

Property Rights and the Social Costs of Transition and Development in China

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There is considerable ferment over property rights in China today. This paper briefly explores important areas in which social unrest over property rights is currently under way, beginning with a discussion of the general debate about this issue in China, and then moving on to consider such rights in agriculture, intellectual property rights, and property rights in the environmental field. The objective is to indicate how the property rights debate overlaps the argument about social costs of transition, including widening income inequality, environmental devastation, and so on.

The property rights régime in China was set in flux when the Party's Third Plenum of the Eleventh Central Committee unleashed the transition to a market economy in late 1978. De-collectivisation of agriculture began immediately thereafter. There have been few dull moments since, and property rights remain an area of contention today. The growing social costs of transition and development intersect in many respects with the property rights question as broadly conceived and understood (Stiglitz 2004). This paper briefly explores several of the important areas in which property rights ferment is currently under way, beginning with a discussion of the general debate about this issue in China, and then moving on to consider property rights in agriculture, intellectual property rights, and property rights in the environmental field. In all three areas, the objective of this discussion is to indicate how the property rights debate overlaps the debate about social costs of transition, including widening income inequality, environmental devastation, and weakening of the public health system and other forms of social protection.

Debate over Property Rights in China

China has famously lacked well-defined and legally protected private property rights. To some extent this lacuna is due to the general weakness of the "rule of law". Rights such as freedom of speech that exist on paper in the Chinese constitution or in particular laws are readily ignored or violated by government officials. Trials are often dominated by state (or local state) interests and a truly independent judiciary has yet to develop. But the lack of firmly established property rights also follows in part from the legal framework, itself, as well as from the state of play of institutional development outside the legal system. Property rights, after all, are comprised of many different kinds and degrees of control over property, including full ownership, a variety of rights of use, access, decision and/or disposal, as defined by laws, custom, contracts or internal organisational rules.¹ All of this has been changing in China along with economic growth and transition to a market economy, the development of a middle class, the proliferation of ownership forms and the general enrichment of social and cultural life.

Famously also, however, China's economy has forged ahead at record breaking tempo without having "solved" the property rights issue in the sense of establishing clear and unambiguous rights of private ownership of productive property. Nobody, for instance, could quite identify the ownership régime of the "township and village enterprises" (TVEs) that made up the highly

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dynamic rural industrial sector in the 1980s and 1990s. Were TVEs collectively owned, or de facto private partnerships masquerading as collective to avoid the political penalties that used to punish the private sector; or some kind of joint venture between collective and private parties? The “fuzzy” nature of their property rights status, classically discussed by Weitzman and Xu (1993), did not seem to impede their economic dynamism, but rather enhanced it.

A debate has occurred in the literature over the explanation for China’s economic dynamism, especially in comparison with the experience of the Eastern European and former Soviet Union (EEFSU) countries. On one side are many scholars who, knowing something about the country’s political economy and history, credit in part one or another aspect of China’s relatively gradualist, experimentalist approach to reform and restructuring. These include Robert Ash, Fang Cai, Keith Griffin, Gary Jefferson, Aziz Khan, Larry Lau, Justin Lin, Barry Naughton, Peter Nolan, Jean Oi, Tom Rawski, Andrew Walder, Weitzman and Xu, and others. A general insight that unites these disparate scholars and viewpoints is that successful market economies are always nested within a framework of institutions, including those that define, protect and limit the rights associated with property ownership; and that such an institutional environment inevitably requires time to evolve. This view leads to an interest in the way such institutions come about, their context-specific nature, and the ways in which countries and even localities may differ with respect to the exact shape of such institutions.

In addition to the TVEs, the most famous example of a gradualist, experimental institutional arrangement in China is the “dual track system”, under which China in the 1980s permitted state enterprises to sell at market prices output produced above their plan quotas (which were sold to the state at lower fixed prices). Corruption predictably bloomed under the dual track system, but it also carried market incentives into the state sector, instilled entrepreneurial instincts there and accomplished a kind of de facto price reform. There are many other examples of the mixed and experimental nature of Chinese reform. Nolan and Wang (1999), arguing against the idea of a universal model of property rights that works under all circumstances, describe how the reform of large state enterprises in China has been “developing new institutional forms that do not neatly fit into existing patterns” and conclude that “China is experimentally changing its institutions through a combination of central policy, local initiative and interaction with international investment”. In agriculture, despite the dismantling of the collectives 20 years ago, the state has retained a strong role. One of its objectives in doing so is to further a collection of social goals tied to agriculture, including improving regional balance, raising farmer incomes, promoting modernisation and improving environmental outcomes, which private small-scale agriculture by itself could not achieve. The state also remains the major provider of services to this sector where many services have a public goods character (Waldron, Brown and Longworth 2006).

On the other side of the debate are those who are impatient with gradualism and experimentation and who contend that the incomplete formation of markets and private property has

impeded China’s development, whatever the speed of growth. Wing Thye Woo and Jeffrey Sachs essentially argue that China’s success is owed to a combination of surplus labour and whatever privatisation was allowed to happen (Sachs and Woo 1997; Sachs and Woo 2003). They contend that China’s institutional experiments with dual-track pricing, fuzzy property rights in township and village enterprises, etc, were “the product of political constraints and not of economic optimisation, and hence were non-viable beyond the short-run”. Of course, no one has ever argued that China’s successful experimentation constituted “economic optimisation”. The claim rather is that it constituted a flexible and adaptable institutional environment in support of rapid economic growth. Moreover, the “short run” of viability has now lasted three decades, bringing to mind J M Keynes’ most famous quip.

The stylised view of the property rights issue sees the inviolability of private property as a sine qua non of development. The benefits of such a secure régime pertain to the basic issue of efficiency, to the incentive to invest, innovate and take risks, and to equity considerations. The efficiency argument goes back at least to the “Coase theorem”, in which clarity of property rights are a precondition for efficient allocation, regardless of how legal property entitlements are initially distributed.² Ironically, this demonstration was for Coase “only a hypothetical norm of comparison” that provided a baseline for his argument that transactions costs are in fact ubiquitous and do have a strong impact on economic institutions.

The incentive argument rests on the importance of the secure expectation that the profit of investment, innovation or risk-taking will be retained by the investor, innovator or risk taker. Of course, nowhere is this literally true. Income and output cannot be entirely explained by the proximate acts that generate them. The public infrastructure, hard and soft, the public education of workers and customers, the safety of staff and workers from crime, etc, are all crucial to the results, and all such indirect resources must be paid for by means of taxes that intervene between productive effort or commitment of resources and the reward of income. Not only are the profits of private activity subject to public incursion even in the highly conservative us, but private property itself is far from inviolable, as illustrated by the 2005 Supreme Court decision, *Kelo vs City of New London*. This decision validated the expropriation of private property by a city intent on turning it over to private development. The majority opinion, written by Justice Stevens, stated that “[p]romoting economic development is a traditional and long accepted function of government” and that the Fifth Amendment’s requirement of a “public purpose” for condemning private property could be satisfied by the creation of jobs in a depressed city. In her dissent, Justice O’Connor complained, “Now...nothing is to prevent the State from replacing any Motel 6 with a Ritz-Carlton, any home with a shopping mall, or any farm with a factory”. Justice O’Connor’s opinion could almost have been mistaken for a complaint about the ubiquitous “land grabs” from Chinese farmers by local governments intent on development. More about these below.

The above example speaks directly to the equity issue. In China (as elsewhere), the strength of property right protection tends to

be related to class.³ That is, in an increasingly unequal society, such rights tend to be most clearly defined and protected for the economic elite, who often have family ties to the political elite. China's impressive legal development, which has rivalled its economic development in the speed with which new laws and regulations have been produced during the reform period, has especially focused on the area of business law – and the institutions to implement it – that needed to be created in order to shape an enabling environment for foreign direct investors. On the other end of the spectrum, peasants who try to cite environmental laws to protect their lives, health and property against the toxic effluents of nearby chemical plants, like workers in export processing factories whose conditions of work violate numerous aspects of China's labour laws, find they have little or no real legal protection.

A recent discussion in the pages of *China Quarterly* illustrates the equity problem in enterprise privatisations (Chen 2006). Case studies are presented of three former state factories in central China that underwent privatisation. In all three cases, the workers rose up against the changes as illegitimate, successfully in one case. The privatisations were not announced as such but were disguised as other kinds of restructuring. As Chen writes:

[p]rivatisation in China has been carried out in opaque ways, with little regard to the principles of fairness and justice. The government has never made it an official national policy and no national legislation exists to dictate the process. There are only a few government guidelines, which are far from clear and whose enforcement is highly problematic. Local authorities and SOE managers are granted considerable discretionary power to decide how factory property is handled; workers, on the other hand, are totally excluded from the process.

Not only has the government not made privatisation an official national policy, it has on numerous occasions condemned it. Jiang Zemin, speaking in 1995, for instance: "We...are absolutely not going to practice privatisation. This is a big principle from which we should never waver in the slightest degree" (quoted in Chen, p 46). In one of the cases investigated by Chen, the factory was taken over by a self-proclaimed state holding company, Fenghua, which promised to resume production (halted because of pollution), pay back wages and restore social insurance programmes. This met with both local government and worker approval. None of it happened, however. Instead, having acquired the factory, Fenghua announced that it would sell the site for real estate development and that workers below age 40 would be fired with a one-time severance package. Moreover, it turned out that Fenghua was not a state holding company at all, but a private company owned by the son of a big developer. Privatisation had been carried out in the most opaque manner possible. Not only is inequity involved, but also firmer grounds for social instability: the absence of a clear and transparent policy regarding privatisation has made it possible for affected workers to claim the high moral ground in attacking it accurately as illegitimate, exploitative and contrary to official Chinese policy and their leaders' commitments.

Property Rights in Agriculture

One aspect of property rights has been particularly discussed in China, and that is the landownership rights of farmers. As pointed out above, most farmers have had leasehold rights that last for

25-30 years. They cannot sell or buy land, but they can buy and sell the use of it. Moreover, despite leases land has sometimes been redistributed among villagers when demographic changes occur, which has kept the per capita distribution of land highly equal (more on this below). Studies of villagers' reactions to this practice have found that it is not unpopular (Kung 2000). This is not a simple issue. There are arguments to be made on both sides of it (*People's Daily Online* 2008).

On the side of strengthening private landownership rights is the growing tendency of local governments to confiscate farmers' land at nominal or greatly under-market prices in order to make it available for industrialisation or development in an over-heated real estate market. China has been undergoing an epidemic of land seizures by local governments. An estimated 66 million farmers had their land expropriated up to mid-2004, many with grossly inadequate compensation (Yu Jianrong, *Oriental Outlook*, 9 September 2004). Such landless farmers are often among China's poorest (*Asia Times Online*, 9 March 2006). The process is described by Xiaolin Guo (2001):

By law, the village collective has the right to use (*jingying*) and supervise (*guanli*) the use of land, but it has no right to transfer land for compensatory use. The state, on the other hand, "may, in accordance with the law, expropriate land which is under collective ownership, if it is in the public interest". In this assignment of property rights, land development proceeds in two steps: land expropriation (*tudi zhengyong*) by the government from villages, and land transaction (*tudi churang*) between the government and potential land users. The latter procedure only involves a transfer of the user's right priced according to the market value. Land expropriation is, in a sense, a procedure by which all rights formerly held by the village collective are relinquished to the local government.

Although authorities have vowed to crack down on exploitation of arable land by local governments for development of villas, golf courses, and race tracks, the process of land grabbing has continued with little abatement, especially in the coastal provinces of Zhejiang, Shandong, Jiangsu, Hebei and Guangdong.

China's laws evidently stop short of requiring fair compensation when land is taken. The Land Administration Law requires that compensation to the former landholders be six to ten times the value of the land's average annual output for the three years preceding the transaction. In the case studied by Guo (2001), the villagers were paid between 9,000 and 10,500 yuan per mu.⁴ The land rights were then sold by the local government for 2,00,000 yuan per mu.

The land issue is crucial for the rural majority of Chinese. When the rural communes were dismantled in the early 1980s, their land was distributed to villagers on an equal per capita basis. This egalitarianism was still evident two decades later when the concentration ratio (or pseudo-Gini coefficient) for land distribution was virtually zero, meaning that farmland was equally accessible to all income classes.⁵ Khan and Riskin (2005) have found that farmland has been distributed extraordinarily equally and remained so from 1988 through 2002 (see the table on page 40).⁶ These data indicate that in 2002, inequality among different income classes in access to land was essentially absent. This was a major factor in making income from family farming

the most equally distributed component of rural income, which in turn limited the otherwise increasing inequality of rural income distribution. The maintenance of such a high degree of equality of land access acted as a barrier to the development of a class of landless poor, as happened in many other parts of the developing world.

But with rapid economic growth came soaring land values, especially in and around coastal cities and this created an every sharper contradiction between the rising price of land, on the one hand, and the security of land tenure of relatively poor farmers, on the other. The same lack of secure private ownership rights over land that had protected the equality of its distribution now prevents farmers from benefiting from the rising economic value of their land. Equality of land access is now threatened as increasing numbers of farmers are alienated from the land (Kung and Liu 1997; Guo 2001; Ho 2001).

The ability to engage in this kind of inequitable practice would be weakened if farmers' control of their land were more secure and they were able to resist expropriation or negotiate fair prices for their land. There would also be a social benefit in the heightened resistance to the alienation of farmland, whose social value as such is greater than its market value. That is, the market price of agricultural staples does not incorporate the social value of food security to a fifth of humankind. The argument here is not that no land should be lost to agriculture, but that the trade-off should be made at prices that more closely reflect the true social value of agriculture relative to, say, real estate speculation or toxic chemical production.

There is also an argument to be made that the mobility of China's surplus rural labour force and the incentive to consolidate land into larger and more efficient farms would be enhanced by farmers' ability to sell their land at higher prices.

The universality of access has not only been an impediment to the development of a class of landless rural labourers, it has also provided a working substitute for a non-existent rural social insurance system. Migrant workers who lose their jobs can and do return home to survive on their land until the next job is found. Aged or injured farmers can get by in part by leasing out their land. The disappearance of the equalising and social security features of China's current land tenure arrangements, without provision of alternatives, would be a step backward in terms of human development. Clearly that is happening as the inherited equality of landownership gives way before the soaring commercial value of land and the growing power of market incentives, and ever more farmers are deprived of their land.

Policy to address the property rights issue concerning land should take both aspects of this complicated issue into account. That is, greater protection of farmers' property rights vis-a-vis local governments is important, but so is protection of the role of land access as the rural population's sole means of social security and as a bulwark against the impoverishment that can stem from landlessness. In October 2008 the government moved to liberalise the market for farmland use (*People's Daily Online* 2008) by

permitting farmers to "subcontract, lease, exchange and swap their land-use rights, or join shareholding entities with their farmland". The details of the change had not been revealed at the time of submission of this article, including the degree to which the new approach will make possible the widespread loss of land

by farmers before a true social safety net is available to substitute for the security now provided by access to land.

However the liberalisation of land tenure proceeds, a role for the collective community is likely to persist. It is the collective that has maintained equal land access over more than two decades and in which formal owner of farmland will continue to be vested. And it is the legal

expropriation of the collective's ownership of the land by the local government that has been the first step toward depriving the farmers of its use.

Intellectual Property

The subject of intellectual property rights (IPR) and China's manner of dealing with them has of course figured prominently as a bone of contention in us-China relations. Foreign, especially American, complaints against the Chinese IPR protection régime include "inadequate IPR laws on the books, inadequate and expensive enforcement of existing laws, lack of Chinese government cooperation and transparent administrative and judicial procedures, local protectionism, lack of IPR awareness and education among the general population, and lack of training and experience among judicial and administrative enforcement personnel" (Clarke 1999).

The very concept of IPR and its protection is a relatively new one in China. The establishment of a legal and administrative IPR system began only around 1980 and a perusal of the latest official White Paper on IPR protection (Government of China 2005) indicates the great progress that has occurred since then in establishing such a system. Of course, the opening up of China's economy and the multiplication of temptations to engage in copyright and software piracy especially has progressed at least as quickly.

However, the discussion of the issue vis-a-vis China has tended to focus on us complaints about China's transgressions, based upon a global model of IPR protection that is under increasing criticism on both theoretical and practical grounds. This discussion includes a conceptual debate about the appropriate nature of IPR and extent of its protection and over the possible conflicts between it and development, efficiency, competition, public health and the public interest more broadly conceived. There has thus been debate over whether the TRIPS agreement (Agreement on Trade-Related Aspects of Intellectual Property Rights under the World Trade Organisation) privileges powerful corporate interests in the developed world over the interests of poor countries and people, unfairly restricts competition and efficiency, and illegitimately extends IP rights into the realm of living organisms (Harvard University 2004).⁷ Alternative methods of encouraging innovation and creativity have been proposed that do not contradict the public goods character of information.⁸

Table: Distribution of Per Capita Landholdings, Rural China

	1988	1995	2002
"Concentration ratio"			
Unadjusted land	0.021	0.001	-0.013 (-0.019)
Adjusted land	0.063	0.051	0.018 (0.012)

"Adjusted" land counts an irrigated acre as equivalent to two acres of un-irrigated land. The "concentration ratio" is estimated from the Lorenz distribution of per capita land, in which individuals are ranked according to per capita income. Figures in parentheses for 2002 are estimates based on the same 19 provinces that were in the 1995 sample (excluding Xinjiang and Guangxi). For sources of the 1988 and 1995 estimates see Khan and Riskin (2001), p. 108.

These issues have not been prominent in the discussion about China, perhaps because of the overwhelming interest of US businesses in the patent/copyright protection problem, and because, for whatever reason, what is probably the single most prominent issue in the global debate has been largely absent, namely, the high cost patented pharmaceuticals for prevention or treatment of epidemic diseases, especially HIV/AIDS. Although China has progressed from the days of denying the extent of the spread of HIV/AIDS there, the provision of anti-retrovirals (ARVs) is still severely limited and it appears that China has not taken advantage of the opportunities legally available to it under TRIPS to produce and distribute the most effective ARVs.⁹ The only hint in the White Paper of a critical attitude toward the global IPR protection régime as it stands is the statement that “China has devoted great efforts to adjusting and improving international rules regarding IPR protection in order to let all countries of the world share the fruits and benefits brought about by the progress of science and technology.” There is no doubt more going on in this arena than is being publicly revealed.

In short, it would be desirable to couch the discussion of IPR protection in China in a broader and more comprehensive context than it has been given in a discussion dominated by the strong point of view of us business interests.

Environment and Property Rights

The 2008 winter Olympic games drew the world’s attention to the extraordinary air pollution plaguing Beijing (along with other major cities), stark evidence that China’s rapid economic growth has come at the expense of the natural environment. Not only are resource depletion and degradation monumental problems in much of the country, but the health consequences of pollution are truly calamitous with tens of thousands of premature deaths annually ascribed to air pollution alone.¹⁰

A very heavy social cost is being paid by the Chinese people in the form of environmental destruction, resource depletion, loss of biodiversity and pollution. China has become the highest emitter of SO₂ in the world and the first or second highest emitter of greenhouse gases. A recent conservative estimate by the World Bank put the cost of air pollution in premature death and morbidity at 3.8% of GDP. Over half the water in the seven main rivers of China is deemed unfit for human consumption. The cost of groundwater depletion and use of polluted water by industry are estimated at 1% of GDP, and this excludes the cost to human health.

The severity of the air and water problems has diminished the attention paid to other serious environmental concerns, such as loss of biodiversity and desertification. China is blessed with exceptionally rich biodiversity, but this is being compromised by a frightening rate of disappearance of species. The Swiss-based World Conservation Union has listed almost 800 species as being under threat in China. Desertification is an economic problem but also a social one, as its progress destroys soil fertility and thus the livelihoods of Chinese farmers and herders. A government survey conducted in the 1990s showed that the total area of land-turned-desert had reached about 1.7 million square kilometres, or 17.6% of the country’s territory. Historical

deforestation, intensive cultivation that exposes soil to erosion, and the blunders of the collective era when millions of acres of grasslands and hillsides were inappropriately ploughed for cultivation, have all contributed to this disaster in the making. In a country already short of arable land, conservation of land is a major imperative.

Environmental degradation had begun in China under private ownership in the decades and centuries before the mid-1950s, continued and grew worse under state and collective ownership from then until roughly 1980, and continues to worsen under the changing mixed ownership array of the past quarter century. No ownership system is by itself sufficient to end such degradation. But property rights questions are inevitably involved. Sometimes the problem has been lack of better-defined private property. For instance, the initial de-collectivisation of pastoral lands in the early 1980s privatised the animals but not the grazing land, which produced a classic “tragedy of the commons” experience until the land, too, was divided among households. Even then, difficult and expensive problems of monitoring and enforcement emerged. A similar problem arose regarding deforestation after the land reform of the early 1980s, which dismantled collective control of tree cutting and made trees fair game for farmers lacking fuel and building materials.

This huge external cost of environmental degradation and resource depletion represents in its classic form the kind of market failure that opens space for public policy, including the crafting of a property rights approach that is fully responsive to the needs of public health and environmental conservation. The fact that these problems loom so large in contemporary China¹¹ implies that the space for public policy is quite substantial there. It encompasses, for instance, the many cases in which villagers have publicly protested the establishment of local chemical factories whose effluents have poisoned their water supply, sickened them and destroyed their land. My impression is that both private and collective factories have been involved, and perhaps even local state factories. The basic issue here is the imposition of appropriate restrictions on the nature of whatever kinds of property rights might be present.

The growing popularity in China of the use of market-based incentives (such as use of tradable pollution permits) to control pollution also has property rights implications. The right to pollute, and restrictions put on it by law or regulation, are parts of a defined property rights régime, whose structure should favour resource conservation and a reduction in pollution. One way to proceed is for government to set a maximum pollution target below existing levels, distribute to enterprises only enough pollution permits to reach this target, and leave it to the market to allocate the permits among enterprises. The property owner’s injunction under this scheme is: thou shall not pollute without a permit! Under optimum conditions, this approach would minimise the cost of achieving the desired reduction in pollution. However, there is a question whether the institutional conditions needed to make effective use of this method – including an understanding of basic market principles among environmental officials, the existence of strong information databases and effective monitoring capabilities – exist in China as yet (UNDP Beijing

2002). Alternatively, a different property rights regimen, limited by “command and control” methods, such as those widely used in Europe and the US (e.g., outlawing of toxic dumping, mandated installation of catalytic converters on cars and scrubbers in smokestacks) might be more effective because it is easier to enforce and monitor. The sanction here is different in degree, not in kind: thou shall not pollute (with no exception for permits)! The property rights aspect of environmental policy is thus an important component of both the property rights and the environment discussions in China.

Conclusions

China’s current leaders, upon coming to power in 2002, put forward a new development paradigm calling for building a “Harmonious Society” with more balanced development across regions and sectors. The paradigm, laid out in detail in the 11th Five-Year Plan (2006-2010) stressed sustainable growth, “putting people first”, and making development pro-poor and pro-rural. “The main thrust of the [Harmonious Society Program] is redistribution and rebalancing of the economy, aimed at reversing

some of the inequalities that have emerged, addressing social grievances and relieving tensions” (Wong 2007). China has indeed taken steps in this direction, constructing a rudimentary social safety net in the cities, abolishing the agricultural tax in 2006, and setting a goal of providing universal health coverage to Chinese citizens by 2020. A new rural cooperative medical system was begun in 2003; as of September 2007, about 730 million farmers had joined, although the system is still under-funded.

Many, if not most, of these policies entail property rights repercussions, explicit or implicit. They propose to reshape tax and public expenditure profiles, establish social rights and responsibilities and promise some reshaping of the distribution of income and wealth. These are necessary conceptual steps on the way to a more progressive brand of development. Whether these steps will continue and be fully realised remains to be seen. Moreover, problems in the area of social policy inevitably raise the question of political reform. The effective and equitable reshaping of property rights would seem to require a political system that engages broad democratic forces in the business of policymaking.

NOTES

- 1 See Royal Swedish Academy of Sciences (1991); also Oi and Walder (1999).
- 2 “Coase showed that every given distribution of property rights among individuals tends to be re-allocated through contracts if it is to the mutual advantage of the parties and not prevented by transaction costs, and that institutional arrangements other than contracts emerge if they imply lower transaction costs” (Royal Swedish Academy 1991).
- 3 In *Kelos vs City of New London*, the National Association for the Advancement of Coloured People (NAACP) and Justice Clarence Thomas shared a rare moment of agreement in arguing that urban renewal in the US has often victimised the poor, minorities and the elderly. See Charles Lane, “Justices Affirm Property Seizures”, *Washington Post*, 24 June 2005.
- 4 A *mu* is one-sixth of an acre.
- 5 See Khan and Riskin (2005). The pseudo-Gini or concentration ratio measures the distribution of a source of income or, in this case, an asset over all income earners.
- 6 The numbers in the table are “concentration ratios” or “pseudo-Ginis”, which express the distribution of land over all rural income recipients (not just landholders). A value of zero means that all income classes have equal access to land. A negative value (as in 2002 for “unadjusted land”) signifies that lower income people actually held more land than higher income ones. The explanation for this particular case probably lies in the fact that farms in the poorer upland and north-west regions tend to be larger than in richer, more fertile areas.
- 7 Stiglitz (2004, 2006, 2006a).
- 8 See the collection of papers of the Task Force on Intellectual Property of the Initiative for Policy Dialogue at Columbia University, available at <http://www.o.gsb.columbia.edu/ipd/programs/item.cfm?prid=128&iyid=5&itid=777&list=papers>.
- 9 See World Health Organisation (2002) a report outlining in very basic and general terms the various options available to the government for provision of cost-controlled ARVs. The valuable China AIDS News information service reports that “WHO ‘essential drug’ ARVs [are] not available in China” and that, although China has the right under the WTO TRIPS agreement to override

- patents on first-line treatments by issuing compulsory licences, it has not done so. See China AIDS Info (2008).
- 10 The World Bank has estimated that outdoor air pollution is responsible for some 178,000 premature deaths per year and indoor pollution from particulates associated with coal combustion causes at least 111,000 premature deaths per year. See World Bank (1997).
 - 11 See World Bank (1997); UNDP Beijing (2002); Smil (1993, 2004).

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