well known that Henan suffered a serious outbreak of HIV/AIDS owing to illegal plasma collection starting in the 1980s. This problem was identified as early as 1989 (Zhang, 2004). Between 1001-5000 HIV cases were reported by December 2002 (MOH, 2003). According to a more recent survey by Henan provincial health authority in 2004 (covering over 50,000 villages) 280,000 people were identified as having used the illegal blood banks in the early 1990s. Of these 25,000 tested HIV positive (China Daily, 14th April 2005 p.2).¹⁴ Others in international nongovernmental organizations suggest as many as 1.2 million people are HIV-positive (Gill, 2002). Among those found infected in the recent survey more than 97 per cent come from

¹² These figures correspond closely to migrant survey response data.

¹³ This is particularly evident in Guangdong, which receives nearly one third of registered inter-provincial migrants.

¹⁴ Between April 2004 and March 2005 147 illegal blood collection centres were closed in central China (China Daily, 28th March 2005). HIV infection ranges between 10-20% in FPDs according to other sentinel surveillance data for Anhui (bordering Henan)

rural areas (China Daily, 26th February 2005, p.1).¹⁵ FPDs were mainly poor farmers (both male and female), groups more likely to participate in migration. By the late 1990s sentinel surveillance was starting to detect HIV among STD patients (at less than 1%). Only five other provinces in China detected HIV among STD patients in 2000 according to the national sentinel surveillance data. A survey among female inmates in rehabilitation showed that 92% of 1,185 women had STI, and several were infected with HIV (UNAIDS, 2002: 26). Unfortunately by the late 1990s sentinel surveillance in antenatal units care had yet to be implemented. Information on spread to the general population was therefore limited.

Of an approximate 93 million provincial population in Henan 6.5 million were registered migrants at the end of 1998 (Zhu 2003: 491). Of these a very significant share (4.5 million), were inter-provincial migrants. These figures are likely to underestimate the true number of migrants, owing to the problems with official registrations already mentioned. If official statistics underestimate the true number of migrants by one half, which seems plausible given estimates of the floating population above 100 million, a more realistic estimate would place inter-provincial migrants at around 9 million.

Anhui

Anhui has a population of about 62 million. It is the second largest supplier of registered inter-provincial migrants in China (4.2 million). There were about 4.2 million registered inter-provincial migrants from Anhui in 1998, leaving it just behind Henan. Again, like Henan, relative to its share of China's total population, the number of outward migrants is large (see column 3). It was the highest in China in the late 1990s (at 2.8). Anhui also experienced an FPD outbreak (many farmers are reported to have travelled from Henan to Anhui to donate blood). In an independent medical survey undertaken in Anhui province it was found that HIV infection in a group of former commercial plasma donors 'was alarmingly high', standing at 12.5% (and 2.1% among FPD spouses) (Wu, Rou and Detels, 2001: 45).¹⁶ Anhui had reported between 501-1000 HIV cases in December 2002 (MOH, 2003). This placed it in the third tier of the eight most infected provinces.

It is not surprising that Anhui was among a small number of provinces that detected HIV in STD sentinel surveillance sites during the late 1990s. Sex workers in the province have low condom use even by Chinese standards, with on average about three quarters 'never using' condoms in areas covered by sentinel surveillance data. It also had a serious STD outbreak, with the incidence of STDs in 1999 placing it in fourth position among China's provinces (with an incidence of 570 per 100,000 in 1999, the Chinese average for this year was 325). Alarmingly, even by the late 1990s antenatal screening had not yet started.

Anhui provides a significant share of China's long distance migrants (about 14%). It also has a more serious HIV/AIDS outbreak.

¹⁵ More than 11,800 infected people have already shown AIDS symptoms. Henan has recently instituted controversial compulsory testing and health certificates for public entertainment and service industry workers (beauty parlours, massage centres and discos, for example)

¹⁶ Incentives to donate plasma were great as income from one donation amounted to approximately half of one month's income (Wu, Rou and Detels, 2001). Of the donors 98% were farmers and 90% were married. About half were illiterate.

Sichuan

Sichuan has a population of 85 million (third largest in China). It supplies about 4.1 million officially registered inter-provincial migrants (the third largest in absolute terms, after Anhui and Henan) with 13.7% of the national total. In relative terms, given the size of the province's population, it is also a popular origin for migrants (see column 3). It is another province with high incidences of HIV/AIDS (mainly IDU driven). The HIV epidemic started in the Yi minority inhabiting Liangshan Prefecture on the Kunming- Chengdu main road (a major route for drug trafficking from Myanmar). By the end of 2000, the major HIV transmission route was still IDU (68%), but blood (transfusion/products) related HIV represented 23% of all HIV infections, and sexual transmission 6% (UNAIDS, 2002: 23). HIV infection rates have remained quite low - between 4 and 10% - among IDUs. Most new infections in 2000 were among young people, 93% under 30 years old.

Over 50% of prostitutes in Sichuan never use condoms. Heterosexual transmission will inevitably become more important in this province (UNAIDS, 2002: 23). Sichuan stood in the second rank of four provinces (including Henan, Guangxi and Guangdong) with between 1001-5000 HIV cases reported by December 2002 (MOH, 2003). It has a serious HIV/AIDS outbreak.

Hunan

Hunan has a population of 65 million. It supplies about 3 million inter-provincial migrants making it China's fourth largest supplier of registered inter-provincial migrants (with 10% of the national total). Accounting for its population size it is still a comparatively large supplier of migrants, with a higher relative share of outward migrants than all but five others (Henan, Anhui, Sichuan and the Chongqing administrative region).

No HIV cases, however, were found among sentinel surveillance STD patients in the late 1990s. Condom use remained very low (with nearly 90% of sex workers 'never using' condoms in 2000). Hunan had reported between 501-1000 HIV cases by December 2002 (MOH, 2003). This placed it in the third tier of the eight most infected provinces.

Jiangxi

Jiangxi provides 8.1% of China's inter-provincial migrants, China's fifth largest (about 2.5 million). Jiangxi had no HIV cases in sentinel surveillance STD patients by 2000. Jiangxi had reported less than 100 cases by December 2002 (MOH, 2003). The IDU infection rate, however, had exceeded 5% at least one surveillance site.

Injecting drug use is common among drug users (85%) and 45 cases of HIV infection were reported among IDUs (14.5%) in the year 2000. This ranks Jiangxi as the sixth province with HIV among IDU following Yunnan, Xinjiang, Sichuan, Guangxi and Guangdong. Over a number of years the sentinel surveillance system has indicated high injection and needle sharing rates among drug users. (UNAIDS, 2002:27). Jiangxi is one of China's more seriously affected provinces, though not in the top tier.

Guangxi

Guangxi has large numbers of IDUs and a rapidly growing HIV/AIDS problem. It was also the sixth largest provider of inter-provincial migrants (5.3%) in 1998 (with 1.6 million). Like Yunnan, Guangxi sits on China's south eastern border and IDU is common. In Guangxi, about 90% of all drug users are injecting and more than half of them share injection equipment. During 1998, 5 out of 7 sentinel sites reported increasing HIV rates among IDU.¹⁷ Guangxi stood among a second tier of four provinces (including Henan, Guangxi and Guangdong) with between 1001-5000 HIV cases reported by December 2002 (MOH, 2003).¹⁸ Most alarmingly, HIV positivity increased rapidly at prostitute sentinel sites in Guangxi.¹⁹ This is perhaps unsurprising as over 50% of prostitutes reported never using a condom (UNAIDS, 2002: 24).

By 2000 STD clinic sentinel surveillance had picked up HIV infections exceeding 1% (third highest after Guangdong and Yunnan surveillance sites). Condom use was among the lowest in China, with over 60% of sex workers 'never using' condoms in the late 1990s. By 2000, however, sentinel surveillance in two antenatal clinics had yet to detect HIV. According to one study, however, the 'risk of an impending heterosexual HIV epidemic in Guangxi is very real indeed' (UNAIDS, 2002: 24).

Summary

Between them China's six largest migrant supplying provinces accounted for over 65% of outward migrants in the late 1990s. They were also provinces with some of the most severe HIV outbreaks in China.²⁰

Many commentators have noted the significance of the migrant population as a vector for HIV transmission. Few studies, however, have analysed in any detail the exact relationship between HIV infection rates and outward migration. The above analysis suggests that it is the very provinces with serious HIV epidemics that supply China's migrant workforce and that HIV infected individuals may have a greater propensity to migrate.²¹ This is perhaps not surprising. Poorer provinces were more adversely affected by plasma collection (because poor farmers wanted to supplement their incomes). Intravenous drug use is also more common in the poorer south western regions where a drugs trade exists. Interestingly then, it is not just that migrants become more susceptible after migrating. *Migrants themselves are typically more likely to be infected with HIV even before migration.* This coupled with behavioural change after migration, increasing risk behaviour, implies the migrant population is susceptible and at the same time that it plays an important role in spreading the disease.

17 HIV epidemics have been well documented among IDU in Dongxing and Pingxiang (20% positive) on the Vietnamese border, and in Baise (77% positive) and Tiandong (>50% positive) on the border with Yunnan, and in increasing numbers in other sites.

¹⁸ By September of 2000 Guangxi had detected 1955 cases of HIV (UNDP, 2001: 9).

¹⁹ From 0% (0/256 tested) in the second quarter of 1998 to 5% (15/333 tested) in the fourth quarter. In 2000 in Nanning, a 10% HIV infection rate was found among prostitutes but most of them also have a history of drug use.

²⁰ Fortunately, China's two worst hit provinces, Yunnan and Xinjiang, have not been large suppliers of migrant labour.

²¹ It also shows that there is only one province (Jiangxi) that detected HIV among CSWs in 2000 that did not also have either an IDU or FPD driven epidemic. All other provinces did. This might imply HIV has spread from IDUs and FPDs to the commercial sex sector.

Income inequality drives migration. While migration is obviously an important sign of a well functioning labour market, the increased risk of spreading HIV/AIDS that this facilitates also needs to be considered. From an economists point of view the transmission of a communicable disease represents a negative externality. As with any negative externality, the market will over provide in the provision of activities associated with such externalities.

Migration of females, CSW and susceptibility to HIV/AIDS

The migrant population is not only more likely to be infected with HIV/AIDS (because it originates from more highly infected regions) but there is also evidence to suggest migrant behaviour changes after migration. This is particularly true of the female migrants that make up the vast majority of China's booming commercial sex industry. The following sections consider both the supply and demand sides of this market.

Firstly, however, it is worth stressing that CSW is central to understanding Asian HIV/AIDS epidemics. Asian HIV/AIDS epidemics have been 'kick-started' by IDU populations. Country experience and epidemic modelling, however, show that widespread heterosexual transmission is necessary for a full-blown epidemic to take place among the general population. Most now agree the HIV epidemic is established in China and is spreading from core high-risk groups to the general population: 'heterosexual transmission will become the dominant mode of transmission' (Wuo, Rou and Cui, 2004: 10); the epidemic has spread swiftly 'to the general population via sexual transmission' (Zhang, 2004: 1156).²² Indeed, this is confirmed by the sketchy sentinel surveillance data available. Between 1997 and 2002 the proportion of reported HIV cases attributed to sexual transmission doubled from 5.5% to 10.9% of the total number of cases (UN Theme Group, 2003: 12). Understanding and restraining the forces in society that drive sexual transmission of the virus has, therefore, become much more important. In Asian countries that have experienced large-scale epidemics among the general population heterosexual transmission via commercial sex work (CSW) has been a necessary precondition. This is partly because the sexual mixing pattern in Asia, reliant on a professional class of sex workers, is also 'a particularly efficient pattern for rapid spread of HIV'. This is because CSWs act 'as a continuing reservoir of infection' (Grassly et al 2003: 2).²³

Economic models are useful in understanding migration of women for CSW. Such models argue migration is driven by rational economic considerations of relative benefits and costs (mostly financial but also psychological) and by *expected urban-rural real wage differentials* (Harris and Todaro, 1970). In such models migration rates in excess of urban job opportunity growth rates are '*not only possible but also rational and even likely in the face of wide urban-rural expected income differentials*' (Todaro, 2000: 310). Even by 1998 China's urban unemployment rate had reached 8% and it was also predicted that unemployment would rise in the wake of WTO entry and continued state sector restructuring (UNDP, quote in Nolan, 2004: 19). Some place average urban unemployment above 10% (DFID,

22 This is only partly true – the vast majority of infections remain among IDUs and FPDs, though sexually transmitted infections are on the rise.

23 At the peak of the epidemic in Thailand over 90% of CSWs became infected within one year of starting commercial sex work (Aids Education and Prevention, 2004: 2).

2004). Unemployment, therefore, is already a feature of the Chinese urban sector. Indeed, it is only via excessive rural-urban migration, in the face of possible unemployment, that rural and urban *expected incomes* are forced closer together. This is because ‘expected incomes are defined in terms of both wages and employment probabilities’ (Todaro, 2000: 308). *It is therefore possible and even normal to have continued migration despite the existence of sizable rates of urban unemployment.*²⁴

The insights of the Harris-Todaro model are relevant for understanding rural-urban migration of women for two reasons. Firstly, the model explains that unemployment is likely to be a feature of urban areas in developing countries, particularly if wages in the urban sector are considerably greater than the rural sector. With high-levels of unemployment it might be expected that at least some female migrants, out of sheer desperation, will consider CSW. Secondly, financial remuneration in sex work, by comparison with most other service or manufacturing employment, is generally considered to be very high.²⁵ While data for China is limited, international studies show this to be the case. In Vietnam, for example, sex workers reported earning up to seven times the average income of the general population (Elmer 2001, quoted in MAP, 2004). In Nepal, sex workers earned more than six times the average annual income nationwide (an annualised income of over US\$ 1,500). In Cambodia, SWs earned US\$ 122 a month on average, compared with a national per capita income of just US\$ 25 a month. (Neal, Sopheab et al 2004; World Bank Group 2004, quoted in MAP, 2004).²⁶ Compared with other forms of employment the Harris-Todaro model predicts a disproportionately large number of women will be attracted to the profession, driving down *expected incomes* to levels nearer those found in alternative forms of employment.²⁷

There is much evidence to suggest high-levels of underemployment in outlets for CSW.²⁸ It is typical, for example, that many dozens of sex workers may work in outlets such as KTV bars, giving any individual only a small chance of employment in an evening’s work (c.f. Pan Suiming, 1999). While wages are high, the large numbers drive down expected incomes, as predicted in the Harris-Todaro model. It is impossible to know with accuracy the numbers entering CSW in China. In surveys of female migrants none responded that they had taken part in the sex industry (Jacka and Gaetano, 2004). This, however, is unlikely to be a true reflection of female migrant employment. Most women are reluctant to admit participation in the sex industry. It is estimated for a number of East Asian countries, however, that ‘0.25% to

24 The basic argument is that ‘As long as the present value of the net stream of expected urban income over the migrant’s planning horizon exceeds that of the rural income, the decision to migrate is justifiable’ (Todaro, 2000: 308).

25 ‘Hostesses earn incomes that are higher than those of most urbanites and well beyond the reach of the women working in domestic service ... some make important social connections’ (Jacka and Gaetano, 2004: 7).

26 Sex workers in Yunnan province, China, have reported that they earn on average RMB 247 (about US\$ 30) for sex. As well as making considerably higher incomes through sex work, it is also possible certain types of sex workers may ‘make important social connections through their clients and are able to start their own businesses, further their education, gain urban household registration, and establish enduring sexual and emotional relationships with urban men, things that other migrant women can only dream of’ (Jacka and Gaetano, 2004: 7).

27 There may be a premium that females must be paid to participate in sex work owing to its demeaning nature. Some evidence, however, suggests it may not be very large. In a survey of over 2000 arrested prostitutes it was found that a main reason for undertaking sex work was ‘pleasure’ (after ‘money’). Gil also found no ‘hint or remorse or of social embarrassment about being in the profession; none was self reflexive in any traditional sense’ (Gil et al, 1996: 149).

28 Such as massage parlours, beauty salons and karaoke bars.

1.5 % of the total female population are engaged in prostitution'²⁹ (MAP, 2004: 37). Some estimates also suggest a very significant number in China. Indeed, most cities are riddled with a range of outlets for CSW. These include Karaoke bars, massage parlours, saunas and beauty salons.³⁰

In a study of Dalian, a coastal city of about 5 million, it was estimated the floating migrant population stood at 300,000. According to authorities there were 4,000 nightclubs, saunas and KTV bars. An estimated 80% of all migrant women, furthermore, were reported to work in the sex industry. The city has been referred to as one 'gigantic sauna salon or KTV bar' (Tiantian Zheng, 2004: 84). Dalian is no exception. Dongguan, located in Guangdong province and bordering Hong Kong is home to an estimated 300,000 women sex workers. They serve Hong Kong businessmen who regularly shuttle to the mainland. Similar 'enclaves on the coast of Fujian province cater to Taiwanese businessmen who frequent nightclubs, beauty parlors, massage parlors, and karaoke bars that also provide sexual services.' (Gill, Chang and Palmer, 2002: 4). In Guangxi, according to police statistics there are 50,000 commercial sex workers, although this figure is likely to underestimate the true number (UNDP, 2001: 11). In Guangzhou in the first four months of 1993 alone it is reported 20,000 prostitutes were operative in the urban area (Gil et al, 1995: 143).

Chinese police also estimate that there are around 4 million sex workers (Gill, Chang and Palmer, 2002).³¹ According to Public Security Department statistics, in 1982 there were 12,281 arrests. This increased to over 100,000 by 1989 and 200,000 by 1991. In 1992 it increased to 250,000 and in 1993 there were 246,000 arrests (Pan Suiming, 1999: 5). The number of sex workers and their clients arrested in the late 1990s was around 700,000 (Zhang and Ma, 2002: 804.32 There is uncertainty as to what the actual arrest rate of SWs is in any given year. The only scientific estimate of the arrest rate (undertaken in one city, however) suggests it stands in the region of 2.5% to 5%. This suggests that during any given year in the region of one in forty to one in twenty sex workers will be arrested. On this basis, if 250,000 SWs are arrested in a given year, the actual number of SWs may stand at more like 5-10 million. Such a number, if accurate, would imply a very significant share of the female migrant population engage in CSW and a considerable share of the young female population. There are only in total about 135 million females in the 15-29 year age group in China.

In most Chinese cities the sex industry now flourishes. The Harris-Todaro model, via its emphasis on expected incomes, helps explain the very high estimates of numbers working in CSW.

Female migrants

Understanding female migration is important, as it is female migrants that make up the majority of sex workers. The following considers in more detail characteristics of female migrants, explaining other factors inclining them towards migration and CSW.

²⁹ Related activities (bars, hotels, entertainment facilities and tourist agencies that thrive on prostitution), employ 'literally millions more workers' (MAP, 2004: 37).

³⁰ The latter, *meifating* are particularly common throughout China and cater to the lower end of the market.

³¹ One national estimate on the number of SWs has placed the figure at 4 million (Xin Ren, 2005).

³² 'Burgeoning levels of prostitution 'have spawned over 100 re-education facilities in 24 of the countries 30 provinces' (Gil et al, 1996: 148).

While most migrants are male, it is significant that more and more females are migrating. Although details are sketchy, it is now estimated that between one half and one third of all migrants are female: ‘It used to be unmarried men who migrated. But now unmarried women migrate also. People’s opinions are changing, and nobody blames them anymore’ (village leader from Anhui province (Lou, Zheng, Connelly and Roberts, 2004: 213)).³³ In one study the Centre for Chinese Agricultural Policy found that the percentage of rural women becoming migrant workers rose from 13 percent in 1990 to 76 percent in 2000 (see DFID, 2004: 2-2). In some areas, more women migrate than men, for example where a local trend has been established of women moving for factory work in the Eastern Region. (DFID, 2004: 2-2). The reasons for migration can be broken down into ‘push’ and ‘pull’ factors.

‘Pull’ factors

Despite widespread migration of women employment opportunities for female migrants are not good in comparison to their male migrant counterparts. Firstly, there is evidence of considerable job segmentation between male and female migrants. Census data from 1990, for example, found ‘that while migrants in general were mainly engaged either in industry or in the service sector, women migrants were overwhelmingly concentrated in the *service and retail sectors*, most as housemaids and restaurant workers’ (Jacka and Gaetano, 2004: 25). A more recent survey from four counties in Sichuan and Anhui in 2000 shows that women also are recruited to the manufacturing sector, though services remain important.

Table 4: some features of women migrants in the year 2000

Number of respondents	1153
Mean age at first migration	23 yrs
Migrated before marriage	36%
Destination was big city (Beijing/Shanghai or provincial capital)	30%
Destination was mid-small city	48.3%
Migrated to another province	80%
Average period of stay	12 months
Major job:	
Factory worker	42%
Restaurant worker	15%
Retailer	21%
Other	22%

Source: (Lou, Zheng, Connelly and Roberts, 2004: 213)

According to this survey nearly 30% of female migrants made their way to big cities and 48% to mid and small cities. Thus nearly 80% of female migrants make their way to work in cities. Popular forms of employment are in the service sector and in particular types of manufacturing activities: ‘young single women are the preferred labor for the transnational apparel, textile, toy, and electronics industries ... in the

³³ In Beijing in 1997, around 34% of 2.3 million incoming migrant workers were women. 46% of them were unmarried. Of these women, the overwhelming majority was between 18-20 years old. (UNAIDS, 2002: 58).

Shenzhen Special Economic Zone in 1996, 69 percent of migrants were women' (Jacka and Gaetano, 2004: 21).

A Chinese Academy of Social Sciences survey found during the early 1990s that 'women were disproportionately concentrated in low-skill, low wage production assembly work, receiving average monthly wages in the region of 300-500 yuan. Taking into account that workdays averaged twelve hours and that these wages included overtime pay, the researchers concluded that real wages were only about 200 yuan per month' (Jacka and Gaetano, 2004: 26).³⁴ Migration itself, of course, exerts great downward pressure on non-farm wages in unskilled and low-skilled occupations in urban areas. Over the 1990s it was found that there was no increase in the real wage of unskilled labour in the Pear River Delta, a popular destination for female migrants (Nolan, 2003: 18). The female migrant labour force, according to one commentator, is 'hardworking, tolerant, cheap, and disposable' (Fan, 2004: 177).

Across Chinese society the World Bank, as others, find evidence of occupational segregation. Women are 'disproportionately represented in lower-paying jobs' (World Bank, 1997: 40). There is also evidence that women are paid less in the same jobs as men and that this 'unexplained wage gap is high by international standards' (World Bank, 1997: 40). Women are also more adversely affected by lay-offs as well. The wage gap between men and women, furthermore, appears exaggerated among the migrant population. In a 1995 survey the male migrant monthly income was 642 Rmb per month compared to 355 Rmb for a women (Lin Tan and Short, 2004: 186). According to the World Bank recent economic reforms may be 'eroding the relative position of women' (World Bank, 1997; 41). They argue the '*unfettered market orientation is threatening past achievements in gender equality and reinforcing a cultural predisposition toward differential treatment of men and women*' (World Bank, 1997: 38). As one study notes, under these conditions: '*the relatively lucrative nature of prostitution can easily combine with shifts in sexual mores to enable some women to consider prostitution as an outright economic option*' (Gil et al, 1996: 149)

'Push' factors

Rural Chinese women have harder lives than men. As well as the 'pull' factor of expected earning opportunities in the cities, Chinese women also experience greater 'push' factors from their rural homes. In one survey approximately 50% of women as opposed to 35% of men identified 'push' factors as influencing their decision to migrate (Fan, 2004: 185). The difficult living condition of rural females is reflected in high suicide rates. In China these are about three times the global average. Uniquely, however, most suicides occur among young rural women aged between 15-35 years old. Suicides sadly account for about 20% of all deaths among this group (Jacka and Gaetano, 2004: 26). A recent survey of 24 hospitals reported over 14,000 suicide cases from emergency rooms between 1990 and 2003. It found 72 per cent of these

³⁴ There are tens of thousands of maids across China. The shortfall in Beijing's domestic staff market reportedly stands at between 80,000 to 100,000 and the problem is no different in other cities. Domestic house workers like maids earn around 700 Rmb per month in Beijing and from 400 to 600 in Guangdong. Most of the maids come from the countryside and are women aged between 30 and 40. They come to earn money to feed their family, support their children's education or pay off debts. Domestic service 'less lucrative' than other jobs and also stigmatised.

suicides were from rural areas and that 71 per cent of these cases were women (China Daily, 11th January 2004).³⁵

While there are comparatively few studies of CSW the evidence that does exist suggests that sex workers are overwhelmingly drawn from the female migrant population.³⁶ In a survey of several thousand arrested SWs in 1990 it was found that the median age was 22 (similar to the typical age of female migrants shown in Table 4). Former occupations included being a 'peasant' or farm labourer (41.5%), a factory worker (28.5%) or 'cadre leader' (less than 1%) (Chinese term for holding some official position). (Gil et al, 1996: 144). What emerges is 'a strikingly consistent picture of the prostitute ... the 'average' prostitute depicted by these data confirm that she is a ruralite, usually prostituting in a city, young but surprisingly well educated' (Gil et al, 1996: 145).³⁷ The primary motivation to enter prostitution, furthermore, was financial ('for money') (50%) (Gil et al, 1996: 144).³⁸

Given the low wages and poor working conditions of female migrants it can hardly be a surprise that many are attracted to CSW.

The demand side

A surprising feature of many of China's red light areas is that they are located in relatively affluent neighbourhoods. This is a reflection of the market which they serve. What evidence there is suggests wealthy urban men are among the main customers of SWs. There is still considerable debate on the size of China's emerging urban middle classes but what cannot be denied is that it is growing quickly and will continue to grow for a long time (Nolan 2004: 21). Combined with unfavourable demographic trends, in particular the growing imbalance between the sexes, this suggests demand for CSW will continue to expand.

A study of Dalian's CSW customers in KTV bars found they were 'mainly middle-aged businessmen, male government officials, entrepreneurs, the nouveaux riches, policemen, and foreign investors' (Zheng, 2004: 85). Evidence from a large-scale survey of arrested prostitutes in 1990 reveals that demand came from a variety of customers. A key feature is that clients were predominantly wealthy groups: 37% were self-employed (likely to be wealthy), 20% were factory workers, 17% were drivers, 8% were cadre leaders' (Gil et al, 1996: 145). By far the largest group, proportionally, was the 'self-employed' group. A more recent report on self-employed entrepreneurs (getihu), a growing social class in China, has also found that 'getihu young men are frequently identified as spreading [sexually transmitted infections] and engaging in HIV-related risk-taking sexual practices' (Gill, Chang and Palmer, 2002: 4).

Male migrants, of course, also create demand for CSW. Their participation, however, is somewhat limited by their wealth. Male migrants work hard and for long hours. They can bring home 2,000 Rmb per year, approximately 'equivalent of a year's net

³⁵ The majority took medicine or pesticides.

³⁶ Most had STDs at time of their arrest, with gonorrhoea being the most common. In most cases prostitutes had a history of other STDs.

³⁷ In a 1991 survey of 92 carried out by the Beijing Women Federation of women detained for prostitution, 68% were between 14 and 25 years. In 1999 a survey of 1,293 detained women 83% were between 14-29 years old (Xin Ren, 2005). The upper age limit of the prostitutes had also changed, becoming older (reflecting SOE lay-offs).

³⁸ But a strong secondary motivation was stated to be 'for sexual enjoyment (41%)'

income for a rural household in the central region' (Zhu, 2003: 495). The average price of sex, therefore, even at the lower end of the market (prostitutes in Yunnan, a poorer region of China, charge about 150 Rmb), represents a significant share of a male migrant's income. The household strategy of the male migrant can be understood as a strategy of 'earning money in the city while spending in the village (Hugo, 1997, quoted in Zhu, 2003: 495). As Zhu points out, the 'ultimate goal for most of them is to bring back money to their families and to return home to a better life later' (Zhu, 2003: 495).

Most evidence suggests that demand is disproportionately driven by the wealthier male sections of society. This, of course, has implications for the mixing pattern of HIV.

Demography

The unique demography of China makes tackling HIV/AIDS a particular challenge. The growing gender imbalance will fuel future demand for CSW. On top of this a large share of population in sexually reproductive age group - 40% of the population are in the 20-44 age group. Any excess mortalities owing to HIV/AIDS, moreover, because they affect younger age groups, will exacerbate an already worrying dependency ratio.

According to China's fifth national census, conducted in 2000 the gender ratio rose from 100:108 in the 1982 census to 100:111 in 1990 (Yu Xuejun (head of the policy and legislation department of the National Population and Family Planning Commission). (China Daily, 1st June 2004). The census in 2000 found that there were 100 girls to 117 boys. This ratio is far beyond the normal ratio of 100 females to 104-107 males. In certain regions, such as Southern China's Guangdong and Hainan provinces and the Guangxi Zhuang Autonomous Region the most marked imbalances in the country exist at 100 girls to over 130 boys. Some estimate that 'over the next decade more than 15 million Chinese men will come of age with bleak prospects for finding female partners, let alone wives.... China will have 29-33 million unmarried males between the ages of 15 and 34 by 2020' (Gill, 2002: 6). According to the UNDP 'the shortage of women will have enormous implications on China's social, economic and development future ... In the next decade, we could have as many as 60 million missing women. People are exercising their preferences, but the consequences for society are huge. The skewed ratio of men to women will have an impact on the sex industry and human trafficking as well.' (China Daily, 1st June 2004). The current imbalance in the sex ratio is captured by the disproportionate number of young males to females in Table 5.

Table 5: population by age and sex

Age	Percentage to Total Population (%)			Sex Ratio (female=100)
	Total	Male	Female	
Total	100.00	51.05	48.95	104.26
0-4	5.03	2.73	2.30	121.22
5-9	6.55	3.55	3.00	119.66
10-14	8.75	4.61	4.15	111.69
0-14	20.33	10.89	9.45	
15-19	8.37	4.36	4.00	110.61
20-24	6.79	3.41	3.39	98.67
25-29	7.60	3.79	3.81	98.66
30-34	9.71	4.88	4.83	100.39
35-39	9.61	4.86	4.75	100.99
15-39	42.08	21.30	20.78	
40-95+	37.6	18.86	18.71	

Source: China Statistical Yearbook (2004: 99)

Sociologists now also argue that men view women as commodity and that ‘cultural values which favour a woman’s beauty, expertise in sex, ability to charm, host and serve men for a fee, reflect ancient themes which the Revolution may have managed to suppress but certainly not eradicate. These themes have resurfaced with a vengeance’ (Gil et al, 1996: 150). Estimates suggest that on average 5-10% of the Asian male population had sex with a prostitute over the course of a year (MAP Report, 2004). If China shows similar trends a very large number of males are at risk.

Summary: CSW supply and demand

Women earn less than men, migrate at younger ages, are less likely to be married and have lower levels of education. Although they may have lower educational achievements compared with male migrants (reflecting the general trend of Chinese rural society), they are more educated than their rural female peer groups.³⁹ ‘Pull’ and ‘push’ incentives to migrate are both responsible for female migration (but surveys show ‘pull’ factors are more important for men). Women are typically employed in service sectors or menial low paid manufacturing jobs. Work conditions are poor and female migrants are literally ‘at the front line of both domestic and global capitalist development, working for the lowest wages in poor and often unsafe conditions and in occupations that urbanites shun’ (Jacka and Gaetano, 2004: 2). Female migrants’ employment opportunities, age, marital status and destination of migration, therefore, may incline them towards considering CSW. Combined with rapidly changing social norms, CSW is often considered ‘an outright option’ (Gil et al, 1995).⁴⁰ While most

³⁹ In a 1995 survey of women migrants only 40% of female migrants had junior secondary school education, as opposed to 64.8% for men. (Lin Tan and Short, 2004: 185).

⁴⁰ Interestingly, and again of relevance for understanding heterosexual HIV transmission, some surveys now also show that older married women are increasingly migrating for work (and a significant share of sex workers

women migrants may migrate without the explicit purpose of entering the sex trade, many are subsequently attracted to it.

HIV infection rates, of course, are significantly higher among sex workers than the general population. They have been increasing most rapidly in areas near to outbreaks caused by IDUs. IDUs are generally also more sexually active than non-drug users and more prone to having sex with CSWs, so 'infecting them and promoting the spread to the general heterosexual population' (Aids Education and Prevention, 2004: 1). Susceptibility is greatly increased by the high prevalence of STDs. China claimed the virtual elimination of venereal diseases by 1964. By 1986, however, 25,000 STD cases were reported. In 2000 that number had rocketed to 860,000.⁴¹ Infections of STDs in sex workers were alarmingly high even in the early 1990s (comparable with sex workers in southern Africa). Among STD patients, HIV prevalence also increased 55-fold over a five-year period, reaching 1.1% by 2000 (MAP, 2003: 40). Sex workers, therefore, have long been considered vectors, if not reservoirs for the transmission of sexual diseases' (including HIV)(Gil et al, 1996: 141).

Studies of China's HIV/AIDS epidemic have not paid enough attention to the economic relations between gender, migration, CSW and HIV. Female migrants, it is argued, are a particularly susceptible group. Large-scale CSW, moreover, sits very uneasily China's socialist foundations.

Conclusions

China's HIV/AIDS epidemic has taken root during a time of profound economic and social change. The epidemic may be seen as a consequence of unbalanced economic development. No other Asian nation has experienced such rapid increases in inequality. China's Gini- coefficient has risen from the mid 20s to the high 40s in only two decades. Growing inequality, particularly between town and country, has in turn led to very large numbers of migrants. No other Asian countries have experienced migration on such a scale. Perhaps more importantly, growing inequality has also caused changes in risk behaviours. In particular, inequality has spurred development of fertile conditions, on both demand and supply sides, for growth of the commercial sex industry, so central to full-blown Asian epidemics.

Much is made of the growing migrant population and its role in the spread of HIV (Gill, 2002; Lin, 2005). The migrant population, however, is diverse. Understanding its role in HIV transmission is complex. It is often assumed, for example, that the entire migrant population is itself a high risk group. While there is some truth in this, qualification is needed. Firstly, migrants typically originate from regions with comparatively high rates of HIV infection. Rural regions of provinces such as Henan, Anhui and Guangxi have experienced large-scale outward migration. Their inhabitants have also shown greater propensities to migrate than other provinces. There are likely, therefore, to be large negative externalities associated with the

arrested in the early 1990s, about one quarter, reported being married). As a recent study concludes, women migrants also typically return to their villages to marry: 'the vast majority are young and single, and they return to the countryside upon marriage' (Fan, 2004: 177). A year 2000 survey of over 1000 female migrants in Sichuan and Anhui 'counter to common held views, these rural women do migrate in substantial numbers after marriage. The sense that marriage ends migration for them is simply not correct (Lou et al, 2004).

⁴¹ Some of the rise may be due to a greater willingness to seek treatment and better reporting, but these factors cannot entirely account for a 36-fold increase.

spread of HIV/AIDS by the migrant population as HIV prevalence is higher among this group.

Secondly, if on migrating risk behaviours remained totally unchanged, a typical migrant would probably be at less at risk of contracting HIV at her or his destination. This is because migrants normally move to areas with lower HIV rates.⁴² A unique feature of China's HIV epidemic, as noted, is that it started as a rural phenomenon.⁴³ On migrating, of course, there is strong evidence to suggest that migrant risk behaviours do change: 'population mobility is more than a transporter of HIV; it breeds broader social and behavioural changes that make temporary migrants particularly susceptible to HIV infections' (Xiushi Yang, 2004). Migrants may drink, take drugs and visit/become sex workers. It is important to stress, however, that female migrants are far more likely to engage in high-risk behaviour, as they are more likely to join the commercial sex industry. Strong income growth coupled with a high income elasticity of demand among urban males, moreover, has fuelled demand for a rapidly growing commercial sex industry. Incomes from participation in CSW are therefore high. Despite the demeaning nature of this work many, many female migrants are attracted to it, so driving down expected incomes. What evidence there is on CSWs shows the vast majority originate from rural areas and that they fit very much the profile of the typical female migrant. The number of HIV infections through sexual transmission, furthermore, is increasing rapidly.

Growing inequality, widespread migration and commercial sex work are forces not easily combated. It will be many decades before the rural surplus labour is absorbed, so pushing up wages in the urban sector and making alternative forms of employment more financially desirable than CSW. It is predicted that in only a few more years there will be up to 300 million migrants and about 30 million single men with little prospects of finding long-term partners (because of demographic trends). If current trends continue, furthermore, an ever larger number of female migrants will be on the move to cities, so increasing the potential supply of urban sex workers. Although HIV/AIDS is a disease of the body, the spread of the disease in China supports the idea that the epidemic is very much a disease of society:

'Epidemic disease, and HIV/AIDS in particular, is indeed a disease of the body – but that is only the presenting symptom. The epidemic (note, the *epidemic* – not the illness) is more deeply seated. An HIV/AIDS epidemic reveals many of the fractures, stresses and strains in society. HIV/AIDS is but a symptom of the way in which we organise our social and economic relations' (Barnett and Whiteside, 2002: 73).

Fortunately, the process of reform in China has been treated as a 'complex process of comprehensive "system transformation", in which economic, social, political and psychological factors are considered as a seamless whole' (Nolan, 2004: 9). The scientific concept of development now proposed is a reaffirmation of this approach towards reform. It is a reaffirmation of the need to look beyond conventional economic metrics as a measure of development.

⁴² Such migration, of course, other things being equal, will increase the chance of infection among urban residents.

⁴³ About 80% of infections are still found in poor rural areas and many of these infections are still IDU related.

Finally, it is worth again stressing that conventional measures of economic activity do not draw our attention to relevant aspects of the currently unfolding HIV/AIDS epidemic. Conventional statistics take little account of how people earn their incomes (through CSW, for example) or what they spend it on. They take little account of growing inequality. They take little account of the possible negative externalities involved in the migration of HIV infected individuals. They take no account of the informal sector or the psychological well-being of society. The human centred scientific concept of development now proposed should, therefore, be welcomed. What is now needed, however, is a set of more explicit targets and concrete commitments which translate the concept into actual policy practice.

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