

---

# Regional Inequality in China: A Case Study of Jiangsu Province\*

Yehua Dennis Wei

*University of Wisconsin, Milwaukee*

C. Cindy Fan

*University of California, Los Angeles*

The tremendous changes in China's development philosophy and regional economies during the last two decades have carved out selectively new locations of development across the nation. While politicians heatedly debate the acceptable levels of regional inequality, most scholarly studies focus on broad aggregate trends of inequality among provinces and groups of provinces, and pay little attention to identifying and conceptualizing sources and major agents of spatial change. This paper aims at revealing detailed spatial ramifications of the reforms, and at understanding the impacts of the state, local agents, and foreign investors on regional development. To this effect, we conduct a disaggregated and empirical study of Jiangsu, a coastal province experiencing dramatic economic and spatial restructuring. We show that local agents which favor rural industrial enterprises accelerated new growth in selected rural areas, in contrast to slower growth of older cities and state-owned enterprises, resulting in a net decline of intercounty inequality. But the coalescence of state policy, local agents, and foreign investment has widened the historical gap between northern and southern Jiangsu, and is likely to accelerate intercounty inequality in the future. Our study demonstrates the utility of the "developments from above, below and outside" framework for analyzing key forces of regional growth in socialist transitional economies. **Key Words:** regional development, regional inequality, China, Jiangsu.

## Introduction

The trends and underlying factors of regional inequality are hotly debated in scholarly work (e.g., Williamson 1965; Soja 1980; Smith 1984; Barro and Sala-I-Martin 1995). In socialist economies, regional inequality is a particularly burning issue as it is a point of disagreement between reformers and hardliners who are frequently involved in power struggles, and it is central to the discourse among scholars and policymakers who seek to balance equity and efficiency objectives so as to optimize development path and resource allocation (Schiffer 1989). While a number of governments embarked on plans to reduce regional inequality (Fuchs and Demko 1979), recent transformations of these nations introduced a host of new agents, in addition to the state, which play important roles in shaping the landscape of regional development (Fan 1995a; Smith 1996; Wei and Ma 1996; Bradshaw 1997; Lin 1997; Wei 1999).

For the first 30 years of the People's Repub-

lic of China (PRC), the state set out to reduce regional inequality. The Chinese economy is a highly complex one, and its transition to a "socialist market economy" since the late 1970s introduced even more complexities as both plan and market mechanisms coexist in not necessarily coordinated fashions. Reports of widening spatial disparities, fears of social unrest, and outcries from poorer regions forced policymakers to give regional policy a high priority, and stimulated studies of regional inequality. However, most existing studies focus on inequalities among large spatial aggregates such as provinces or groups of provinces. Partly due to data limitations, little attention is paid to inequalities that exist within provinces, such as those among cities and counties. On the other hand, many new agents of spatial change operate at levels below the provinces. Their roles are inevitably concealed in studies that employ only large spatial aggregates.

Existing research on China's regional inequality largely focuses on the trends of regional inequality, but does not provide detailed analy-

\*An earlier version of this paper was presented at the Annual Meeting of the Association of American Geographers, Fort Worth, TX, April 2-6, 1997. This research was partially supported by a Graduate School Research Committee award, University of Wisconsin at Milwaukee. We would like to thank Chiu-Ming Luk, three anonymous referees, and the editor for comments and suggestions which helped improve the paper.

ses of agents or factors of regional growth. Nevertheless, differential regional growth is a fundamental explanation for changes of regional inequality—faster growth of already developed regions will bring about increase in regional inequality, and their slower growth will result in a decline in regional inequality. This paper argues that factors and agents of regional growth must be analyzed in light of the complexities of the Chinese economy, and respective historical, geographical, and political-economic contexts. In post-Mao China, we identified three particularly powerful agents of regional growth, namely the state, the local agent, and the foreign investor. We attempt to conceptualize the effects of these agents in relation to the notion of “developments from above, below and outside,” following Fan (1995b). Through a case study of Jiangsu, we wish to show that these agents, each having differing objectives and hence varied impacts on regional development, jointly produced an economic landscape that is marked by two apparently contradictory trends: rapid growth in the core of the province and slower growth of cities.

In the next section, we give a brief review of existing knowledge about regional inequality in China. Then, we elaborate upon our research and conceptual framework, in relation to theories of regional inequality and the complexities of the Chinese transitional economy. After a short introduction to the Jiangsu province, we examine the roles of state policy, local agents, and foreign investment in regional development. This is followed by an empirical analysis of the inequality among county level units, and among groups of county level units within Jiangsu. The discussion and conclusion section summarizes our findings.

### **Regional Inequality in China**

Regional inequality has been at the center of scholarly and policy debates since the establishment of the PRC in 1949, due largely to the diverse views on the nature and practice of socialism, the balance between central control and local autonomy, and the role of market mechanisms. The PRC inherited a spatially uneven economy with a large coastal-interior imbalance, which was the basis of one of the “Ten Great Relationships” analyzed by Mao (1977)

in 1956. Partly because of socialist ideology and egalitarian ideas, and partly because of defense concerns, Mao argued for development of the interior, especially during the First Five Year Plan (1953–57) (Ma and Wei 1997). While studies of the Maoist period produced varied empirical evidence (partly because of variations in methodologies and study periods) (e.g., Pannell 1988; Cannon 1990; Lyons 1991; Fan 1995a; Wei and Ma 1996; Wei 1998), most suggested that Mao’s policy halted escalation of regional inequality, if not reduced it.

Since the beginning of reforms in 1978, China’s dominant development philosophy has shifted from self-reliance to efficiency, comparative advantage, and foreign investment and trade. The state encourages some regions to get rich first and emphasizes development of the coastal region, arguing that concentration of resources and specialization are necessary for speedy economic growth. Under the open door policy, coastal zones are designated for foreign trade and are encouraged to actively seek foreign investment. The early 1990s witnessed a temporary setback of these efforts because of the Tiananmen incident in 1989. But during Deng’s famous southern tour in January 1992, he called for deeper reforms toward a socialist market economy, which once again boosted the reform movement and coastal development.

Yet the reforms also rekindled the concern over regional inequality. Research documents a widening gap especially between coastal and inland China, accompanied by severe criticisms of the post-Mao regional policy (Fan 1997). Scholars and particularly authorities from inland and poorer regions argue that the reform policy has been unfair toward them, and blame it for the outflows of resources from inland to coastal regions, regional protectionism, and ethnic conflicts. Increasingly, regional inequality is identified as a root of China’s regional problems. Partly due to these criticisms, the Ninth Five Year Plan (1996–2000) shies away from the coastal development blueprint and instead advocates policies for narrowing regional inequality.

Despite a fairly large number of studies on regional inequality in post-Mao China (e.g., Lo 1990; Yang 1990; Lyons 1991; Fan 1995a, 1995b; Wei and Ma 1996; Wei 1998), there are obvious gaps in this literature. First, studies

based on aggregate data (e.g., interprovincial) are less capable of revealing detailed processes that shape regional development. Substantial spatial disparities exist within provinces. For example, Fan (1995a) shows that the observed decline in interprovincial inequality, widely noted in the literature, masked the rapid growth of selected regions in southern and eastern China, and the polarization and spatial restructuring within provinces (between urban and rural areas and between open zones and their hinterland).

Second, empirical studies have not yielded conclusive findings about the trends of regional inequality, partly because of data constraints and different research methods (Wei 1999). For example, both Rozelle (1994) and Fan (1995b) examined variations in gross value of industrial and agricultural output (GVIAO) per capita across Jiangsu's counties. But by studying only rural counties Rozelle notes increases in intercounty inequality in Jiangsu, while Fan's analysis of all counties reveals a decline of inequality during the 1980s. Clearly more empirical information about intraprovincial inequalities is needed.

Another gap involves the factors and processes of regional inequality. Although the reform policies have been identified as a prominent factor, how they engendered increases or decreases in regional inequality is not clear. Fan (1995a, 1995b) argues that both state policy and foreign investment reinforced spatial polarization in Guangdong, as the special economic zones and the Pearl River Delta diverged from the rest of the province, and that rural industrial enterprises (especially township-village enterprises or TVEs) were an important agent of regional development in Jiangsu. But there are few other studies of the processes of regional development, or attempts to systematically conceptualize these processes. In the following, we outline a conceptual and research framework that attempts to address specifically the factors underlying changes in regional inequality.

### **Conceptual and Research Framework**

Existing studies of regional inequality frequently employ approaches based on assumptions of free market economies and experiences of developed countries. Studies adopting neo-

classical theories maintain that efficient markets and factor mobility will equalize regional differentials (e.g., Borts and Stein 1964). Those drawing on the inverted-U model describe the rise in regional inequality during early stages of development and its decline as the economy matures (e.g., Williamson 1965; Friedmann 1966). Scholars favoring divergence theories, including those influenced by Marxist perspectives, hold that regional inequality and its increase are inevitable consequences of capitalism (e.g., Myrdal 1957; Soja 1980). Still others examine the product cycle theory and the roles of innovation and standardization in regional development, but do not give concrete explanations for regional inequality (e.g., Amos 1990).

These approaches are often competitive rather than complementary, and each captures at best only part of the picture of regional inequality. They are less relevant for explaining regional inequality in socialist or transitional economies, where agents of development and factor mobility differ from those in capitalist economies. In China, the transition to a socialist market economy, and the coexistence of plan and market mechanisms, created very complex situations that demand analytical approaches that are contextually sensitive and that identify, specifically, key agents of regional development. Recent research has pointed out that state policy and foreign investment play critical roles in shaping China's regional development. We argue that the local agent, especially in light of rural industrialization, is an emerging yet crucial agent of spatial change in China. While other factors may also exert some influence, we argue that the Chinese transitional economy offers unique opportunities for the concurrent operations of the state, local agents, and foreign investors, and that a synthesis of their roles is a powerful explanation of recent changes in regional inequality.

The state, the local agent, and the foreign investor each have different objectives, are accompanied by different types of resources, and offer differing but probably mutually reinforcing opportunities for economic development. Each has to be understood in the context of the transitional nature of the Chinese economy. In this paper we use the "development from above, below and outside" framework developed by Fan (1995b) to conceptualize these agents' differing roles in and implications for regional de-

velopment, and provide new empirical information with regard to the validity of this conceptual framework. "Development from above" (DFA) refers to processes of development attributable to government and/or external institutions (Stohr and Taylor 1981). These institutions tend to favor economic growth that begins in geographic clusters or cores, and are less eager to pursue strategies to reduce regional disparity. In China, both the state (during the post-Mao period) and foreign investors tend to behave like these institutions.<sup>1</sup> The state has designated certain regions and zones, mostly along the coast, and provided them with investment and preferential policies for rapid economic growth. Although the state anticipates diffusion of growth in the future, it has so far not provided strong incentives or instruments (commensurate with those for coastal development) for inducing regional diffusion. Foreign investors desire well-developed regions with skilled labor, good infrastructures and accessibility, and capacities for agglomeration economies, and are attracted to state-designated open zones where cost of production is low (Leung 1990). There is little incentive for them to pursue diffusion. To differentiate the roles of state policy and foreign investors, Fan (1995b) referred to the latter as "development from outside" (DFO).

On the contrary, the notion of "development from below" (DFB), conceptually analogous to "urbanization from below" (Ma and Fan 1994) but emphasizing regional economic growth, describes small-scale, rural-centered development mostly based on local resources and local community organizations (Grant 1973; Stohr 1981). Local agents are geographically more widespread and are more concerned with engendering rural economic growth that will likely narrow rural-urban gaps. Since the reforms, many cadres and enterprises in China's rural areas have been given unprecedented opportunities to promote rural industrialization. As will be shown later in the paper, rural industrial enterprises are a locomotive of economic growth in the countryside. Their impacts are aptly described as DFB.

DFA, DFB, and DFO are convenient concepts for analyzing the state, local agents, and foreign investors as agents of regional development in China. Yet a cautionary note is in order. In the classical versions of DFA and DFB,

they are designed as competing paradigms, emphasizing contrasting paths of development that involve deliberate planning, and representing dichotomous conceptual constructs that are mutually exclusive. In practice, however, these models of development often coexist and coalesce without necessary coordination. The transitional economy, in particular, is one which is most susceptible to the coexistence and interaction of multiple agents of development. In China, the state, local agents, and foreign investors are often mutually reinforcing in their impacts on regional development. Teasing out the independent contributions of each agent is a complicated exercise, and must involve detailed analysis of their roles in light of historical and geographic contexts. Previous research on regional inequality in China tends to focus on one or two of these agents, but seldom brings them together for a thorough analysis. Given the centrally planned economy which continues to accord considerable power to the state, the economic reforms which have managed to free up local resources and promote local entrepreneurship, and the almost full-throttle participation of China in the world market, we argue that analyses of the state, local agents, and foreign investors are necessary for a better understanding of the processes of regional development. In our case study of Jiangsu, we address the effects of the state, local agents, and foreign investors separately, as well as their combined effects.

## Jiangsu

Jiangsu is probably the most suitable candidate for implementing the research approach described above. First, it has directly benefited from the reform policies, and its growth trajectory reflects that of many other coastal provinces, such as Zhejiang and Shandong. The province has always been sensitive to state policy changes, partly because it is one of the more developed provinces and partly because of its close ties to Shanghai, which has long been an epicenter of political and economic change. Second, large regional disparities, especially between a poorer northern Jiangsu (Subei) and a richer southern Jiangsu (Sunan), have existed historically and concerned local governments. In fact, Jiangsu is often viewed as "two provinces in one" (Veeck 1995). An-

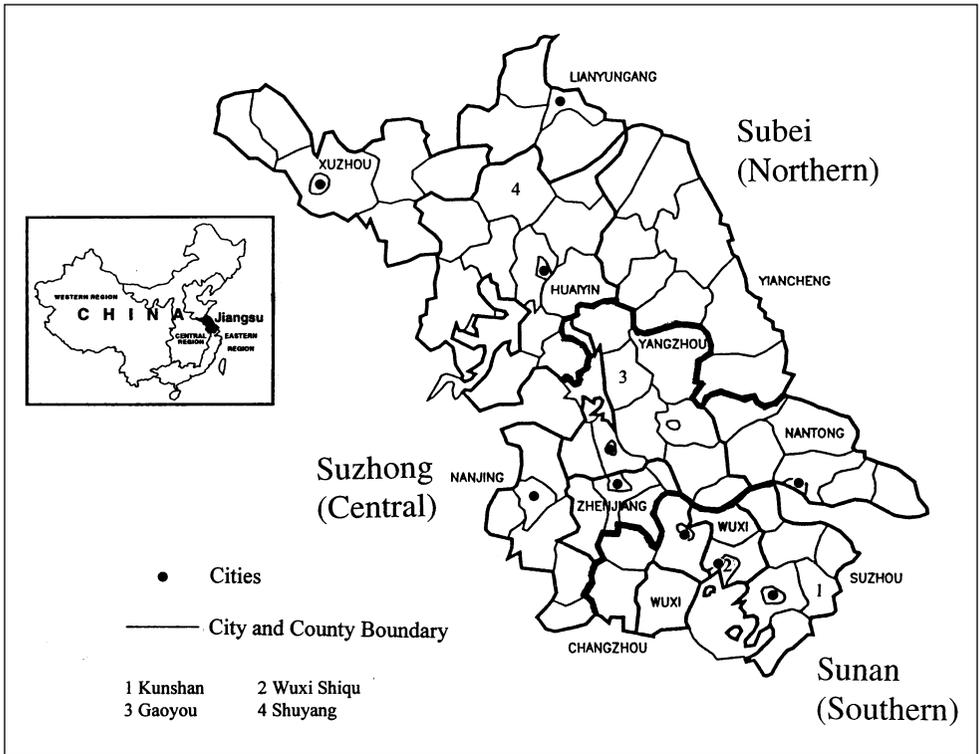


Figure 1: Regions in Jiangsu.

other notion that has gained favor is a three-fold division of the province into the south (Sunan), the central (Suzhong) and the north (Subei) (Fig. 1). Suzhong is considered a transition zone between Sunan and Subei. Regardless of which divisional scheme one prefers, spatial disparities within the province remain substantial.

Availability of subprovincial data provides another incentive for studying Jiangsu. Jiangsu Statistics Bureau recently published detailed county level statistics whose comprehensiveness is not matched by any other province (JSB 1990–1996; 1994b). In addition to analyses of these data, we will synthesize information gathered from our interviews with local officials and researchers in China to illustrate the roles of different agents in Jiangsu's development and to help us interpret the findings. Finally, in Jiangsu the interplay and interaction of a multitude of agents of development can be observed, as illustrated in the next section.

## Underlying Factors and Agents of Regional Development

### *State Policy and Regional Development*

The state has played an important role in China's regional development, by implementing "from above" macropolicies that focus development in selected regions. Maoist industrial policy mostly favored large-scale industrial development, and diverted resources to state-owned enterprises (SOEs) that were highly represented in cities. Therefore, cities generally enjoyed faster economic growth than rural areas (often represented by counties). But Jiangsu has traditionally been less dependent on SOEs. By contrast, township and village enterprises (TVEs) in Jiangsu were able to grow and expand during periods of decentralization and rural industrialization (Ho 1994). When Mao called for rapid industrialization in 1958, for example, the leaders of Jiangsu required that every commune start 15 to 25 small enter-

prises within three to five years and, consequently, 39,000 commune enterprises were established (Editorial Committee 1989). Then, in 1970, Premier Zhou Enlai called for development of rural industries for supporting agricultural mechanization and for processing agricultural products. These macrodirectives promoted development of collective enterprises in Jiangsu and cultivated a firm base for rural industrialization within the commune system that paved the way for the phenomenal growth of TVEs after the commune system was dismantled in the 1980s (Christiansen 1992).

Post-Mao reforms further stimulated economic growth in Jiangsu and benefited Sunan disproportionately. First, new fiscal contract systems implemented in the late 1970s and 1980s gave coastal provinces, including Jiangsu, more fiscal autonomy and incentives (Wei 1996). Accordingly, local governments and enterprises have been given greater autonomy in investment decision making and greater access to different sources of investments, such as bank credits, enterprise funds, and foreign capital, and are motivated to allocate their investments in order to maximize returns. More developed regions like Sunan enjoy early implementation of reform policies and are allowed to retain larger shares of their revenues for reinvestment.

Second, the reforms defined a climate that promotes development of nonstate enterprises, especially TVEs, through policies of low tax rates, budget bonus, and new labor policies. In Jiangsu, TVEs are an important reason for the

province's rapid industrial growth (Veeck and Pannell 1989; Prime 1992). Since Sunan has a larger nonstate sector (79.2% compared with 58.1% in Suzhong and 59.7% in Subei in 1995 [JSB 1994]), it is able to quickly capitalize on the reform policies. For example, in 1995, fixed asset investment per capita in rural collective enterprises was 1,770 yuan in Sunan, and only 315 yuan in Subei (Table 1). On the other hand, the SOEs that continue to operate under the pre-reform socialist mold lag in efficiency and growth. For example, in 1995 the ratio of profits and taxes to fixed assets was the lowest for SOEs. Subei, which is more dependent on SOEs, has not shared Sunan's growth. By the same token, the concentration of SOEs in urban areas is expected to correlate with slower growth of cities, while TVEs, mostly in rural areas, are expected to stimulate the growth of counties.

Third, the state has designated open zones for attracting foreign investment to Jiangsu, one of the first provinces "opened up" as a result of the open door policy. Like in most other provinces, open zones selected by the state are in or near more developed regions, which enjoy preferential policies such as tax relief for using foreign capital, tariff reduction on imports, and greater retention of exchange earnings. In Jiangsu, these preferential policies concentrate in Sunan.

The above shows that state policy in the post-Mao period permits locally-based agents, particularly local governments and TVEs, to exert greater influence on regional develop-

*Table 1* Major Indicators in Sunan, Suzhong, and Subei

	Average	Sunan	Suzhong	Subei
GVIAOP (1990 constant prices)				
1950 (Yuan)	334	454	338	260
1978 (Yuan)	1,291	2,000	1,404	852
1995 (Yuan)	11,129	25,983	10,995	4,667
1950-78 Average Annual Growth (%)	4.9	5.4	5.2	4.3
1978-95 Average Annual Growth (%)	13.5	16.3	12.9	10.5
1995 Output of Township Enterprises Per Capita (Yuan)	5,921	13,364	3,414	1,248
1995 Foreign Direct Investment				
Total (US\$ Millions)	4,781	3,447	1,034	273
Per Capita (US\$)	67.9	258.5	41.3	9.1
1995 Fixed Asset Investment Per Capita				
State-Owned Enterprises (Yuan)	853	990	958	349
Rural Collective Enterprises (Yuan)	460	1,770	499	315

GVIAOP: gross value of industrial and agricultural output per capita.

Source: JSB 1994b, 1996.

ment, and directs foreign investors to designated open zones. Rather than acting independently, forces “from above” reinforce local and external agents of development, which collectively engender changes in regional inequality.

#### *Local Agents and Regional Development*

Much research on China's regional development emphasizes the role of the state. Other relevant agents and forces that operate more locally are rarely addressed in the literature. Since the evaluation of local governments is a direct function of local economic development, and decollectivization has rendered local cadres more dependent on incomes generated locally, they have strong vested interests in the local economy. Accordingly, many local cadres have become bureaucrat-entrepreneurs who actively seek the capital needed for economic growth, and lobby the central government for preferential policy (Oi 1992). Unlike SOEs, TVEs are less controlled by state plans, and a large proportion of their profits can be retained in local coffers. Therefore, local cadres are especially keen on mobilizing communal capital and transforming it into the basis for successful TVEs, and turning TVEs into more efficient and market-oriented enterprises.

Yet the work of local governments and entrepreneurs is not unconstrained but must be interpreted in the context of the locality's historical and geographical conditions. Since the 1950s, Subei has been designated for the development of heavy industry and agriculture, with very little investment given to light industry. This inertia has impeded development of TVEs in the reform period. In 1994, the share of the primary sector in output was 32.5%, 13.7%, and 7.2% for Subei, Suzhong, and Sunan respectively. In 1995, per capita output of township enterprises was much higher in Sunan (Table 1).

Although TVEs are primarily rural enterprises, those near large cities are locationally more advantaged. TVEs in Sunan's rural areas are close to a multiplicity of cities, e.g., Shanghai, Suzhou, and Wuxi, and have established cooperation with enterprises and research institutes in the cities (Veeck and Pannell 1989), benefiting from the resultant economic, technical, and market linkages. Sunan's proximity to Shanghai in particular has aided its TVE growth. Shanghai was seceded from Jiangsu to

become a provincial level administrative unit in 1929, and in 1958 Shanghai annexed ten more counties from Jiangsu. During Mao's regime, numerous youths and intellectuals in Shanghai were “rusticated” to Jiangsu, particularly to Sunan (Du and Gu 1987), to “learn from the peasants.” They have indeed become a primary source of technical and management know-how for rural industrialization in Jiangsu, and forged production and marketing ties between Jiangsu and Shanghai.

TVEs lack direct backing of the central government, but must derive their production inputs primarily from local sources. Sunan's relatively stronger agricultural bases, which provided raw materials for industrial production and enabled capital accumulation for investment, and its more abundant human resources, as reflected by higher levels of education, skills, and managerial know-how, provide favorable conditions for TVEs. The growth of TVEs in Sunan, supported by favorable local endowments and active roles of local governments and entrepreneurs working “from below,” has further polarized Sunan and Subei since the mid-1980s (see empirical analysis).

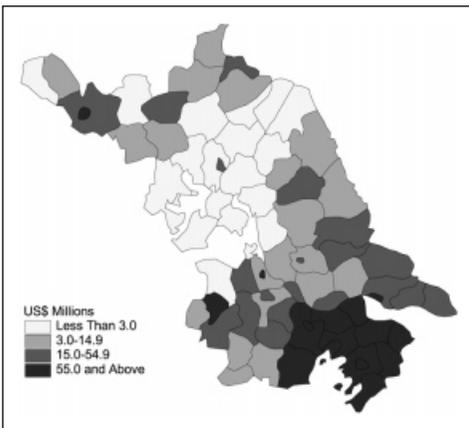
#### *Foreign Investment and Regional Inequality*

An important outcome of China's reforms is the increasing role of agents “from outside,” especially foreign investment, in shaping regional development (Leung 1990; Fan 1995a). The open door policy sets aside open zones that enjoy preferential policies and decision making power in terms of foreign investment and trade. In these zones, concessions such as low land cost and tax breaks are offered to attract foreign direct investment (FDI). Those regions in China first allowed or selected to “open” for foreign investment have benefited disproportionately because they are able to translate FDI quickly into income and employment, which in turn stimulate local economic growth and attract resources such as domestic investment and migrant labor. Jiangsu is among several coastal provinces that have benefited considerably from the preferential open door policy. Foreign investment has been conducive to promoting rural industries in Jiangsu, especially in Sunan (Su and Veeck 1995).

The distribution of FDI is spatially uneven, partly due to the regional bias of the open door

policy. Jiangsu's largest and most successful open cities and zones are in or near Sunan. While Nantong (in Suzhong) and Lianyungang (in Subei) were among China's 14 "open coastal cities" designated in 1984, Suzhou, Wuxi, Changzhou, and 12 counties in Sunan became open zones in 1985 (Fig. 1). Economic growth in Sunan further motivated the central and local governments to designate more open zones there. In 1988, the first wholly foreign-owned enterprise in Jiangsu was established in Changzhou, also in Sunan. While Kunshan and Zhangjiagang in Sunan are two of the largest county level open zones in China, cities in Subei such as Xuzhou and Huaiyin remain not "opened."

Foreign investors who come to China are interested in locations where they can enjoy preferential treatments, and where infrastructure is well developed and cheap labor is available for minimizing the cost of production. The cost minimization objective, combined with the state's spatially biased open door policy and local factor endowments, resulted in the concentration of FDI in Sunan (Fig. 2). In 1995, 72.1% of FDI in Jiangsu concentrated in Sunan; Suzhou alone attracted 48.7% of total FDI (JSB 1996). Total amount of and per capita FDI in Subei were considerably less (Table 1). In 1995, the leading cities/counties of FDI were all in Sunan—Zhangjiagang (US\$600 million), Kunshan (US\$505 million), Jianguyin (US\$252 million), and Wuxian (US\$251 million).



**Figure 2:** *Regional distribution of foreign direct investment in Jiangsu, 1995.*

The concentration of FDI in Sunan, in conjunction with favorable state policy and local factors there, has engendered a coalescence of ingredients of economic growth which are expected to further widen the gap between Sunan and the rest of the province. Moreover, the concentration of SOEs in urban areas is expected to decelerate the growth of cities, while the TVEs, mostly in rural areas, are expected to stimulate the growth of counties.

### **Empirical Analysis: Regional Inequality in Jiangsu**

The main objective of our empirical analysis is to document changes in regional inequality within Jiangsu.<sup>2</sup> A high level of regional inequality depicts large spatial disparity in development, and changes in regional inequality signal and are a function of changing trends of regional growth. Using county level units (counties and cities), which are the basic building blocks of China's administrative divisions, we evaluate the inequality among all the counties and cities in Jiangsu.<sup>3</sup> Since our focus is on spatial disparity among county level units, spatial or social inequalities within them are beyond the scope of this paper. However, to the extent that a city or county's level of development correlates with the average wellbeing of its residents, our analysis highlights the discrepancy in average wellbeing among cities and counties. We also aggregate prefecture level data for studying the disparity among Sunan, Suzhong, and Subei. To differentiate the two scales of analysis, inequality among Sunan, Suzhong, and Subei is referred to as interregional inequality, and that among counties and cities intercounty inequality. A set of time-series data (1950 to 1995) is used for documenting temporal changes of inequality.<sup>4</sup>

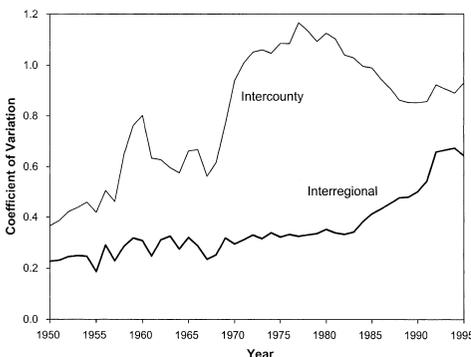
The empirical analysis employs GVIAO per capita (GVIAOP), a popular indicator of regional economic development in China (e.g., Rozelle 1994), as a summary measure of the level of development in Jiangsu's cities and counties. We use GVIAO and GVIAOP for three reasons. First, GVIAO is the only county/city level economic indicator with a full array of time-series data for Jiangsu from the 1950s to the 1990s. While national income and gross national product include all economic sectors, the limited time span of such data se-

verely constrains their utility for temporal analysis. Second, GVIAO indeed accounts for the bulk of economic output in Jiangsu, and as such is expected to correlate strongly with income and average wellbeing of the residents of cities/counties. Third, GVIAO is by far the most reliable indicator of city and county economies, since the Chinese socialist accounting system is complex (Lyons 1991), and since heavy and miscellaneous subsidies render wages not an accurate measure of economic well being. For temporal changes, we use data in comparable prices (real GVIAO), calculated from growth indices (see Chen and Fleisher (1996) for the transformation). Among commonly used indices of inequality, we selected the coefficient of variation (CV) and the location quotient (LQ) for their simplicity in calculation and interpretation.

#### *Interregional Inequality*

Figure 3 shows that interregional inequality registered a small increase during Mao's era (1950–1978), contrary to the conventional view that Maoist policy counteracted an increase in regional inequality. The CV increased from 0.23 in 1950 to 0.33 in 1978. From 1950 to 1978, the gap between Sunan and Subei increased from 194 yuan to 1,148 yuan, and that between Sunan and Suzhong rose from 116 yuan to 596 yuan (Table 1). Although agricultural productivity in Subei witnessed some improvement, Sunan grew even faster due to its firm base in industrial growth.

During the post-Mao period, interregional inequality experienced an even bigger increase



**Figure 3:** Trends of regional inequality in Jiangsu, 1950–1995.

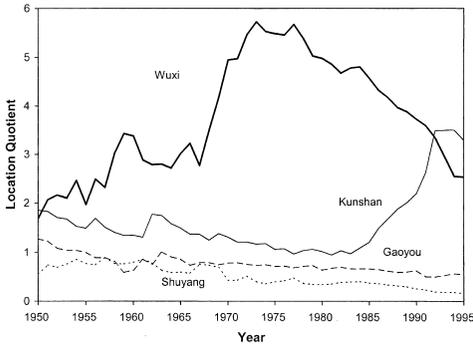
(Fig. 3). This was particularly the case since 1985, when China's urban industrial sectors, following the success of agriculture, began to undergo substantial reforms. Sunan, with its relative advantages in industrial development, benefited disproportionately from urban industrial reforms and the open door policy, and as a result outgrew Subei and Suzhong. The CV reached 0.64 in 1995, doubling its level in 1978. The gap between Sunan and Subei rose to 21,316 yuan, and that between Sunan and Suzhong to 14,988 yuan, in 1995 (Table 1). In the 1990s, the north-south divide, or more precisely the gap between Sunan on one hand and Subei and Suzhong on the other, is larger than ever in PRC history.

Table 1 shows that during Mao's era, the average annual growth rate of GVIAOP in Sunan (5.4%) was only slightly higher than in Suzhong and Subei (5.2% and 4.3%). Between 1978 and 1995, however, the average annual growth rate of GVIAOP in Sunan was 16.3%, much higher than that of Subei (10.5%) and Suzhong (12.9%). In 1995, Sunan's GVIAOP reached 25,983 yuan, compared to 4,667 yuan in Subei, which accounted for 42.8% of Jiangsu's population but only 22.6% of its GDP.

#### *Intercounty Inequality*

The inequality among counties and cities has always been higher than that among Sunan, Suzhong, and Subei, as shown in Figure 3, due primarily to greater inequality between urban (cities) and rural (counties) areas. The trend of intercounty inequality also differed from that of interregional inequality. The former registered big increases during the late 1950s and the 1970s, corresponding to two periods of decentralization in China, when the central government gave provinces greater autonomy in economic development. Cities and more developed counties in Jiangsu, which had richer resource bases to start with, benefited considerably from decentralization. As a result, the intercounty CV reached its highest level in 1977, just before the reform in 1978.

In contrast to the increase of interregional inequality since the reforms, intercounty inequality declined during the 1980s. A closer look at the data shows that the declining trend was due to the relatively slower growth of cities and faster growth of some counties. We se-

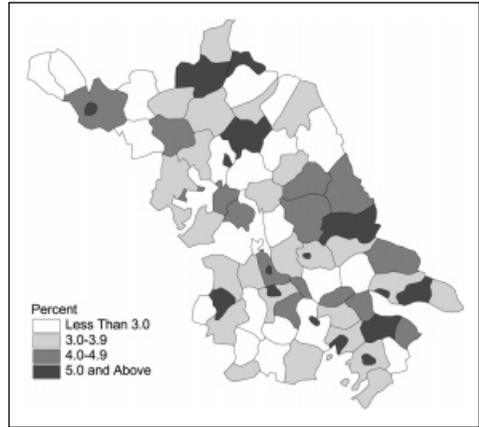


**Figure 4:** Change of location quotients in selected cities and counties, 1950–1995.

lected one city in Sunan (Wuxi), one county in Sunan (Kunshan), one county in Subei (Shuyang), and one county in Suzhong (Gaoyou), to illustrate these dynamics (Fig. 1). Wuxi is selected to represent older cities with high per capita incomes. Kunshan is selected to represent counties that started out poorer but experienced rapid growth since the reforms. Shuyang and Gaoyou are poorer counties in Subei and Suzhong respectively.

As shown in Figure 4, the relative economic position (reflected by LQ) of Wuxi declined, in contrast to the increasing trend of Kunshan, during the reform period. Many other cities shared Wuxi's experience, and counties in Sunan shared the experience of Kunshan. The slow growth of cities was largely due to the dominance of SOEs, which were less efficient especially when compared with nonstate enterprises. Other factors that hampered the economic growth of many cities included stronger government control, more rigid bureaucracy, overburdened urban infrastructure, and limited land for development. Many counties, on the other hand, were able to profit from more flexible TVEs. In the mid-1990s, several counties (e.g., Wujiang and Kunshan) have grown so rapidly that their per capita incomes were higher than many cities, accounting for a small renewed increase in intercounty inequality (Fig. 3).

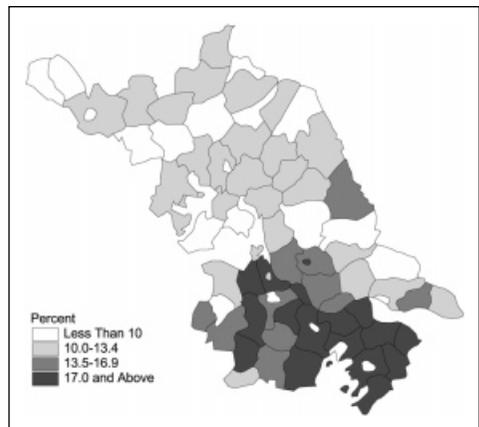
Maps of GVIAOP growth rates can further illustrate the trends of interregional and intercounty inequalities reviewed above. Figure 5, for the period 1950–1978, shows that cities as a whole grew faster than counties. Apart from a



**Figure 5:** Average annual growth rates of gross value of industrial and agricultural output per capita (GVIAOP), 1950–1978.

small number of counties adjacent to large cities (e.g., Suzhou, Wuxi, and Changzhou), most counties lagged significantly in economic growth. The widening gap between cities and most counties resulted in a surge of intercounty inequality during this period.

By contrast, cities in general grew slower than counties during the reform period (Fig. 6). Since the slower growth of cities offsets the faster growth of counties, the net effect is a decline in intercounty inequality. But this by no



**Figure 6:** Average annual growth rates of gross value of industrial and agricultural output per capita (GVIAOP), 1978–1995.

means signals more even regional development, since Sunan as a whole grew faster than Suzhong and much faster than Subei, which also led to the observed increase in interregional inequality. None of the high growth counties was found in Subei. Most counties in Subei were already very poor to begin with; their lagging growth further depressed their relative economic positions in the province. The widening gap between Sunan and the rest of Jiangsu is even more alarming when some counties in Sunan, such as Wujin and Wuxian, have by the mid-1990s achieved higher levels of GVIAOP than cities in Subei. In short, the age-old regional delineation within Jiangsu continues to define uneven regional development within the province.

In order to evaluate the relative contributions of state policy, local factors, and foreign investment to regional differentials in economic growth, we conduct a regression analysis with growth rate of GVIAOP (GROWTH) as the dependent variable.<sup>5</sup> The units of analysis are counties and cities in Jiangsu. The period of analysis is from 1985, the beginning of urban industrial reforms in China, surge of interregional inequality, and decline of intercounty inequality in Jiangsu (Fig. 3), to 1995. We selected several independent variables that emphasize the roles of various agents and mechanisms of regional growth (Table 2).<sup>6</sup> INVESTMENT is growth rate of fixed asset investment per capita. It is selected to represent the effect of the state, through its investment policy, and is expected to positively relate to re-

gional growth. STATE-ENTERPRISES is share of state-owned enterprises in a region's fixed asset investment, and is a proxy for the importance of the state sector in the regional economy. Given the increasing role of nonstate sectors, especially sectors based on local resources and agents such as TVEs, and the declining role of state-owned enterprises, we expect STATE-ENTERPRISES to negatively relate to GROWTH. Thirdly, to estimate the effect of foreign investment, we selected foreign direct investment per capita (FOREIGN) as another independent variable. It is expected to positively contribute to GROWTH. Fourthly, a dummy variable (CITY), with values equaling one for cities and zero for counties, is selected to represent variations in growth between cities and counties. Lastly, we include average annual growth rate of GVIAOP in the 1978–1985 period (GROWTH7885) to reveal whether those growing faster during the 1978–1985 period continued to grow faster after the mid-1980s.

Table 2 summarizes the results of regression analysis. The regression model as a whole is highly significant. Most of the regression coefficients are significant at the 5% level. We conducted tests for multicollinearity and spatial autocorrelation of the residuals, and the results suggest that the regression coefficients are reliable and that the regression model is not misspecified.<sup>7</sup> The five independent variables together explain 58.9% (R square) of the variation of GROWTH. GROWTH is positively related to INVESTMENT, FOREIGN,

**Table 2** Results of Regression Analysis

Independent Variable	Coefficient	Standardized Regression Coefficient	T-Value	Significance Level (P)
INVESTMENT	0.235	0.402	4.390	0.001
STATE-ENTERPRISES	-0.083	-0.194	-2.248	0.028
FOREIGN	0.578	0.379	4.131	0.001
CITY	-3.135	-0.185	-1.615	0.111
GROWTH7885	0.461	0.242	2.685	0.009
Constant	6.409	0.000	1.647	0.104
Dependent Variable GROWTH				
R = 0.767    R Square = 0.589    Adjusted R Square = 0.559				
F = 19.767    Significant level (P) = 0.001				

Notes: GROWTH is average annual growth rate of gross value of industrial and agricultural output per capita (%), 1985–95; INVESTMENT is average annual growth rate of fixed asset investment per capita (%), 1985–95; STATE-ENTERPRISES is share of state-owned enterprises in the region's fixed asset investment (%), 1990; FOREIGN is per capita foreign direct investment, 1990 (US\$); CITY is a dummy variable with values = 1 for cities and 0 for counties; and GROWTH7885 is average annual growth rates of gross value of agricultural and industrial output per capita (%), 1978–85

and GROWTH7885, whose standardized regression coefficients suggest that they are the most important determinants. In other words, regions that benefited from state policy, received more foreign investment, and grew faster in the early reform period tended to grow faster in 1985–1995. The finding for GROWTH7885 has important implications for regional inequality, namely, if the growth trajectories of cities and counties in Jiangsu continue, then intercounty inequality will increase in the future, which is already signaled by a slight increase in intercounty CV in the mid-1990s (Fig. 3). GROWTH is negatively related to STATE-ENTERPRISES, suggesting that regions that depended heavily on the state sector grew slower. Finally, though the coefficient of CITY is only barely significant at the 10% level, its negative sign is consistent with our earlier observation that cities grew slower than counties in the reform period. The coefficients of STATE-ENTERPRISES and CITY together confirm that nonstate sectors, which were more highly represented in counties, were more conducive to regional economic growth. A comparison of standardized regression coefficients suggests that state policy (INVESTMENT) remains a leading factor of regional growth in Jiangsu, and that at the same time local agents (nonstate sectors) and foreign investment (FOREIGN) also emerged as important factors.

## Discussion and Conclusion

Our analysis shows that during Mao's era, interregional inequality in Jiangsu increased, primarily due to the growth of Sunan, while faster growth of cities contributed to an increase in intercounty inequality. Since the reforms, Sunan's growth was even faster, further widening its gap with Suzhong and Subei. Meanwhile, cities in Jiangsu grew slower than counties, resulting in a decline in intercounty inequality.

We argue that regional inequality in Jiangsu must be understood through a scrutiny and synthesis of the effects of the state, the local agent, and foreign investors. The growth of Sunan during both Mao's era and the reform period reflects the work of these three agents of development. While Maoist policy focused primarily on urban industries, which stimulated the growth of cities, it also laid the foundation

for TVEs (especially in Sunan) through decentralization and rural industrialization programs. Post-Mao policies are even more favorable toward Sunan, which has benefited from preferential financial, industrial, and open door policies. State policy has provided macrolevel "development from above" mechanisms that targeted selected locations for rapid economic growth, and escalated interregional inequality in Jiangsu.

Agents "from below" and local political-economic and historical-geographic factors further reinforced Sunan's continued growth. Historically, Sunan has had relatively more abundant endowments, especially agricultural resources and human capital. Moreover, local governments in Sunan acted as development and entrepreneurial agents who actively lobby the central government, cultivate ties with foreign investors, and seek resources for local economic development. Sunan's close ties to Shanghai are another favorable factor. Subei and Suzhong, on the other hand, are in relatively disadvantaged positions in terms of resource endowments, the role of local governments, and proximity to Shanghai.

Foreign investment has emerged as an important factor of regional development since the open door policy. Much of the FDI concentrates in Sunan, because of the designated open zones there and because of foreign investors' locational considerations. Foreign investors, representing a "development from outside" agent, favor areas with conciliatory policy environments (e.g., open zones) and good infrastructures, and accordingly have focused their investment in Sunan rather than the poorer and less "open" Suzhong and Subei.

Similarly, changes in intercounty inequality also reflect the role of the above agents of development. Not only did Mao's policy favor Sunan, it also accelerated the growth of cities and brought about an increase in intercounty inequality. On the other hand, post-Mao economic reforms, which favor nonstate sectors, stimulated many rural counties, especially those in Sunan, to grow more rapidly. Local governments and local entrepreneurs, constituting a development force "from below," combined with foreign investors "from outside" to fuel the growth of TVEs in counties. By contrast, cities, whose economies are more likely dominated by SOEs and perhaps obsolete pro-

duction structures, experienced slower growth. This has offset the rapid growth of counties and resulted in a decline of intercounty inequality during the reform period. But during the early 1990s, a renewed increase of intercounty inequality signals that regional inequality in Jiangsu is more directly a function of the widening gap between Sunan and other parts of the province.

We have shown that a synthesis of three major agents of spatial change—the state, the local agent, and the foreign investor—is necessary for understanding the dynamics of regional development and changes in regional inequality in Jiangsu. They represent forces of development “from above,” “from below” and “from outside.” Rather than competing and acting in mutually exclusive fashions, their impacts coalesce and are mutually reinforcing in Sunan in general and in Sunan’s counties in particular. Our empirical analysis of Jiangsu demonstrates that Fan’s (1995b) “developments from above, below and outside” framework is an appropriate conceptual tool for analyzing the process of transition in socialist states, during which decentralization, marketization, and globalization increase the influence of local agents and foreign investors, while the state continues to exert control through its policies. We believe this framework is also relevant to other provinces in China, to other transitional economies as they promote decentralization and marketization, and to developing countries that are increasingly affected by globalization. ■

## Notes

<sup>1</sup> The Chinese state prior to the reforms, and to a certain extent since the mid-1990s, has indeed attempted to emphasize the need to reduce regional inequality. The DFA framework is perhaps most relevant for describing the early post-Mao period (late 1970s to early 1990s) when the state was especially keen on concentrated and uneven regional development.

<sup>2</sup> While most studies of China’s regional development focus on regional inequalities of income and output, Wei and Dutt (1992), for example, analyzed the regional inequality of health care in China.

<sup>3</sup> In China, county level units include cities (*shiqi* or city districts) and counties. These spatial units of analysis may constrain the investigation of spread effects at the edge of cities, but with the aid of maps we are able to show possible diffusion from Shanghai to Sunan (Fig. 6). Data at finer scales, such as those for a city’s built-up area and its suburbs, would

be required to fully examine spatial diffusion of development.

<sup>4</sup> Since Jiangsu Statistical Bureau (JSB) has not released the growth index for 1993, we averaged the inequality indices for 1992 and 1994 to estimate their respective levels for 1993.

<sup>5</sup> Growth rate of level of development is especially useful in this paper, which aims at deciphering the mechanisms behind changes in regional inequality. For example, when county level units with high GVIAOP experience low growth, one would expect a decline in regional inequality; when they continue to grow faster than others, an increase in regional inequality is likely. See also Jian et al. (1996) and Chen and Fleisher (1996).

<sup>6</sup> FOREIGN and STATE-ENTERPRISES are evaluated for 1990, the mid point of the 1985–1995 study period.

<sup>7</sup> The largest variance inflation factor (VIF) for independent variables is 2.2, indicating that severe multicollinearity (depicted by VIFs over 10) does not exist and that regression coefficients are reliable. We used joint account statistics, a simple but effective test for spatial autocorrelation of residuals (Clark and Hosking 1986). The results show that the absolute values of Z scores are all smaller than 1.96 ( $Z(NN) = 0.97$ ,  $Z(PP) = 0.34$ ,  $Z(PN) = -1.95$ ), indicating that spatial autocorrelation of regression residuals is not statistically significant and that our model is not misspecified.

## Literature Cited

- Amos, Orley M., Jr. 1990. Growth pole cycles. *Review of Regional Studies* 20(1):37–48.
- Barro, Robert, and Xavier Sala-i-Martin. 1995. *Economic Growth*. New York: McGraw-Hill.
- Borts, George H., and Jerome L. Stein. 1964. *Economic Growth in a Free Market*. New York: Columbia University Press.
- Bradshaw, Michael J. 1997. *Geography and Transition in the Post-Soviet Republics*. New York: Wiley.
- Cannon, Terry. 1990. Regions: Spatial inequality and regional policy. In *The Geography of Contemporary China*, ed. Terry Cannon and Alan Jenkins, 28–60. New York: Routledge.
- Chen, Jian, and Belton M. Fleisher. 1996. Regional income inequality and economic growth in China. *Journal of Comparative Economics* 22:141–64.
- Christiansen, Flemming. 1992. “Market transition” in China: The case of the Jiangsu labor market, 1978–1990. *Modern China* 18(1):72–93.
- Clark, W.A.V., and P.L. Hosking. 1986. *Statistical Methods for Geographers*. New York: John Wiley and Sons.
- Du, Wenzhen, and Jirui Gu, eds. 1987. *Population in China: Jiangsu (Zhongguo renkou: Jiangsu fengche)*. Beijing: China Financial Economy Press.
- Editorial Committee. 1989. *Dangdai zhongguo de Jiangsu (Contemporary China: Jiangsu)*. Beijing: The Chinese Academy of Social Sciences Press.

- Fan, C. Cindy. 1995a. Of belts and ladders: State policy and uneven regional development in post-Mao China. *Annals of the Association of American Geographers* 85(3):421–49.
- . 1995b. Developments from above, below and outside: Spatial impacts of China's economic reforms in Jiangsu and Guangdong Provinces. *Chinese Environment and Development* 6(1&2):85–116.
- . 1997. Uneven development and beyond: Regional development theory in post-Mao China. *International Journal of Urban and Regional Research* 21(4):620–39.
- Friedmann, John. 1966. *Regional Development Policy*. Cambridge: MIT Press.
- Fuchs, Roland J., and George J. Demko. 1979. Geographic inequality under socialism. *Annals of the Association of American Geographers* 69(2):304–18.
- Grant, James P. 1973. *Growth From Below*. Washington DC: Overseas Development Council.
- Ho, Samuel P.S. 1994. *Rural China in Transition*. Oxford: Clarendon Press.
- Jian, Tianlun, Jeffrey D. Sachs, and Andrew M. Warner. 1996. Trends in regional inequality in China. *China Economic Review* 7(1):1–21.
- Jiangsu Statistical Bureau (JSB). 1990–1996. *Jiangsu tongji nianjian (Jiangsu Statistics Yearbook)*. Beijing: Chinese Statistics Press.
- . 1994b. *Benxiang xiandaibua licheng (Pathways to Modernization)*. Nanjing: Jiangsu Statistical Bureau.
- Leung, Chi Kin. 1990. Locational characteristics of foreign equity joint venture investment in China, 1979–1985. *Professional Geographer* 42(4):403–20.
- Lin, George C.S. 1997. *Red Capitalism in South China*. Vancouver: UBS Press.
- Lo, C.P. 1990. The geography of rural regional inequality in Mainland China. *Transactions, Institute of British Geographers*, N.S 15:466–86.
- Lyons, Thomas P. 1991. Interprovincial disparities in China: Output and consumption, 1952–1987. *Economic Development and Cultural Change* 39:471–506.
- Ma, Laurence J.C., and Ming Fan. 1994. Urbanisation from below: The growth of towns in Jiangsu, China. *Urban Studies* 31(10):1625–45.
- Ma, Laurence J.C., and Yehua Wei. 1997. Determinants of state investment in China, 1953–1990. *Tijdschrift Voor Economische En Sociale Geografie* 88(3):211–25.
- Mao, Zedong. 1977. On the ten major relationships. In *Selected Works of Mao Tsetung*. Vol. 5, 61–83. Beijing: Foreign Languages Press.
- Myrdal, Gunnar. 1957. *Rich Land and Poor*. New York: Harper and Brothers.
- Oi, Jean C. 1992. Fiscal reform and the economic foundations of local state corporatism in China. *World Politics* 45(1):99–126.
- Pannell, Clifton W. 1988. Regional shifts in China's industrial output. *Professional Geographer* 40(1):19–31.
- Prime, Penelope B. 1992. Industry's response to market liberalization in China: Evidence from Jiangsu province. *Economic Development and Cultural Change* 41(1):27–50.
- Rozelle, Scott. 1994. Rural industrialization and increasing inequality: Emerging patterns in China's reforming economy. *Journal of Comparative Economics* 19:362–91.
- Schiffer, Jonathan R. 1989. *Soviet Regional Economic Policy*. London: Macmillan.
- Smith, Adrian. 1996. From convergence to fragmentation. *Environment and Planning A* 28:136–56.
- Smith, Neil. 1984. *Uneven Development*. London: Basil Blackwell.
- Soja, Edward. 1980. The socio-spatial dialectic. *Annals of the Association of American Geographers* 70(2):207–25.
- Stohr, Walter B. 1981. Development from below. In *Development From Above or Below?*, ed. Walter B. Stohr and D.R. Fraser Taylor, 39–72. Chichester: John Wiley and Sons.
- Stohr, Walter B., and D.R. Fraser Taylor, eds. 1981. *Development From Above or Below?* Chichester: John Wiley and Sons.
- Su, Shew-Juan, and Gregory Veeck. 1995. Foreign capital acquisition by rural industries in Jiangsu. *Chinese Environment and Development* 6(1&2):169–92.
- Veeck, Gregory. 1995. Introduction. *Chinese Environment and Development* 6(1&2):5–8.
- Veeck, Gregory, and Clifton W. Pannell. 1989. Rural economic restructuring and farm household income in Jiangsu, People's Republic of China. *Annals of the Association of American Geographers* 79:275–92.
- Wei, Yehua. 1996. Fiscal systems and uneven regional development in China, 1978–1991. *Geoforum* 27(3):329–44.
- . 1998. Regional inequality of industrial output in China, 1952 to 1990. *Geografiska Annaler* 80B(1):1–15.
- . 1999. Regional inequality in China. *Progress in Human Geography* 23(1):48–58.
- Wei, Yehua, and Ashok Dutt. 1992. Distribution of medical facilities in the People's Republic of China with particular reference to rural areas. *Indian Geographical Journal* 67(1):9–19.
- Wei, Yehua, and Laurence J.C. Ma. 1996. Changing patterns of spatial inequality in China, 1952–1990. *Third World Planning Review* 18(2):177–91.
- Williamson, Jeffrey G. 1965. Regional inequality and the process of national development. *Economic Development and Cultural Change* 13(4):3–45.
- Yang, Dali. 1990. Patterns of Chinese regional development strategy. *China Quarterly* 122:230–57.

YEHUA DENNIS WEI is Assistant Professor of Geography at University of Wisconsin-Milwaukee, Milwaukee, WI 53201. His research interests include regional development and planning, urban development and policy, globalization and international development, and China/Pacific Rim.

C. CINDY FAN is Associate Professor of Geography at University of California-Los Angeles, Los Angeles, CA 90095-1524. Her research interests center on regional development and population, with emphases on uneven regional development and migration in post-Mao China.