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# The Limits of Market Triumphalism in Rural China

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**Abstract:** China's contemporary paradox springs from spectacular economic growth built upon a foundation of environmental degradation. Combined with rapid social stratification, serious challenges to the state's legitimacy result at a time when its ability to meet the needs of the broad majority is constrained by both structural and political limitations. These contradictions will become increasingly apparent as more critical assessments are made of the reform era. The agrarian sector, through articulation into new markets, is being transformed through short-term practices that emphasize individual income over long-term sustainable development. Using a multi-level analysis, this paper illustrates these issues through village and household case studies in northeast China, contextualized within a brief overview of the reform era, and China's rapidly changing global position. © 1997 Elsevier Science Ltd. All rights reserved

**Key words:** China, environment, development, markets, peasants, state legitimacy.

## Introduction

China's economic performance and success, relative to that of other 'transitional' economies, can serve to alert policymakers to the limits of market triumphalism. If we look at agrarian change in China from 1949 to the present, there is evidence for a more tempered perspective than put forth by the triumphalists. There is no question that China has boomed economically. Paradoxically, this spectacular economic growth over the past two decades has, in large measure, been built upon a foundation of environmental degradation. This is because marketization and privatization—the mantras of the reform movement—have introduced new, qualitatively different, and deeply troubling environmental problems on top of those bequeathed by the collective period. In agriculture, these new problems will become increasingly apparent as more critical assessments are made of China's rapid economic transformation. Such a critical discussion of

China's emerging economy incorporates environmental and social views of economic change. The two overlooked structural weaknesses of the reforms, social and environmental, directly contribute to a crisis in the political legitimation of the state, as the party leadership discovers it cannot maintain certain paternalistic relations with peasants and workers. This paper traces the ways in which social stratification and environmental decline threaten the sustainability of rural production and how these have already led to an increase in rural unrest and resistance.

Why can't these problems be addressed in a rapidly modernizing China? China is capital's salvation—an immense new market, a place to invest East Asia's surplus capital, a huge labor pool, a vast resource base, a powerful and diversified agricultural and industrial economy. It is also a Third World economy, though rapidly merging into the First World and increasingly identified as a newly industrializing

country (NIC). It is a powerful and potentially destabilizing military power and a hemispheric giant. It is a political enigma (Muldavin, 1996a).

Remarkably absent from discussions of China's restructuring are warnings that increased dependency on international markets, both as an outlet for export products, and as a source of capital, technology and imported commodities, can be problematic.<sup>1</sup> Clearly, China's increased articulation into globally competitive markets has involved a rapid and thorough-going reorganization of domestic production.<sup>2</sup> China has also benefited from its special relationship with Hong Kong, its major supplier of foreign capital and major outlet for export goods. All of this has excited Western business observers to see in China evidence for their conviction that market systems will eventually bring East and West, North and South, together.

The World Bank trumpets China as its number one success story for post-socialist transition, contrasting its achievements with the difficulties experienced by Russia. The yardstick for success remains narrowly economic. What this yardstick fails to measure is the hard reality that market reforms and increased privatization have contributed to what can only be called an environmental and social crisis. Moreover, the crisis cannot be dismissed as a transitional phenomenon, as the very success of the reforms has led to structurally-maintained environmental degradation and deepening social polarization (Riskin, 1995), that underlies the current wave of industrialization. I advance this skeptical view in order to temper the market triumphalism that has accompanied the opinions of business and academic experts who see China moving from central-planned socialism to market capitalism in due time. Inside China, political leaders see an emergent market socialism which they hope is the best of both worlds. China has not found either idealized path. China's emerging economy has no model or precedent.

Theoretically, China's industrialization can be seen as increasingly integrated with corporate restructuring taking place in capitalist economies.<sup>3</sup> This new system is characterized by geographically far-flung subcontracting networks—industrial and agrarian. In the state's attempt to accommodate a more dynamic and flexible market-oriented economy, risk is shed by larger firms and institutions and transferred to small firms and peasant households. Ultimately, the costs

and risks in these new regimes are also transferred to nature, resulting in rapid environmental degradation.<sup>4</sup> Coupled with rapid social stratification, as the control of productive—particularly non-agricultural—assets are concentrating in the hands of a new wealthy elite (Odgaard, 1992), regional inequality is amplified as the state and market fail to redistribute the wealth of the rapidly developing coastal and southern regions to the poorer agriculturally dependent hinterlands. A mosaic of growth and poverty has emerged in China (Chai, 1996)—a regional heterogeneity better understood as the creation of many Chinas. Indeed, the multiplicity of forms that are fragmenting China are actually embedded in government policy.

Within the Chinese economy today one can find a complete range of development models where industrialization is at once centrally planned, market driven, export oriented, protectionist, and import substituting. 'Market socialism' is a label applied to regions that range from frontier-style, speculative, pure capitalism, to rigid, bureaucratic Stalinesque socialism. This derivative capitalism and derivative socialism result in a unique hybrid system. I use the word 'hybrid' as a sort of shorthand, although it does not fully capture the complexity of the Chinese system. Actually we may be witnessing the evolution of an entirely new phenomenon, one historically specific, difficult to repeat, fitting like a missing piece into the global jigsaw puzzle of the new international order (Muldavin, 1996a).<sup>5</sup> It is likely that the hybrid economy will become an end in itself, and that China's transition is not from communism to capitalism, but from central planning to a hybrid system.

Thus, there are two ways to understand the limits of market triumphalism in China. The first way is to question whether China is moving toward a full market economy with all the attendant institutions of capitalism. There is no indication that the Chinese state sees this as the ultimate goal of reform. In fact, development trends in China preclude the future often envisioned by market triumphalists. Hence, this is a speculative understanding of contemporary China's transition, indulged in primarily for ideological reasons. The second way is to question the direction of market reforms already undertaken by the state from an empirical view of their impacts on specific sectors, regions, and populations. This latter critique, the focus of this paper, allows for a range of possible outcomes in experimenting with markets, and does not

preclude the possibility that problems discussed in this research may be solved through new pathways. While critiquing market triumphalism, the goal here is to highlight problems of the emergent hybrid in order to point out that potential crises can be anticipated and avoided if the benefits of China's collective experience are not dismissed out of hand.

China's reform experience challenges preconceived notions of private property and markets. First, the implicit assumption that private property rights are essential for improving economic incentives, increasing production, and introducing an increasingly market-oriented economy is not borne out by the Chinese experience. The state sector has in many ways improved its performance during the reform period. It has also generated external economies highly conducive to the rapid expansion of township, village, and private enterprises (TVPEs), as well as networks of subcontracting relationships. But more importantly, Chinese agriculture and TVPEs have enjoyed significant growth under a system of contracts where private property has not been emphasized and has remained a grey area. The astounding growth of the TVPEs between 1978 and 1995 allowed the transfer of 115 million rural laborers from agriculture into rural industrial and other non-agricultural enterprises (see Figure 1), helping to ease an historic labor surplus in rural China.<sup>6</sup> Thus, without formal privatization, China's rural economy has continued to grow.

The assumption that markets and state planning cannot exist side by side in a functioning economy, and that the sectoral approach to reforms will truncate China's economic boom, is not borne out by experience. In fact, the evidence shows that the combination of market incentives in certain sectors and a planned and regulated economy in others can lead to a successful gradual transformation of the economy as a whole. In the most positive view of this hybrid, this gradualist approach to the incorporation of market incentives into the economy allows the corresponding development of institutions necessary for market regulation. In the meantime, the planned economy provides stability during a time of immense change by reducing risk and uncertainty. Producers therefore have time to adapt to the newly emerging market context, all the while permitting an active and interventionist state to direct these changes.

In China, privatization and reform have permitted a

relocation of risk and uncertainty to the weakest class of producers, forcing decision making towards ever-shorter time horizons. This results from the privatization of what had been social (welfare, risk, communal capital), and the personalization of risk and welfare needs (Muldavin, 1996b). China now joins other countries in a struggle for world position that places nation and region in a cascade of economic relations, at the bottom of which lies the rural environment.<sup>7</sup>

Reforms made by the central government encouraged the rapid transition from collective to household as new forms of production and organization were devised, distancing the state from the peasantry. By comparing collective with household forms we can identify how production organization affects landuse practices, for example, through shifts in decision-making strategies involving changing perceptions of risk, social security, and stability. As the state retreats, exposing individuals to greater burdens, it changes its focus to China's position in the global economy, abandoning the centrality of the rural sector.

Within the new context provided by China's hybrid system these deepening contradictions are actually lowering the productivity of the resource base and directly reduce the long-term development potential of many rural areas. Yet reform could be used to prevent this. For example, some agrarian policies, though not specifically designed to conserve resources, indirectly contribute to more sustainable agriculture. Subsidies that support rural incomes can deter peasants from turning against their resources. Markets can be used to discourage destructive practices made feasible by direct state support. But the inequitable growth of the past 19 years has been achieved, not through the mobilization of new resources; but through a reckless appropriation of assets built up over the previous thirty years.

The shift from plan to market releases peasants from more organized collective units to more chaotic and competitive economic relations. Peasants face this change, with little support from the state, as they are also freed from the political exhortations that characterized central planning. Therefore, China's new path to development without politics, i.e. 'developmentalism,' crosses uncharted terrain. What seems certain at this point is that the problems emerging now will not simply go away with the completion of transition to a market economy.

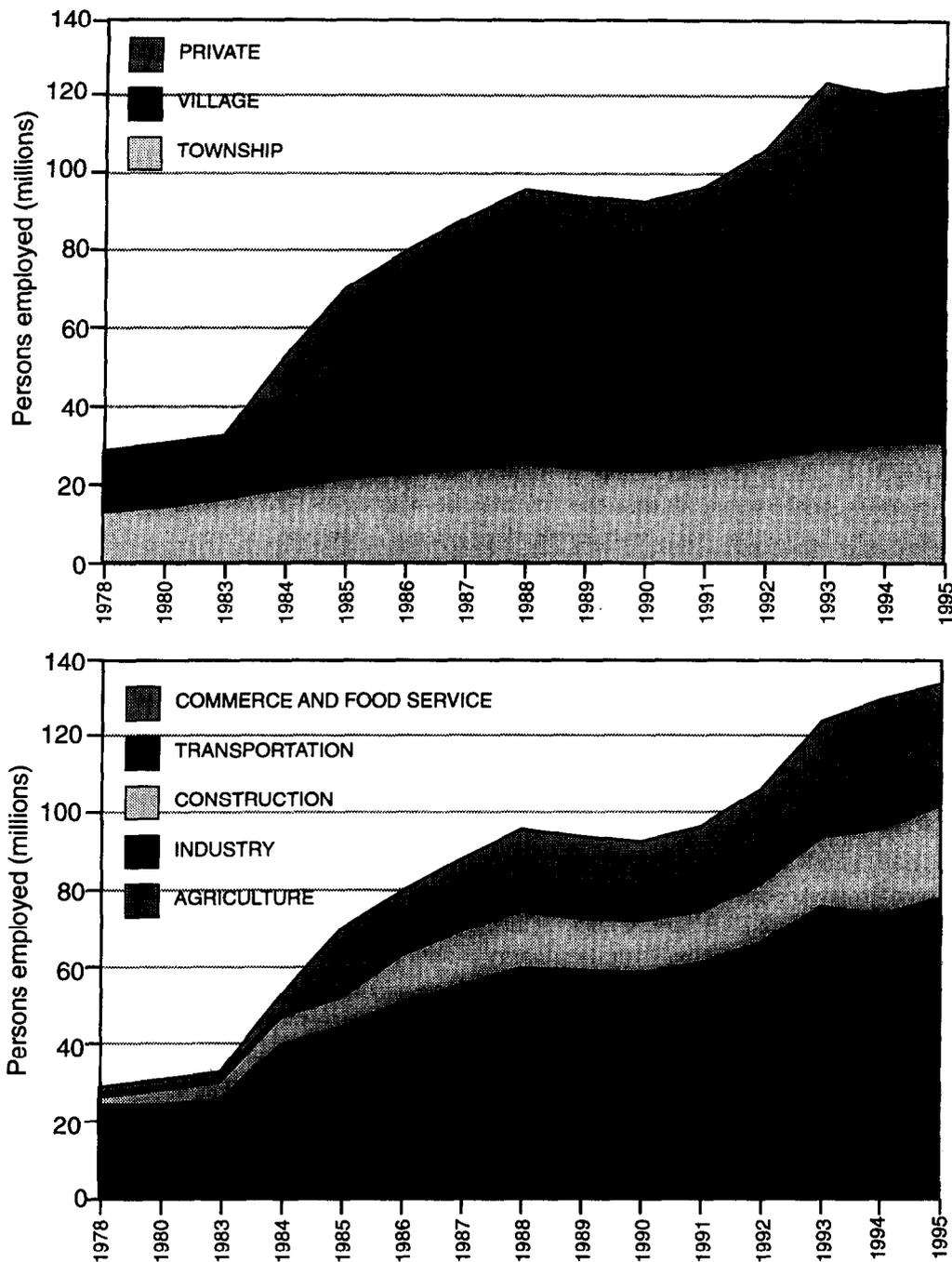


Figure 1. Persons employed by TVPEs by type and sector, 1978–1995.

(Source: CSY, 1996: 388. Figures for 1978–1983 include only township and village enterprises, since 1984 figures cover all township and village enterprises.)

### China's road to transition: from the political to the economic, 1949–1995

The farming system of pre-revolutionary China was characterized by small peasant holdings of less than one hectare. Vast numbers of landless peasant households sharecropped or worked as low-wage laborers

for large landholders. In areas under its control before 1949, the Communist party instituted radical land reform—taking land from landlords and rich peasants and redistributing it to poor and landless peasants—and completed the process nationwide by 1952 (Hsu, 1995). During the subsequent first five-year plan (1953–1957), individual household farms were slowly

collectivized through a series of steps beginning with mutual aid teams and culminating in the creation of people's communes in 1958. This type of collective farming prevailed until the reform period began in 1978.

Two frequently cited achievements of collective farming in China are that it fed a rapidly expanding population and enabled a structural shift in China's economy from agriculture to industry. When the People's Republic of China was founded in 1949, cultivated land per capita amounted to only 0.18 hectare; by 1978 this had *dropped* to 0.1 hectare (see Figure 2).<sup>8</sup> Yet, through collective farming food production kept ahead of population growth: per capita availability of grain increased 16.7% over the 26-year period of collective agriculture (see Figure 3). In aggregate terms, the average growth rate in grain production was 1.33% per year between 1952 and 1965, and fully 3.51% per year between 1965 and 1978 (CSY, 1989). Over the nearly three decades of collective agriculture, the per capita income of the rural farm population increased 50% (Lin, 1993). In contrast to the general experience of 'South' countries, this was accomplished without massive migration to urban areas—the urban proportion of the population remained fairly steady at below 20% (CSY, 1994).

Simultaneously, rural surpluses invested in industry brought a dramatic economic transformation—industrial income expanded from 12.6% of total national income in 1949 to 49.4% in 1978 (see Figure 4). Of course, all development happens on the back of agriculture, and so footing the bill for industrialization meant that peasants retained a limited surplus for local reinvestment and consumption. Nonetheless, it is no wonder that among Third World economies, China's collective farming represented an important model of self-reliant agricultural development (Robinson, 1970). The Maoist model emphasized collective labor organization and an egalitarian distribution of surpluses, with individual incentives deriving from social and political ideals of the collective good. It was composed of a spectrum of organizational forms, from state farms to communes, and ranged from large-scale mechanized capital—intensive production on flat open plains, to small-scale non-mechanized labor—intensive production on narrow terraces (Muldavin, 1996b).

Communes and state farms—the former were always much more numerous than the latter—were part of a national system of planning. Ideally, coordination was via top-down and bottom-up communication and negotiation (Gurley, 1976). The commune was hier-

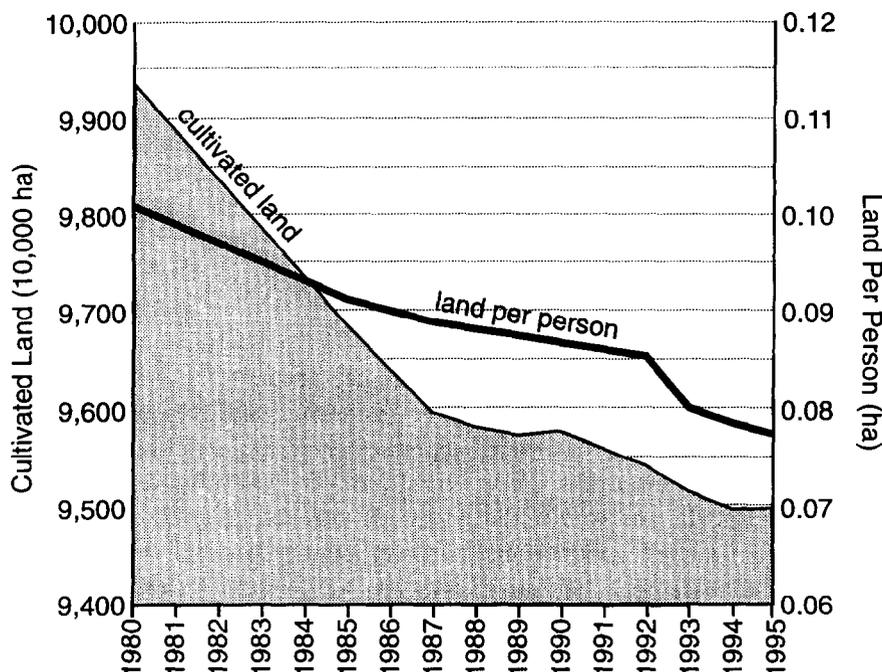


Figure 2. Cultivated area, population, and cultivated land per capita, 1980–1995.

(Source: RSYC, 1994: 50; RSYC, 1989: 251; RSYC, 1990: 221; CSY, 1996: 355)

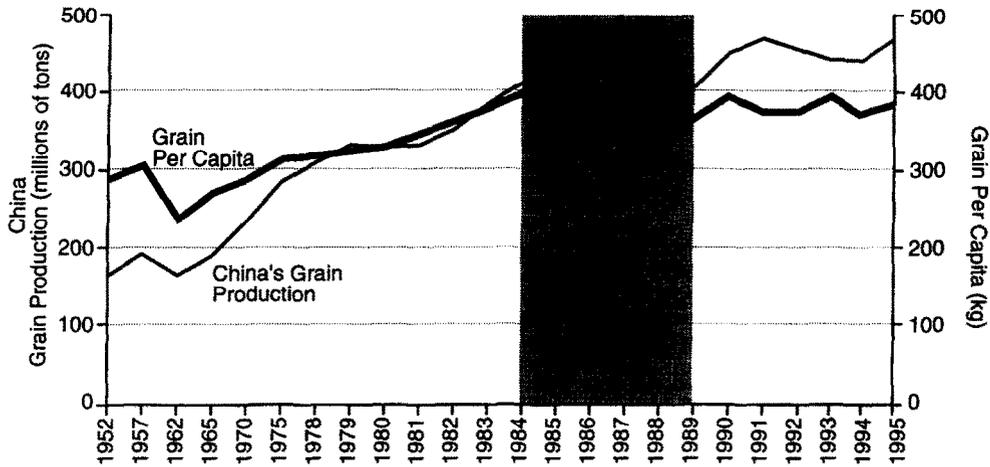


Figure 3. Grain output, grain per capita, in China from 1952 to 1995.

(Source: CSY, 1994: 59, 345; CSY, 1996: 81, 352, 355, 364; EIU, 1997: 6)

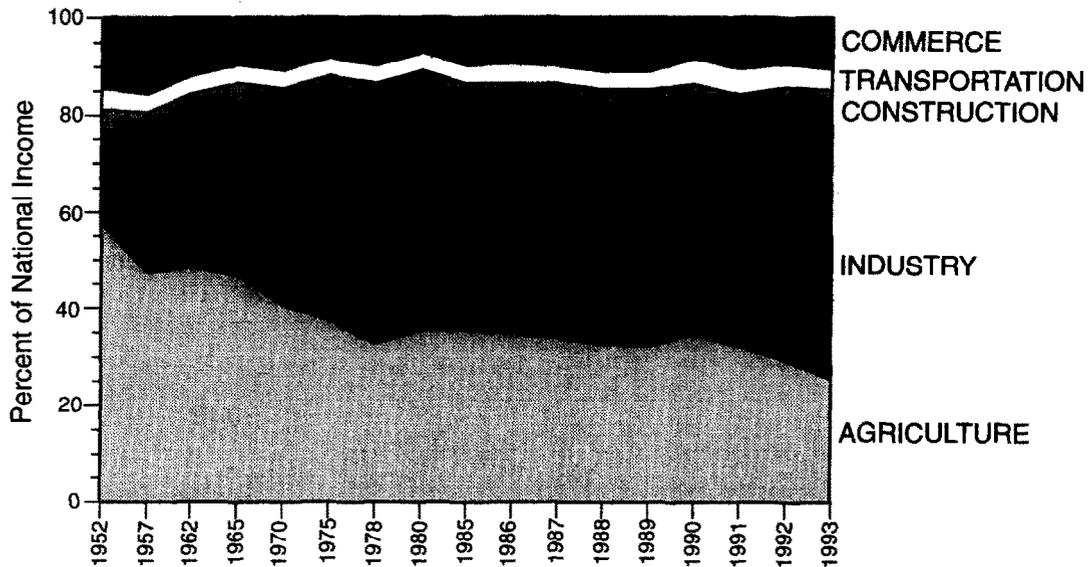


Figure 4. Sector composition of national income.

(Source: CSY, 1994: 33)

archically divided into production brigades. Although there was considerable variability, usually each village was organized into one brigade. Brigades in turn were divided into a number of production teams, each consisting of 10–20 households. It was within the teams that the greatest responsibilities, cohesiveness and sharing of risk rested. At all three levels, collective labor was applied to social infrastructure (schools, clinics, etc.) and physical infrastructure (levees, roads, reforestation projects, etc.) to enhance productivity and quality of life. This collective system of production organization was geared to meet the expectations

of long-term benefits for all members of the commune. For instance, collectives purchased machinery and operated small industrial facilities to process agricultural products and produce construction materials. I refer to this combination of social and physical infrastructure—the assets built up under the commune system—as ‘communal capital’ (Muldavin, 1986).

China began the reform period with no international debt, extremely low inflation, a functioning physical infrastructure, and relatively stable state apparatus. Some observers see China’s reforms as ‘pragmatic’

because they have favored those things which 'work' and have slowly made political space for continuing innovations (Watson, 1992). Property rights have not completely devolved to the individual. Indeed, a gradual shift towards individual economic incentives has taken place without a complete transformation of the institutional structures. In the rural sector, this was done through a complex process of subcontracting—the Household Responsibility System (HRS)—begun experimentally in 1978 and completed nationwide by 1984. Under this system, for example, in exchange for selling a certain portion of their production to the state at below-market prices, peasants were given long-term leases on land plots (Du, 1985).<sup>9</sup>

Encouraged by what were interpreted as the economic successes of these early reforms, the state expanded the responsibility system to urban areas. Rural production gains validated economic criterion for determining the appropriate development path. Economic growth has remained consistently high throughout the reform period, and the majority of Chinese living in both rural and urban areas have enjoyed a rise in living standards. However, in this successful transition, there are significant issues of social and spatial unevenness (Muldavin, 1992, Fan, 1995, Bramall and Jones, 1993, Knight and Song, 1993, Lyons, 1991), that market triumphalists tend to overlook. Seeing these as transitional problems, they over-emphasize the successes in export-led sectors. Although export markets have sustained China's boom, the shifts in production have been funded through a combination of foreign direct investment and foreign loans.<sup>10</sup> While the specifically domestic dimensions of these changes are also overlooked by most observers, the Chinese state has not done so. It maintains a large state-owned enterprise sector.

Given the momentum of the reforms, it would seem that the state would move quickly to dismantle state-owned enterprises (SOEs). However, the indirect contribution of SOEs to the economic boom is very important. The persistence of the state sector in China is a good example of the hybrid nature of the emergent economy. SOEs remain an important mainstay for political and economic reasons, despite their declining share of industrial output overall. Politically it is disadvantageous for the state to layoff large numbers of workers.<sup>11</sup> Economically, profitable SOEs remain an important revenue source for the state, while the maintenance of unprofitable enterprises provides an indirect subsidy to private enterprise and parastatals,

providing materials, energy, services and commodities below market costs.<sup>12</sup> The private portion of the economy has grown substantially in this context (CSY, 1996). Yet while maintaining a strong state presence in the economy, China has managed to move beyond the kinds of shortages associated with command economies (Hussain and Stern, 1994). Rapid growth presents problems for any economy, and in China it has highlighted infrastructural bottlenecks which are now targeted for modernization by international development agencies.

By focusing on economic rather than political change, the Communist Party has struggled to maintain its monopoly on power, preserving an authoritarian system that to some extent is the rule among Asian NICs. Yet a massive decentralization of political power inevitably has occurred through the transfer of economic control to lower levels, particularly the county (Unger, 1994). Counties now operate in a quasi-independent fashion: as long as they fulfill certain responsibilities including providing tax revenues as required by central and provincial authorities, they are allowed an unprecedented degree of autonomy.

The state has thus focused on economic criteria as both the basis of the reforms and in the formulation of its ultimate policy objectives—strict developmentalism. It is erroneous to interpret this shift from the political to the economic as necessarily involving China in the transition to a fully capitalist economy. China's policy makers see the advantages of a hybrid over a full-fledged market system. Nonetheless, in a system in which social organization and compliance with the centralized state has depended upon ideology and exhortation, the abandoning of the political raises serious problems of legitimation in a climate ruled by economic criteria alone.

### **Reform and the creation of political legitimation**

By 1978, and the beginning of the post-Mao 'pragmatic period', collective production appeared stagnant and economically restrictive; a return to household- and individually-based systems was thought the best hope for overcoming these perceived weaknesses. In fact, the communes of the Maoist period had proved a mixed success, with one-third failing, one-third holding their own, and one-third

running quite efficiently by 1978 (Muldavin, 1986, Hinton, 1990, Chossudovsky, 1986). The legitimacy of veteran leaders, who regained power after Mao Zedong's death in 1976, was based on the state's historical success, after the 1949 revolution, in bringing social justice to the countryside. Deng Xiaoping's rehabilitation, after years in relative obscurity following a purge of veteran leaders in the 1960s, was achieved by highlighting problems of collective agriculture (Chen, 1995). He succeeded in uniting these criticisms with the Chinese peasantry's historically-rooted desire for land and its strong patriarchal family structures. State legitimation based on a collective definition of social change shifted under Deng to legitimation based on a retreat from the state's active role in the rural economy.

Similar to the HRS, collective industries were restructured and divided. This process was also typical in urban areas dominated by the new 'princelings'—the children of China's aging leadership (Malhotra and Studwell, 1995). The resulting class stratification is a national, as well as a highly localized and intra-familial, phenomenon, one which is peculiar to the Chinese hybrid system. During its implementation, decollectivization had specific outcomes at different levels of society. In rural areas, most team and brigade (village) level collective industrial works and sideline industries were contracted out to individuals, families, or small groups of families. At the commune level, a combination of individuals and hired managers was utilized. At the county level, most industries remained in the hands of the local state apparatus. The most unequal distribution occurred at the village level since industrial assets there were often quite small (tofu factories, flour mills, machine shops, etc.). A few lucky peasant households gained control of collective assets and were transformed into a new class of petty industrial and commercial entrepreneurs. By comparison, land distribution was carried out (in most places) in a roughly egalitarian manner.

Communes also gave up much of their regulatory power, while distancing themselves from the risks associated with production. But this privatization and decentralization undermined important revenue sources for the state, from Beijing to the local commune headquarters. However, there remain high expectations for delivery of social welfare services and maintenance of infrastructure. The resulting gap between expectations and service provision has eroded the state's political legitimacy. Thus the results

of reform have been complex and contradictory. While the impact of the restructuring has varied from place to place, overall China has undergone a fundamental—one even wants to say revolutionary—structural shift in its development strategy. This revolution, fomented by the state itself, might bring about changes that ultimately threaten its survival. Therefore, political legitimation in China today is based on economic boom—the rising tide that raises all boats.

It is perhaps understandable that the dazzling success of the reforms, particularly in the first six years after 1978, have blinded many observers to the problems engendered by those very reforms. Between 1978 and 1984, the agriculture sector grew 7.4% annually, while the growth in grain output averaged 4.8%. These growth rates are significantly above the 2.9% and 2.4% achieved during the previous 26 years of collective agriculture (CSY, 1993), and helped to rapidly improve rural consumption relative to urban residents through 1984. It was the increase in grain production (see Figures 3 and 5) that gained Deng Xiaoping broad support for the complete decollectivization of agriculture and the transformation of other areas of society.

Indeed, China's top political leaders during the early years of the reforms (Deng Xiaoping, Zhao Ziyang, and Hu Yaobang), internationally hailed as the architects of a new 'revolution' in China, launched a series of more market-oriented urban and rural reforms in late 1984, expanding household income opportunities (see Figure 6). But the success of their reforms was not sustained. Although agriculture as a whole (including rural sidelines) still grew at an average rate of 4.1% per yr after 1984 (RSYC, 1994), grain production stagnated after reaching a record 407 million tons in 1984 (see Figure 5). As the principle of grain self-sufficiency is a central political tenet in China,<sup>13</sup> the optimism that the rise in agricultural output elicited during the transitional period was quickly replaced by pessimism in the subsequent downturn. Peasant consumption rapidly lost ground to urban workers (see Figure 6), fueling massive rural to urban migration in the subsequent years. Poor grain production between 1985 and 1988 gave certain political leaders reason to reemphasize plan-oriented agricultural policies. Proposals circulated for re-collectivizing agriculture in order to regain economies of scale.<sup>14</sup> However, reformers held their ground, attributing all successes to their six years of new

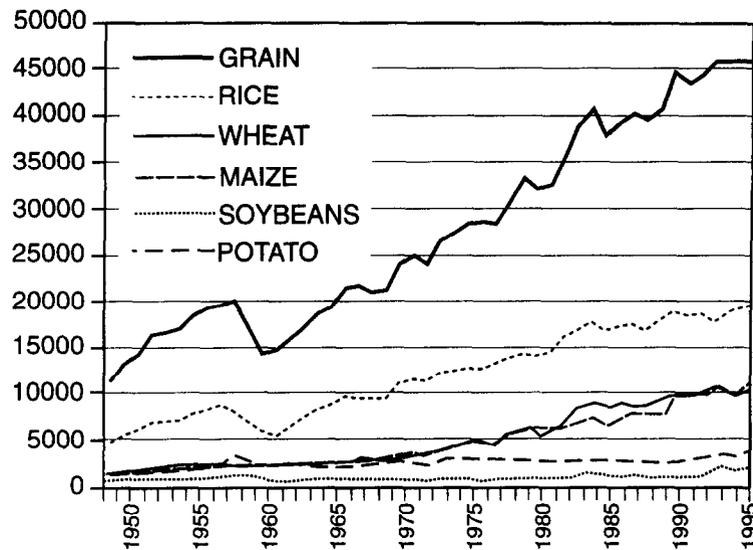


Figure 5. Grain production, 1949–1993.

(Source: CSY, 1996: 374; RSYC, 1994: 169)

policy. Many analysts, especially market triumphalists (e.g. Lin, 1993), use increased grain production as evidence of the primacy of individual incentives, private ownership, and secure land tenure, in overcoming agricultural stagnation caused by the opposite concepts—collective incentives (or lack thereof), public ownership, and lack of land tenure.

### Reform and the erosion of political legitimation

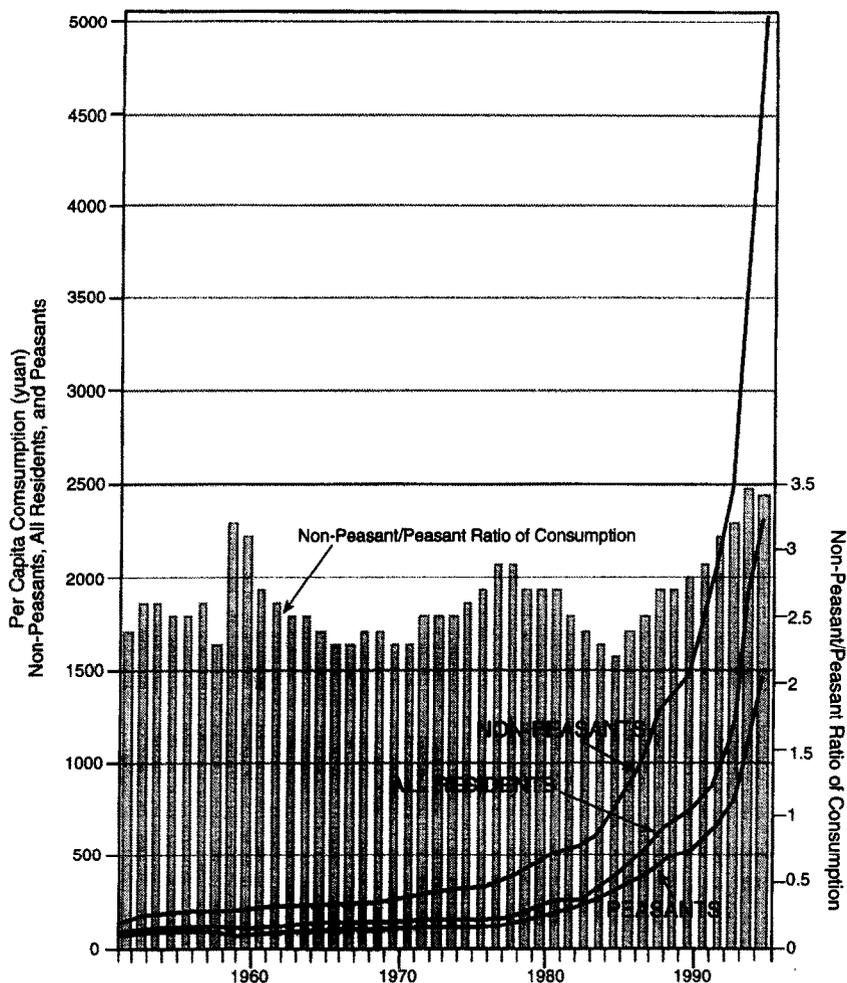
Whether the previous system was problematic or not, however, it is far from clear that these particular reforms brought about the rapid increases in grain production. Farmers could increase production through many means, once decollectivization was underway. As we shall see, the evidence shows that a simple private appropriation of public goods, in combination with increased producer prices and use of fertilizer, all contributed to increased production. The role of decollectivization is not easy to discern here. But it is important to note that the credit for the increase was still attributed to decollectivization of agriculture, and allowed an acceleration of the reform process. In fact, grain production began to surge forward in 1978. Two-thirds of the increase occurred before decollectivization was initiated on a wide scale in 1982. Following record production in 1984, reported grain yields stagnated for the five years just after the completion of the decollectivization process

that same year. Therefore, we need to look to other explanations than the HRS to explain the first four to five years of rapid increases in grain production, since a direct correlation between a return to household farming plots and increased production does not exist.<sup>15</sup>

Therefore, in the face of stagnating production after 1984, it was premature to announce the 'solving' of the rural question. If one wishes to argue that the reform of 1978–1984 was responsible for the increases in grain output during that period, one would be hard pressed to explain how reform produced stagnation after 1984. The solution to this quandary involves surrendering easy ideological assumptions in favor of a careful examination of important, but often overlooked, factors. Such an examination will reveal that three major factors help explain the production gains attributed to decollectivization: prices, fertilizer, and communal capital.

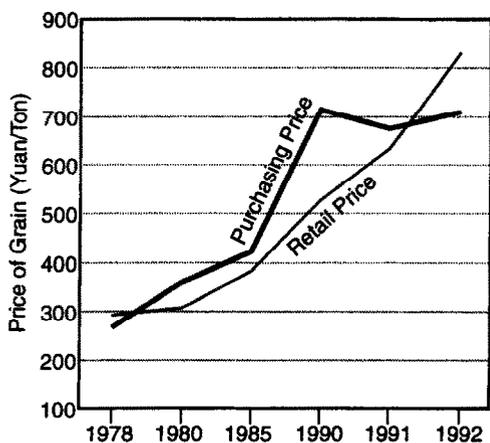
Prices paid to farmers for grain jumped 30.5% in 1979 alone, and increased a total of 54% by 1984 (see Figures 7 and 8). In 1984 peasant farmers also sold grain to the state usually held in reserve, adding to the peak in grain 'production' reached that year. In addition, production was intensified by peasants seeking to capture the benefit of historically high prices (Guo, 1992).

Fertilizer use more than doubled in this same period (see Figure 9), allowing farmers to realize potential



**Figure 6.** Per capita consumption (RMB and index), and peasant/non-peasant ratio of consumption, 1952–1993.

(Source: CSY, 1993: 280, 281; CSY, 1996: 278)



**Figure 7.** Mixed average retail and purchasing price of grain, 1978–1992.

(Source: CSY, 1993: 272, 273)

increases in yield from improved seed varieties developed in the 1960s and 1970s. This increased use of fertilizer was made possible by the expansion of fertilizer output from factories that had been constructed over the previous decade (Stone, 1988).<sup>16</sup> Thus, collective and communal surpluses invested in fertilizer factories only began to see real returns on investment in the late 1970s.

Communal resources—built up at great cost in capital and labor during the preceding three decades—were recklessly mined during the reform period. At the broadest level, the mining of communal capital involved redirecting agriculture investment away from maintaining—let alone expanding—the existing infrastructure and toward methods that brought short-term increases in production (purchasing fertilizer, for example).

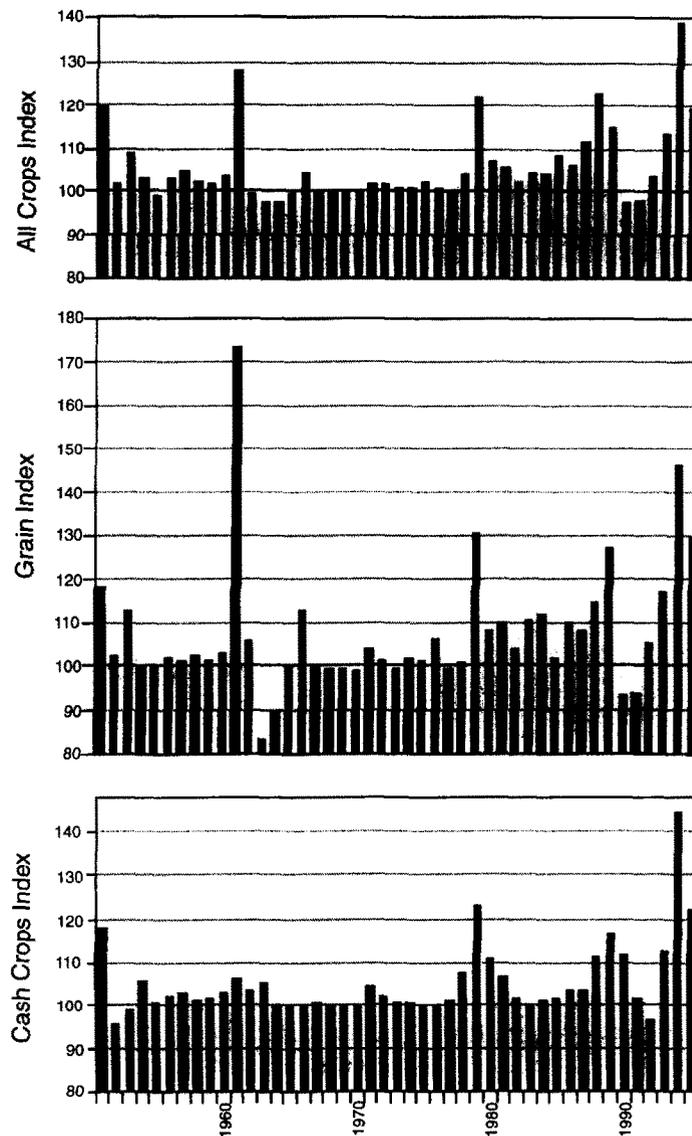


Figure 8. Purchasing price index of grain and cash crops, 1951–1993.

(Source: RSYC, 1989: 172, 173; RSYC: 261; CSY, 1996: 268)

In short, much of the gain during the boom period (1978–1984) can be attributed to technical factors of production, such as fertilizer application, rather than social reorganization of production (Stone, 1988). It is also to these technical factors of production that one must look to understand the subsequent period of stagnation. Between 1984 (when most of the institutional reforms had been completed) and 1989, total grain production fluctuated below the 1984 peak, while unit yields stagnated (see Figures 5 and 9). Although prices paid to farmers were level in 1985, input prices for crop production continued to rise. In fact, between 1984 and 1989 official fertilizer prices rose 46% (RSYC, 1994). When the state monopoly on

agricultural inputs was lifted in the mid-1980s, the potential for huge profits in the black market (where prices were much higher than those set by the state), undermined much of the expected benefits of freer input flows. In part due to the long chain of middlemen, prices were so high that the already minimal profitability of grain production simply vanished. In addition, inflation during this period both reduced the positive impact of increased state grain prices paid to farmers, and raised the real cost of inputs (until 1989), and hence decreased the profitability of planting grain. Finally, the impact of the wholesale appropriation of communal capital (which had begun in earnest in 1978) began to be felt by the mid-1980s. It took some

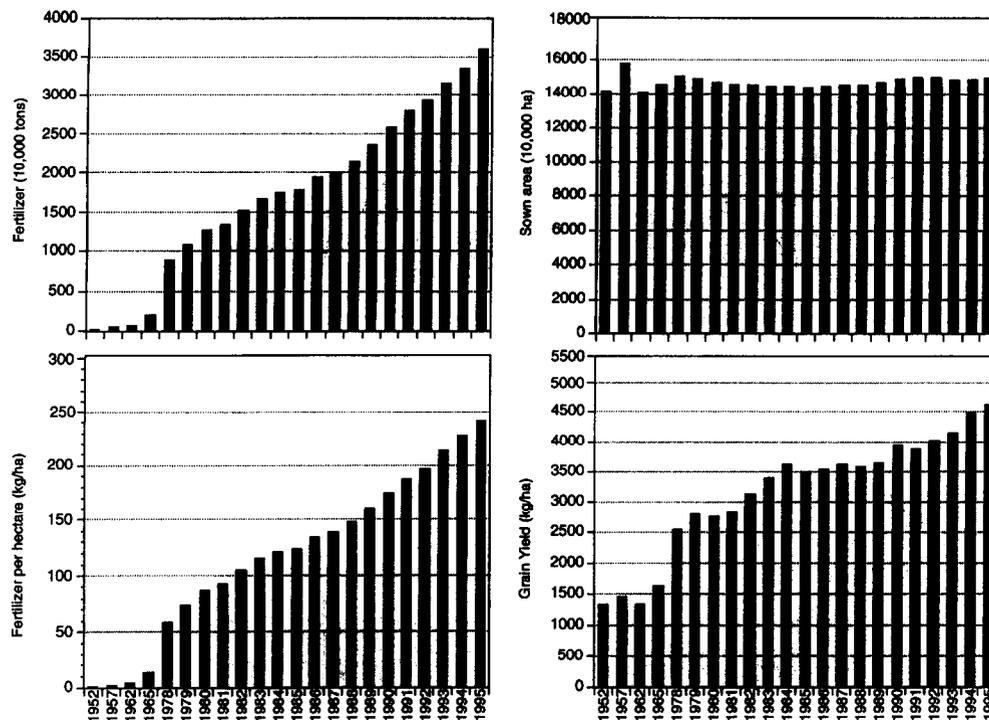


Figure 9. Fertilizer use, sown area, fertilizer per hectare, and grain yield, 1952–1993.

(Source: RSYC, 1994: 68, 151, 169; CSY, 1996: 374)

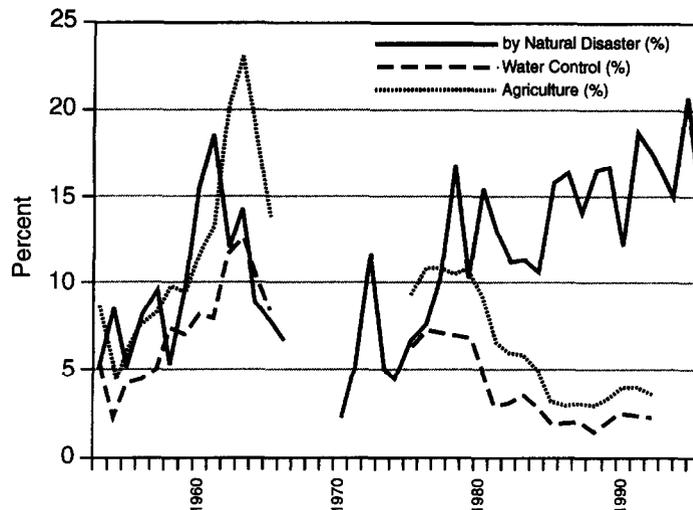
time for the decline in investment in agricultural infrastructure and such destructive practices as soil mining (i.e., using the soil without regard to maintaining its fertility) to work their effects (see Figure 10).

Doubtless, there were numerous examples of environmentally unsound practices prior to the reform period (Smil, 1984, Ross, 1988, Smil, 1993, Howard, 1993). But the reforms brought new, qualitatively different environmental problems, and exacerbated those inherited from the collective period, decreasing sustainability in the new hybrid system of China (Edmonds, 1994, Dwyer, 1994, Muldavin, 1992). Thus, transferring production risk to households within increasingly unstable local markets, and decreasing delivery of social welfare, shifted production practices towards those providing short-term returns, often through rapid (and degrading) exploitation of natural resources and labor.

In sum, there has been a shift from collective production to the household and individual, an immense and historically important transfer of control over resources and means of production. A shift in decision-making strategies and goals supplants long-term egalitarian collective objectives with short-term

decision making by individuals. In the Chinese context this ideological shift is only tenable as long as growth continues and provides greater material returns to those most likely to support the state (Muldavin, 1996b).

Rapid economic growth, state subsidies, and inflation during China's prosperous period (1980s and 1990s) have had visible political consequences.<sup>17</sup> As we have noted, immense regional variation in growth exists in China. As a result, regional income inequality has increased significantly. In 1978, average income in the Eastern region was 50% higher than in the West. By 1991, average income in the East had increased to double that of the Western region (Chai, 1996). The wealthier eastern regions use China's hinterlands in ways which structurally limit those areas' potential for meeting the needs of the majority of their own populations. Even within the boom area of eastern China, the benefits of growth are increasingly uneven. A significant number of China's peasants, and to a lesser degree urban residents, are experiencing declining living standards (Muldavin, 1992),<sup>18</sup> and have not gained in the ways that generalized figures of GDP seem to suggest. In 1993, while 4.3 million people saw their incomes skyrocket to 32 times the rural average,



**Figure 10.** Natural calamity, state investment in Water Control and Agriculture, 1953–1993.

(Source: CSY, 1996: 368, 385. Ministry of Agriculture, Planning Bureau (1989): 354–7). SSB, Fixed capital Investment Statistics division (1987: 71–5). SSB yearbooks: 1987: 479; 1988: 572; 1989: 152, 229, 490. RSYC, 1994: 96, 151. Notes: Area hit by natural calamities referred to those sown acreage reported to be hit by flood, drought, frost, and hail, and to have 30% or more reduction in yield compared to normal yield.)

the incomes of 400 million people—one-third of the population of China—declined (Schell, 1995).

Social stratification in the post-Mao period is representative of a larger crisis of the Chinese state. Tensions have increased both between peasants and representatives of the state, and within villages (Muldavin, 1992).<sup>19</sup> This dilemma presents ideological problems for China's leaders, who have been moved by political necessity to seek legitimation in a narrower sector of Chinese society. The state is needed by farmers to maintain stable markets for inputs and outputs, and to insulate farmers from some market influences. Given the complexity and importance of the rural sector, states continue to subsidize agriculture in various ways, even when this threatens fiscal balance. Shortfalls in subsidies to broad sectors of producers are now covered through international borrowing.

State investment in agriculture and industry has been redirected primarily to price subsidies in order to keep the peace with peasants and workers, consuming 38% of state revenue by 1989.<sup>20</sup> The resulting fiscal squeeze forced the proportion of total government expenditures allocated to agriculture to drop precipitously (CSY, 1991). The high levels of state investment in agriculture in the 1970s, were signifi-

cantly scaled down during the 1980s, as was the use of collective labor.<sup>21</sup> In addition, the current declines in input subsidies raises local production costs, and brings peasant farmers into competition with more advantaged regions inside and outside China.<sup>22</sup>

For China, the political legitimation of the Communist Party is constructed on the state's support for the peasantry. The traditional alliance between the Communist party and the peasantry is threatened by the new hybrid regime and appears to be unraveling in many areas of the countryside. Policy makers should be aware that peasants are not averse to reforms, but to risk. Negative trends in the countryside are politically important and cannot be simplified as solely economic (Muldavin, 1996a). The economic consequences of uneven growth in statist systems such as China elude most analytical models. Environmental declines and political delegitimation are not normally linked in most development research. However, the causal connection between them is taking place in China and must be considered if a more tempered and balanced evaluation is to emerge. Indeed, environmental problems need to be seen as part of political change—a fact of life for agrarian society. The persistence of environmental problems, however, is a symptom of political and institutional failure.

### Reform in Zhaozhou and Bayan: a case study

A closer scrutiny of the Chinese hybrid economy must ask what effects the reforms, especially in rural areas, have on the long-term sustainability of production—that is, what effects do they have on environment? Market triumphalists are less fearful of environmental decline because they assume that in the near future China will have fully employed all the instruments and institutions of a technically advanced and well-managed capitalist economy. Such a regulationist state would have to develop sophisticated and independent scientific monitoring of environmental problems period. Agencies capable of enforcing laws and implementing environmental protection are also assumed in this vision.

In China's hybrid two corresponding types of environmental problems emerge which are precisely the kind that require the concomitant development of sophisticated and independent interventionist agencies. First, are environmental problems associated with agriculture and resource use (principally in hinterland and rural areas), from soil erosion to deforestation, as communal capital is mined.<sup>23</sup> Second, are environmental problems products of rapid industrialization (principally in the eastern coastal regions and suburban high-growth urban peripheries), from land conversion to effluent pollution of air, water, and land—particularly by the dynamic TVPEs. How can China be seen as moving towards solving these problems? My study area in the northeast China plain in Heilongjiang Province has been transformed as much by reforms as by both of these kinds of environmental problems. The failure of the state's functions here illustrates that China is not on the path to developing an economy capable of stemming even the most destructive and pernicious environmental practices. Further, that reforms have prevented local institutions from becoming the means towards more sustainable development.

Beginning about a century ago, during the twilight of the imperial era, Heilongjiang Province began to be developed into 'the great northern granary' of China. The project has always been hampered by the harsh and long winters which limit the region to single-season crop production, and prevent the intensification of production through multiple cropping prevalent in other parts of China. Yet, Heilongjiang serves as an important indicator of changes throughout China, highlighting many of the problems experi-

enced in other areas. Heilongjiang and other hinterland regions can provide evidence that is elusive in boom areas in southern and coastal provinces. In these boom areas, the clearly evident economic growth, so lauded by market triumphalists, tends to overwhelm any kind of objective analysis of the real conditions under which people live and work. However, the frontier areas of Heilongjiang's hinterlands expose the paradoxical dynamics of China's changing society, and make the province a weathervane in the emergent new hybrid system.

As can be clearly seen in Heilongjiang Province, social and environmental problems which are attendant on the success of the reforms are extremely critical in the medium to long-term. The loss of natural capital and diseconomies implied in environmental decline set the foundation for future development. The social welfare system is crumbling in both the countryside and the cities, undermined by the declining power of collective entities and the shift to individual and household responsibility. The decline in collectives, and a corresponding lack of institutional capacity to regulate the use of resources, consequently threatens to undo many of the economic gains of the reforms.

Reforms in Heilongjiang have been felt in all the key sectors. New foreign investment in agro-industry and manufacturing (EIU, 1995) are reshaping the region's economy. This reshaping has been attended by environmental problems associated with both traditional and new types of development, and places industrial, agricultural, and extractive sectors into competition with modernized producers throughout the world. The following discussion, based on fourteen years of fieldwork, focuses on Zhaozhou and Bayan counties (see Figure 11).<sup>24</sup> Looked at over this stretch of time, these two counties reveal how changes in political economy impose new patterns of resource use and have thus contributed to environmental degradation. The link between social stratification and environmental decline, a consequence of reform policy, can be explained in this case through the lens of land use intensification, agro-industrial pollution, and declining social/communal capital.

At the center of new environmental pressures in the rural sector is a shift from long to short-term goals in decision making—from socialist society building to the timeframe of firms and entrepreneurs—a serious change in logic imposed by reforms. Peasants, however, tempered their misgivings that the increasing



Figure 11. Heilongjiang Province, China.

deregulation and decentralization of agriculture was risky because of the perception of market-based opportunities. In short, the age-old aversion to risk—so characteristic of peasant producers—gave way to the enthusiasm typical of market-based change where quick returns are increasingly emphasized in a riskier production environment. The resulting environmental destruction overwhelmed the village leader, who testified to his helplessness in stopping this process. He pessimistically found hope only in the idea that when everything got so bad, people would finally see the problem. Since he no longer had any leverage as leader of the severely weakened collective, most households ignored his warnings of village demise. He saw their individual choices as hostile to a tradition of collective effort and collective good, and lamented the absence of social, political and economic means to mobilize people towards long-term goals. He quickly pointed to the shift from soybeans to tobacco as representative of a short-term strategy to cash in on market opportunities, despite experience and local

knowledge that had historically placed limits on areas sown to such soil-depleting crops.<sup>25</sup>

In Heilongjiang, new agricultural production practices, often welcomed as improvements, are a result of a series of interrelated choices made by peasant households but driven by state policies that press for intensifying production.<sup>26</sup> Intensification of land use in Zhaozhou and Bayan counties in the early 1980s brought a rapid decline in soil fertility, signifying a departure from sustainable agronomic practices (Muldavin, 1986, 1992). Increased use of chemical fertilizers, a continuing decline in the use of organic manure, and a 50% decline in green manure area accounted for much of the loss of organic matter. The result was decreasing soil fertility and the pollution of ground water (Liang, 1988).<sup>27</sup> Annual crop rotation was simply abandoned throughout Heilongjiang in favor of monoculture—especially corn because it provides good, quick returns. The concomitant five-fold increase in chemical fertilizer use, from 175 000

metric tons in 1978, to over one million metric tons in 1995 indicates growing dependence on inputs which form part of a complex of unsustainable practices (HLJSY, 1993, 1995, 1996). National fertilizer use increased from 10 million metric tons in 1978 to over 30 million metric tons by 1995 (see Figure 9). The worst problems—salinization, ground water pollution, and micro-nutrient deficiencies—are all consequences of changes in agricultural practices.<sup>28</sup> With stagnating yields, peasant farmers complain about the 'soil burning' resulting from long-term fertilizer use, as well as intensified disease and pest problems from repetitive monocropping.

The decline in collective control in Heilongjiang resulted in increased use of marginal lands, accelerating internal 'desertification' (Muldavin, 1986). In Zhaozhou, tall prairie grass lands were transformed into field crop or intensively grazed pasture. The movement into marginal lands and the shift of land use from forests, marshes, and grasslands to more intensively utilized cultivated land were important means of increasing overall production. Intensified use of grazing lands resulting from decollectivization and subsequent loss of control over livestock numbers and grazing area rights, brought a doubling in the number of livestock between 1978 and 1984, as peasants strove to improve security and lay claim to previously communal grasslands (Muldavin, 1986). Lands are used by whoever can seize control of them.<sup>29</sup> Enclosures of grassland by wealthier peasants forces larger numbers of livestock into an area of diminishing size,<sup>30</sup> which rapidly degrades, increasing grazing pressure on remaining lands.<sup>31</sup>

There has been rampant cutting of roadside windbreaks, nurtured collectively over thirty years. It is now possible to drive for miles among stumps of trees felled in the last few years. Peasants call this 'nibbling'—every night a few more trees disappear.<sup>32</sup> The wife of the elder peasant charged with preventing this theft, complained bitterly about both the decline in respect for such 'things of the collective' as well as the village's decision to fine her husband for failing in his duties as night watchman of the trees. He was 'a very old man' she said, 'how do they expect him to stay up all night every night trying to fend off young thieves?' She noted that the fines imposed by the village leader were greater than the small salary he received for this work. Her husband's view was that villagers had turned against all their resources, grazing too many animals wherever they could, taking fuel and con-

struction materials from any source found, and seemingly caring little about replacing trees or protecting grasslands.<sup>33</sup>

Combined with intensified grazing pressures, cutting forest for wood and fuel increases soil erosion by breaking through the protective cover (Muldavin, 1986, 1992; Hinton, 1985, 1990). In Bayan and Zhaozhou counties there was abandonment of tree-planting programs and massive clearcutting of tree-based erosion control systems after management of forest plots was contracted to individual households in 1984.<sup>34</sup> Peasants in Fuxiang Village rapidly stripped the hills above their fields of all trees, selling the wood to the booming construction business, and taking full advantage of this new market opportunity. As a result, the hillside soils rapidly eroded, exposing yellow subsoils and covering their fertile valley fields with gravel and clay.<sup>35</sup> Thus, overgrazing, clear cutting, and cultivation of marginal lands, rapidly intensified soil erosion and at the same time limited water absorption thereby increasing runoff.

Raised silt loads and deposits in lower reaches of the major rivers threaten dike systems weakened by lack of repairs and investment. Greater volatility of river flow and higher crests in flood levels, as reservoirs rapidly silt up, undermine water conservation efforts and decrease flood control and the electricity—generating potential of the large-scale hydroelectric projects on China's major rivers (Smil, 1993). There was a 25% increase in the area covered and affected by natural disasters between 1985 and 1993 (see Figure 10) (ZNTN, 1992; CSY, 1995). Extensive flooding of the Songhua River in 1995 prevented a return visits to villages in Zhaozhou and Bayan. Sadly, local institutions can do nothing despite being the only proximate authority in times of crisis.

By 1984, virtually everywhere in Heilongjiang the collective ceased to exist as allocator of capital and labor. Although this process had begun nationally in 1978, and had been completed in much of the country by 1982, Heilongjiang was one of the last areas to fully decollectivize production. Collective institutions can help spread the cost of disaster and insulate unlucky individuals. Decollectivization has led to two profoundly important interconnected results: a decline in capital and labor allocation to large-scale infrastructure, and a redirection of both into short-term projects and investments. As state investment in agriculture and infrastructure has fallen, one thing seems clear—

resulting problems in production will require local solutions that acknowledge the importance of maintaining collective assets. The scarcity of capital in Heilongjiang brought an early attempt in 1989 at recollectivization, after only five years of household level production (Muldavin, 1992). Nonetheless, there were social barriers created by the reforms which limited the success of such efforts. Had people wanted to organize responses to their environmental problems they would not have been able.

Water control infrastructure has remained under collective management, yet declines in available investment capital, as assets were redistributed (ZNTN, 1992), has limited villagers ability to organize the necessary labor and capital investment for maintenance, let alone improvement or expansion, of agricultural infrastructure. Thus, reservoirs, dikes, irrigation canals, tube wells, erosion control, tree planting, all critical to sustaining and increasing production, receive little investment and are in a state of serious disrepair (Peasant Daily, 1989; Muldavin, 1992; Hinton, 1990).<sup>36</sup> Increasing local-level 'natural' disasters are attributable to the delayed effects of this decrease in capital investment, along with mining of communal capital. Actual disasters seem to be occurring in greater numbers but, as in the case of floods in the village of Hesheng, in Bayan County, not all of them can be attributed to the weather. Since 1984, Hesheng Village has repeatedly failed to collectively organize and invest the requisite capital and labor necessary to construct a levee protecting the village from floods. For a number of years the entire harvest was destroyed leaving the village completely dependent on state relief, unable to deliver its quota of grain to the local government.

Repeated calls have been made for diverting state revenues to agriculture and specifically, water control (Wang Lianzheng, 1989). Yet problems in collection of agricultural taxes hinder proposed increases in investment. Furthermore, as was clearly evident in Hesheng and Fuxiang villages in Bayan County, it is difficult to imagine its funding and smooth implementation since institutional structures at a local level have been severely weakened by the reforms. Low state investment remains a major barrier to the improvement of land and labor productivity (Lardy, 1984; Stone, 1985; Walker, 1984; Muldavin, 1986). In addition to prefiguring agricultural stagnation between 1985 and 1989, the rapid decline of total national state expenditure on agriculture (see Figure

10), from 13% in 1978 to less than 7% by 1981, and 3% in 1986 (ZTNJ, 1991, 1992, 1993), has made agricultural production more unstable as it has intensified, with crumbling irrigation infrastructure decreasing available water.

Tax-based revenue cannot be used to make up for shortfalls in agricultural investment for political reasons as well. Villagers respond with wrath and even violence when tax agents attempt to collect 'fees for infrastructure' from households. Complaints that fees are not used as intended, but go to fund other county projects far from their local needs, are sometimes followed with reprisals by these agents. Since the collectors' wages are dependent upon the amount of fees collected, they often seize personal property in lieu of payment. Household members describe a broad range of responses to these local state demands. These range from hiding of surplus to outright rebellion.<sup>37</sup> One reason for such resistance is the rapidly rising cost of agricultural inputs. Peasants avoid payments to the state in favor of direct purchases by the household.

Since the reform, in Heilongjiang, farmers also fall prey to short-term investment strategies, favored by state credit schemes. Capital previously used for large-scale infrastructure and collective projects has been diverted to satisfying more immediate needs. Expenditures for increased applications of chemical fertilizer and other agro-chemicals, plastic sheeting, small pumps for water control, etc. (ZNTN, 1992),<sup>38</sup> soak up rural funds. Funds are accumulated only to be spent on housing materials, consumer durables, and traditional ceremonies (Zhang Bingwu, 1993; BR, 1989).<sup>39</sup> Among the most important magnets for local investment are the largely unregulated TVPEs. Coming at the expense of needed investments in infrastructure, the shift to local control over capital investment and planning has not brought the attendant host of legal and institutional enablers that are prerequisites in defining and implementing the modern and technological standards that the state hopes will accompany the hybrid economy.

Unregulated local enterprises—TVPEs—pose serious health threats at the village level through ground water contamination and other forms of pollution. At a local level, there are strong incentives against regulation. In Zhaozhou and Bayan, industrial and agricultural pollution were largely undetected contributors to public health problems. Agro-processing facilities in Bayan villages empty their effluents into dirt ditches

lining the roads. Fishermen there report rapid declines in fish yields as chemical runoff increases from TVPEs and agriculture. County and township brick works burn huge quantities of low-quality coal, resulting in extensive rural air pollution.<sup>40</sup> China faces ongoing ecological disaster from wide-scale and largely uncontrolled industrial pollution. Eighty per cent of industrial waste water reenters waterways untreated and almost 50% of inland water is too polluted to drink or support aquatic life (Liang, 1988).

Rural industrialization was predicated on the extensive development of rural industry in China during the communal period, whereby technical skills, machinery, and other necessary infrastructure were created. Without such a base, China could not have achieved the amazing growth rates in TVPEs throughout this period. The production increases associated with today's TVPEs often have little to do with local agricultural growth. In fact, this disarticulation can be detrimental to it, drawing away labor, capital, and resources, as well as using limited arable land, which declines by one per cent each year, nationally. Furthermore, much of rural industrial growth is part of the expanding chains of subcontracting relationships, as larger enterprises, both foreign and domestic, subcontract portions of the production process to the more 'flexible' TVPEs.

This proliferation of TVPEs in the new hybrid economy is due to a combination of flexibility and low-cost production—cheap labor; older, dirtier processes and machinery; and a total lack of environmental and occupational regulations. Geographically far-flung, their monitoring and regulation is exceedingly difficult. Therefore, Chinese TVPEs are potentially more hazardous to the environment than spatially concentrated urban industries, typical of both China and the highly regulated Western economies. And yet, it is the rapid expansion of the nominally collective rural industrial sector which provides one of the greatest opportunities for diversifying rural livelihood strategies. Paradoxically, the costs of the resultant environmental and social problems will be borne by peasants for decades to come.

### **Reform policy: growing acceptance or growing resistance?**

Should the Chinese state find itself unable to introduce

new policies that address negative impacts of the reform process, it runs the risk of exceedingly serious consequences. Resistance to the new order has emerged among workers and peasants. Reformers inside the state are fearful that this will become open defiance. However, they are loathe to create a political space for social dissent and civil discourse. As the Chinese leadership has made abundantly clear (the Tian'anmen incident being just one example), it will not make the 'mistakes' of the former USSR by freeing politics along with economy (Zhong, 1996). In the short term, political disaffection and the delegitimization of the state will remain hidden, only surfacing in small acts of everyday resistance.

The new ground for political legitimation under reform is moving away from a China able to distribute the benefits of the reforms to the majority, while protecting those who lost out. High growth rates have helped to bolster the state despite political problems that have emanated from the very same reforms. In the aftermath of the Tian'anmen Square incident—where much of the social tension arose out of high inflation and people's perception of increasing corruption, nepotism, and social stratification—continuing economic growth helped the reformers within the state to maintain their position of strength. Further, since 1989, the Chinese Communist Party has shifted its main basis for legitimacy to economic nationalism and political conservatism (Zhong, 1996). Combined with a campaign for 'stability first', Zhong (1996) argues that the party's new legitimacy has achieved 'some acceptance by the public.' At a minimum, the idea of stability and economic nationalism have been widely accepted throughout Chinese society as a fundamental requirement for China's successful transition into a world superpower.

Yet, ongoing contradictions between the expanding marketization of the economy, and peasant demands for economic and social stability, are made more stark by local abuses of power and threats to community cohesion.<sup>41</sup> Wide-spread anger towards local representatives of the state, an increasing trend throughout much of rural China (Delman, 1989; Muldavin, 1996b),<sup>42</sup> is a portentous sign of rapidly eroding legitimation. Peasants respond through indirect forms of resistance (cf. Scott, 1985; Peet and Watts, 1993), for example, seeking protection through increased claims of 'natural disasters',<sup>43</sup> as a means of garnering state funds and limiting state claims to local surplus. Furthermore, 'natural disaster' can also

be invoked by peasants seeking insulation from demands by local cadres. These legitimate and illegitimate claims on state assets become a fiscal burden for the state. Environmental and social problems that have accrued with the reforms, become increasingly difficult to solve. Because the market fails to offer a simple solution, in fact, often exacerbating existing problems, the state is left trying to find new forms of intervention that do not create extensive claims upon its diminishing available resources. And so, state policy enters a downward spiral that reduces support for and demands upon Chinese peasant agriculture. Perhaps the growing resistance will encourage the leadership to support specific innovations that will redirect the economy away from the boom and bust of capitalism.

### Conclusion

In this context, and within the local and regional heterogeneity of China's political economy, reforms take diverse paths. Alternate pathways are emerging—varied hybrid combinations of market, individual, collective, and state. The strength of local collective enterprise in the rural economy in large areas of eastern China (in particular), can potentially provide the social support and resource regulation necessary for sustainability.<sup>44</sup> Multiple alternatives thus exist in China's regions and localities—a range of options already in place to deal with the pressing problems facing rural China—all perhaps better than a complete turn to an unregulated market economy composed of millions of small producers. The pattern of agrarian and ecological change emerging from an array of often contradictory forces—from state policy to local resistance—has evolved towards a mosaic of mixed market and socialist forms, some with government sanction, some without. These forms range from individual to collective, and in recent years in Heilongjiang increasingly rely on government intervention in the local economy for long-term market planning and stability. All forms share a common goal of growth, but with differing emphases on less tangible but nonetheless crucial issues, such as a sense of security and shared risk.

In this paper I have argued that market triumphalist views of China are wrong in two important ways. First, these views are wrong because the Chinese hybrid economy is not necessarily a transition to capitalism but more an emergent form of moderniza-

tion and development that has no name. Markets play an important role but so does statism and planning. The market triumphalist view of China is highly distorted and leads to an improper and misleading assessment both of China's complex realities, as well as inappropriate proposals for policy solutions. Second, market triumphalists err in attributing all growth to reform policy as they also err in seeing emergent problems as transitory pains in a changing system. Claims made by analysts that reforms can be credited with increases in agricultural output are empirically wrong. The improvement in agriculture was not primarily a result of institutional reform, but a consequence of fortuitous and directed changes in prices, fertilizer availability, and mining of communal capital. And, environmental problems cannot be seen as unfortunate externalities of an otherwise robust economy. Environmental crises are threats to rural livelihood and to the social contract that has governed China for 48 years. The actual emergent hybrid, a derivative version of socialism and capitalism that tends to draw on many of the worst aspects of both, is leading the Chinese state towards a legitimation crisis.

Clearly the transformation of China's rural sector is not a bad idea. Neither is the rapid development of TVPEs. All would want to see the rural sector transform as a result of increased productivity in agriculture. Yet, this elusive goal will become more distant as reform policy undermines the resource base and the social organization upon which more integrated and sustainable economic systems may be built. Though not expanded on here, a potential hybrid economy, combining positive aspects of both markets and the state, has also begun to surface in some areas of the country, providing the basis for a more stable relationship between the state and China's hundreds of millions of peasants and workers.

I do not argue here that China's experimental mixed economy is going to function for China in a global system. China's problems have not been solved by the hybrid. Further articulation with the international economy has made China's domestic economy much more vulnerable to competitive pressures, price swings, tariff barriers, and other familiar problems of globalization trends. The state is slowly losing control over many aspects of investment and credit. China wants to join the WTO, entering deeper into a deregulatory atmosphere which may place limits on China's ability to protect nascent industries and agriculture, further undermining state legitimacy and

adding to social unrest. There are a number of structural environmental and social problems in the reforms that will not be solved, and are actually exacerbated, by continued transition to a market-oriented economy. This, then, is China's paradox. Immensely successful economic growth, coupled with unbalanced development and internal breakdown along social and environmental lines. This paradox exposes both the limits as well as the potential successes of the emergent hybrid. The global importance of China and its problems, requires a careful reassessment of this reality, without the ideological blinders of market triumphalism.

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#### Notes

1. Critical assessments of globalism in industry and manufacturing have shown that the new flexibility in global manufacturing allows for more extraction of surplus from wage-based industrial sectors by more distant institutions, dominant classes and actors. Work by Sayer and Walker (1992) identifies this as 'the new social economy' in global manufacturing. The articulation of China's manufacturing sector into the global economy brings 'ratcheting down' effects to both China and advanced industrial economies.
2. The story of economic growth in post-socialist China is by now well-known. For over nineteen years the Chinese economy has sustained growth rates that averaged 10% per annum (CSY, 1996), and even higher than that in some of the southern provinces. Much of this growth stems from an export-oriented restructuring of industry and manufacturing. The ratio of exports to national production has climbed from 5% in 1978 to 20% in 1996 (CSY, 1994; EIU, 1997).
3. In China, it is the rural industrial complexes which now provide the greatest dynamism in the economy. Conceptualizing rural industrialization as part of a regional transformation (Page and Walker, 1991), China's reforms will have to be studied as new kinds of institutionalized regimes of accumulation (Aglietta, 1979), part state, part market. As 'flexibility' becomes the watchword of global capitalism (Scott and Storper, 1986), global restructuring processes are paralleled by shifts in state policies in China since 1978 towards privatization, subcontracting and deregulation.
4. Concerns over free trade agreements and footloose capital have become central to political debates in the West. Critics perceive that new rules have been crafted primarily to accommodate the needs of specific business interests (Bello, 1994; Danaher, 1994). Thus, the 'ratcheting down' of regulatory restrictions on environmental pollution coupled with increased competition from low-wage economies have been used to undermine organized labor and to evade regulations on occupational safety (Epstein *et al.*, 1993).
5. It is questionable whether the terms 'plan' and 'market' are adequate for describing, in an analytically rigorous fashion, this complex situation. Such oppositional terminology ignores the possibility that state coordination and regulation of the economy may continue indefinitely in China, as it has in most other East Asian, not to mention European, economies.
6. Analyses show that between 1978 and 1988 (the first ten years of reform), 108 million workers were added to the rural labor force, of which 62.3% entered rural enterprises as wage employees (Knight and Song, 1993).
7. The environmental effects of changes in the organization of production are generally under-theorized. Where studied, for example, in the growing political ecology literature, emphasis has been placed on interactions between peasant/indigenous and capitalist forms of production organization. Political ecology emphasizes the importance of political economy in the understanding of environmental degradation—an historically-informed attempt to understand the role of the state, the social relations within which land users are entwined, and resulting environmental changes (Blaikie and Brookfield, 1987; Neumann, 1992). I attempt this in the specific context of socialist transition and the emergent hybrid economy of China (Muldavin, 1996b).
8. Cultivated land and population were respectively 97.9 million hectares and 541.7 million in 1949, and 99.4 million hectares and 962.22 million in 1978. In 1993 population grew to 1185 million, while cultivated land fell to 95.1 million hectares, or 0.08 ha/person. These figures are problematic given recent reports showing that official statistics underestimate actual arable land by as much as 25% (Smil, 1996), thus inflating yield statistics.
9. With decollectivization came a devolution in farming practices from large to small scale. The quota system thus created a new form of rent or share cropping with the state as owner. By 1984, 99% of all communes had decollectivized agriculture and implemented the reforms.
10. Yet, even now, with a rapid rise in state borrowing, China's debt is comparatively small in relation to overall GDP [CSY, 1994].
11. President Jiang Zemin reassured members of the Central Committee that there will be no dismantling of big state industries. According to Mr. Jiang, 'only by ensuring the dominant position of the public sector can we prevent polarization and achieve common prosperity' (Mufson, 1995).
12. Modernization of the energy sector implies raising energy prices to better reflect actual costs. While this might induce better conservation among current low-rate payers (Lenssen, 1993), such as SOEs, higher energy prices may paradoxically be used to legitimize further destructive hydroelectric projects such as the Three Gorges dam (the hotly debated and largest dam project in the world), and a rapid expansion of China's nuclear energy program.

13. This political wisdom, shaped through many dynastic transitions in millennia of history, is captured in the often-cited phrase 'wu nong bu wen' (without agriculture there can be no civilization) in the agricultural policy debates in China (Lin, 1993).
14. Muldavin, 1992. Sun Jia, the Deputy Director of Agriculture in Heilongjiang Province stated in interviews that he expected half the province to have adopted this reunified form of agriculture by the mid-1990s (Sun Jia, 1990). In Heilongjiang this was called the 'four unifications'—unified plowing, unified planting, unified pest control, unified harvesting—with individual management of the fields during the growing season, primarily hand hoeing to keep weeds under control.
15. This is important because it challenges the notion that decollectivization, privatization, and individual land tenure are the primary forces increasing productivity in this period. Yet these production increases undeniably legitimized a deepening of the reform process.
16. From initiation to completion there is as much as a ten year lag for fertilizer factories to reach full production.
17. Inflation in the latter 1980s (over 20% by 1989 [CSY, 1992 and BR, 1993b]) brought together urban and rural interests allied in a series of protests, the Tian'anmen movement being the most obvious manifestation. Furthermore, for ordinary workers and peasants, inflation means a decline in real wages and living standards, undermining gains of the past two decades, and leading to frequent incidents of militant peasant protest. (Author's field notes and research interviews, Henan Province, 1992; Henan and Heilongjiang provinces, 1993.)
18. Discussions with William Hinton, Beijing, April and July 1993, and with the vice-head of the World Bank office in Beijing, April 1993.
19. Social inequality is both a village and household phenomenon. Household differentiation is the result of uneven access to small collective industrial assets. In Fendou Village, Bayan County, at the time of decollectivization and the division of village assets, each household had identical labor power and was provided with equivalent land parcels. But only one received a small feed mill. The result was an overnight stratification within the village, with three households becoming the newly wealthy elite. Initial access to industrial assets enabled these households not only to gain income from a monopoly on agro-processing activities in the village, but to accumulate additional capital for investment in expansion of their enterprises, as well as expenditure on home building and luxury consumption.
20. Ranging from price subsidies for inputs and commodities, to inflation-proof savings for urban and rural residents.
21. By 1988 one-third of state investment in agriculture was financed by foreign sources, principally the World Bank (Muldavin, 1992). Between 1980 and 1996 China's cumulative debt skyrocketed from zero to approximately US\$100 billion (ZTNJ, 1993; CSY, 1996).
22. In response to this competition, Chinese farmers have resorted to a variety of problematic methods, including increased use of marginal lands and soil mining.
23. The reorganization of production and exchange relations have forced peasant producers onto production treadmills, similar to those found in capitalist agriculture (Perelman, 1979; Muldavin, 1994, manuscript on production treadmills in socialist transition). For example, despite state intervention to mitigate the worst consequences, the rise in agricultural production costs in the late 1980s brought rising levels of surplus extraction from rural to urban areas (see Figure 6). The resultant squeeze on peasant households caused farmers to redouble their productive efforts.
24. I have worked in Heilongjiang since 1982 as both a consultant to the Ministry of Agriculture on rural development projects (in Zhaozhou County and other areas), and as a Fulbright scholar (1988–1990) conducting doctoral research on three villages in Bayan County. These sites represent a full range of agrarian change over fifteen years. Utilizing household interviews and participant observations, I developed a rich database of individual and family responses to the implementation of the reforms. I combined this with intensive surveys of natural resources (through, for example, soil analyses), socio-economic indicators, production figures, as well as first-hand documenting of environmental degradation in order to assess the character, scale, and pace of agrarian transformation within these communities. During my stay in Zhaozhou County in the early 1980s, after one year of experiencing collective production on the commune and state farm, in the second year I witnessed the phenomenal speed of decollectivization. In Bayan County, through cooperation with village leaders and government officials, I was free to select representative households drawn from all registered members of the community. My criteria included a constellation of cross-secting variables in three dissimilar villages: family size and structure, relative social position in the community (from wealthiest and most prominent households, to poorest and most marginalized), as well as access to land, credit, side-line and small industrial assets. The resulting sample of households (checked against village aggregate data) provided a unique profile with which to analyze changing decision making patterns in production and resource use. Follow-up visits through 1995 help provide a more complete time line of changes under the reforms.
25. Author's field notes, Bayan County, Heilongjiang Province, 1989.
26. One of the less-noted results of decollectivization is a breakdown of large-scale pest control programs. Responsibility for control of animal and plant diseases falls on the household, usually untrained female children, with little or no protective measures taken against exposure to toxic chemicals (Author's field notes, Heilongjiang Province, 1983, 1989). These problems are compounded by the declining quality of health care over the last fifteen years as collective services disappear through lack of funding and organization. With the shift in scale, from large unified plots to a mosaic of small holdings reminiscent of pre-revolutionary China, large tractors and harvesters were abandoned after the reforms (Muldavin, 1983, 1986). The resulting labor-intensification has been paralleled by the 'feminization of agriculture.' Realigned household power relations reinforce patriarchal domination in decision-making, and devalue women's labor despite its increased importance (Davin, 1988; Muldavin, 1992). This has compounded social stratification resulting from unequal access to collective assets redistributed in 1984.
27. Author's field notes, Heilongjiang Province, 1989.
28. A qualitative analysis, conducted by China's Geography Institute in 1990 (Geography Institute, 1990) and presented at the International Geographic Union meetings in Beijing in 1992, suggests that the environmental

- problems—including erosion and soil degradation, air and water pollution, forest decline and grassland desertification—which plague Zhaozhou and Bayan counties, are widespread in the province.
29. Hinton (1990) documents a similar process in nearby Inner Mongolia.
  30. Author's collected field notes from work in Heilongjiang (1983–1989).
  31. With a decline in soil cover due to intensified grazing, a process of sodic-alkalinization begins, raising the pH in the upper horizons of the soil from 7 to 11. At the higher pH level, what is left of the grasses dies off, leaving only clumps of high-pH tolerant weeds with low nutritional value (Muldavin, 1986). Officially designated desert area in China increased from 1.3 to 1.5 million square kilometers between the late 1970s and 1990 (Liang, 1988). Area classified as suffering from severe sodic-alkalinization was 765 000 hectares in 1995 (CSY, 1996: 362).
  32. Author's field notes, Heilongjiang Province; return interviews. Nation-wide, between 1985 and 1989, there was a 48 per cent decline in area covered by windbreaks (ZNTN, 1992).
  33. Author's field notes and interviews, Bayan County, Heilongjiang Province.
  34. Collected field notes from work in Heilongjiang (1983–89), Jilin (1984), Xinjiang (1984–85), Sichuan (1985), Anhui (1985), Yunnan (1989), Guangxi (1988), Guangdong (1987) and Henan (1989) provinces.
  35. Author's field notes and interviews, Bayan County, Heilongjiang Province.
  36. Similar patterns emerged in four villages studied in Henan Province (Muldavin: Collected field notes, Henan Province, 1990–1994). Hinton (1990) also discusses the collapsed terraces, ground water overdraft, and other aspects of declining capital investment as well as unbridled resource exploitation.
  37. Author's collected field notes from work in Heilongjiang (1983–1989).
  38. Author's field notes and interviews, Heilongjiang Province, 1990.
  39. Author's collected field notes from work in Heilongjiang (1983–89), Jilin (1984), Xinjiang (1984–85), Sichuan (1985), Anhui (1985), Yunnan (1989), Guangxi (1988), Guangdong (1987) and Henan (1989) provinces.
  40. It is not only air quality which is affected by the widespread use of high-sulfur coal in TVPEs. Despite producing a third of China's industrial output, TVPEs receive only 20% of state-supplied energy inputs for industry (FBIS, 1992). The gap in supply is filled though production from largely unregulated small-scale collective and individually run coal mines—60 000 of which are scattered throughout the countryside. These small mines are responsible for wide-spread destruction of adjacent forests and fields. Mine tailings are a further health hazard, polluting land and water alike.
  41. The state continues to be a place where many individuals are able to translate their political power into private fortunes, blurring the lines between the public and the private, and adding to a pervasive sense of corruption and lack of clear legal restraints and codes. Further, the tax system is highly regressive and has not developed along with the rest of the economy. The relationship between the central government and provincial authorities continues to be a source of conflict and struggle.
  42. Bayan County Survey II (BCSII), Heilongjiang Province, 1994 (conducted by the author).
  43. Muldavin, 1989. Hesheng Village Survey (HSVS), Bayan County, Heilongjiang Province. Fendou Village Survey (FDVS), Fuxiang Village Survey (FXVS), Bayan County, Heilongjiang Province (conducted by the author).
  44. For a detailed discussion of some of these alternatives see Muldavin, 1996b.

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