The Study of the Chinese Economy

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In recent years there has been an explosion in the quantity of research done on China’s economy by economists in the United States. There are several reasons for this. With Deng Xiaoping’s reform initiative, China became a fascinating example of a developing economy, an economy radically changing its economic system, and an economy entering the world system. In addition, China’s reforms opened the country to investigation by foreign scholars and paved the way for Chinese scholars to be trained in the field. Finally, and perhaps most important for the economics discipline, the reforms allowed for systematic data collection on unprecedented levels for that country. Since data are essential to economic analysis, the change in data access has had an enormous influence on the study of China’s economy.

The purpose of this chapter is to provide an overview of the issues, approaches, and problems of American economists who have studied China’s economy in recent decades, beginning with research done before the 1980s. New research opportunities that emerged in conjunction with reform in China and improved U.S.-China relations are discussed next. The impact these changes had on the field are then seen from a review of research done since 1980. This review underscores the importance of data in allowing a variety of methods and issues, but it also suggests that data problems are far from over. The chapter concludes with a discussion of the study of the Chinese economy as it relates to Chinese area studies and to the economics discipline generally.

Past Research: Studying from a Distance

The establishment in 1979 of formal U.S.-China diplomatic relations, together with reform in China, allowed U.S. citizens to travel to China and to engage in many types of exchanges. Before these events, studying China’s economy was a
radically different endeavor. (This was also true of other disciplines to varying degrees. See Chapter 2 by Harry Harding in this volume.) The following discussion of research on China's economy carried out before the 1980s is divided into two periods: before 1972 and between 1972 and the 1980s.

Before the early 1970s the way people studied China's economy was largely shaped by the paucity of data. Most data that were available were for the First Five-Year Plan period (1953–57). Other information was obtained from the Central Intelligence Agency or interviewees in Hong Kong, and by extrapolating from policy statements printed in the official Chinese press. Walter Galenson, in a review of the field in 1967, described the situation this way:

The Chinese have gone far beyond the Russians (in data suppression), and, indeed beyond any major nation in modern times. Most books, journals, and newspapers have been embargoed, so effectively that they are not even available in Hong Kong. Those few that still come through contain almost no economic data. There is an occasional statement about the success of an individual enterprise in raising its output, and a few percentage increase claims have been released. ... Visitors have been given an odd figure or two. But there is nothing of a systematic character; not even plan targets. Indeed, we do not know whether China is actually operating under a 5-year plan. (Galenson 1967, 4)

From this distant vantage point, few standard economic theories seemed relevant to the Chinese case. Throughout the 1950s agriculture was being collectivized and industry and commerce were being nationalized, following the example of the Soviet Union. With the Great Leap Forward, China diverted from the Soviet path, but in a way that did not fit the experience of other developing countries. These factors, combined with studying China from a distance, influenced the type of research that was done on China by U.S. scholars at the time.

If standard theories were not useful, developing new ones applicable to China was an option. This was discouraged, however, by the lack of data needed to test the theories. As a result, few people spent time on theoretical research applicable to China. The little work of this nature that was done raised insightful questions, but delivered only general answers that could have been achieved just as well using other methods. (See Dwight Perkins's [1983, 349] review of economic research on China.)

Not surprisingly, under these circumstances most economic research done before the mid-1970s described institutions and policy, or measured economic performance. Even within this type of research, methods were limited because many techniques were inappropriate to use with such a crude database. Reconstruction of basic statistical series, for example, resulted in a wide range of performance estimates because of the necessity of making numerous fundamental assumptions (Perkins 1983, 349–51; Chao 1980). To their credit, researchers were very sensitive to data problems and spent much time reconstructing official
Chinese figures as well as dealing with the problems of converting these data for international comparisons. (See Chao 1974; N. Chen 1967; Chin 1968; Eckstein 1961, 1980; Field et al. 1975, 1976; Hollister 1967; Liu and Yeh 1965.) This careful work provided the foundation for what was known about China's economy by those on the outside looking in.

Interdisciplinary approaches also characterized research on China's economy at that time. Economists generally found it useful to consider non-economic variables and constraints, especially in the political realm. (See Demberger 1980; Eckstein 1966, 1976, 1977; Perkins 1966, 1969, 1975; Prybyla 1970, 1981a; Rawski 1980; Riskin 1978.) With a planned system and socialist goals, economic decisions were explicitly influenced by politics. Further, the lack of consistent economic data meant that economists had to search for other types of information to understand the problems they were dealing with. This approach provided a richness for understanding China but not for advancing knowledge of general economic relations per se. Hence at that time the study of China was only tangential to the economics discipline in the United States.

The importance of non-economic phenomena carried over into the focus of research as well. Harry Harding, in Chapter 2 in this volume, discusses the importance of totalitarianism as a paradigm during these early years of scholarship on China. For economists, the corollary was central planning. While political scientists were addressing the mechanisms of social control, economists were studying the means, extent, and results of economic control. The general conclusion was that while planning might not be successful in achieving efficiency or quality goods, it appeared to be effective in putting control of the economy in the hands of central elites.

In the 1970s the situation with respect to economic data began to change, albeit slowly. The United States had not yet established diplomatic relations with China, but Richard Nixon's visit in 1972 had opened the way for U.S. citizens to travel to China. Researchers obtained access to Chinese publications containing more than just rhetoric about socialist economic policy. The State Statistical Bureau began to function again after being essentially closed down during the Cultural Revolution. The reconstruction of figures for missed years was undertaken, as well as reestablishing the system for collecting national and subnational economic data. All these changes allowed renewed work on the economy with more choice with respect to approaches. In this period important studies by Nicholas Lardy (1978), Thomas Rawski (1980), and others were produced.

Along with new information came reevaluation of the effectiveness of central planning. Lardy and Audrey Donnithorne initiated a lively (and continuing) debate over the effect of several waves of decentralization on resource allocation and decision-making (Donnithorne 1976a, 1976b; Lardy 1975, 1976). As the 1970s progressed, many studied how planning was changing as a result of the combined effects of worsening economic performance and the disarray of key institutions as a result of the Cultural Revolution (Field et al. 1975, 1976; Kravis
1981; Lardy 1978; Prybyla 1981a, 1981b; Wiens 1982a; C. Wong 1982). This work provided the basis for understanding that economic reform was needed in China. It did not, however, capture the extent of the problems or anticipate the magnitude of the reform program that would be undertaken.

New Opportunities in the 1980s

Important as the effect of expanded information was in the 1970s, it paled compared with what followed. In the 1980s access to information and statistical data on China's economy changed dramatically. This included data for the reform period as well as new information about the entire post-1949 period and even the pre-1949 economy. The improvement included both the quantity and quality of information and the ease with which it could be obtained. Researchers no longer had to comb press releases for every piece of information. Statistical yearbooks for the country, provinces, cities, and individual sectors have become widely available. Moreover, on-site surveys, interviews, and collaborative work with Chinese colleagues also became possible.

Simultaneously China was rapidly changing. This opened the field to a myriad of new, pressing questions. Before these could be addressed, the first task was to learn what was happening and to share this with non-China specialists as well as with others in the field.

Many Economies, Many Players

Change in China also significantly altered the types of research done and who was doing research on China's economy. There are three aspects of special importance. The first is that micro and regional case studies, including surveys, have changed the way economists do research in China and the way they view the economy generally. Not long ago economic research on China was largely done at the national level. There were only a few provincial-level studies (Field et al. 1975, 1976; Lardy 1978) and work on micro units and the linkages between them relied heavily on anecdotal evidence. (At least one earlier study was based on enterprise interviews, Richman 1969.) In the 1980s analyses of subnational units became not only possible but perhaps essential to understanding economic change in China. (Some examples are economic studies of provinces: Denny 1991; Lyons 1991; Prime 1987, 1992a, 1992b; Sicular 1986b; Walker 1989; World Bank 1988c; counties and cities: Byrd 1988b; Byrd and Lin 1990; Jefferson 1989, 1991a; Kueh 1983; Lavely 1984; Pannell 1986; Pannell and Welch 1980; Wiens 1982a; C. Wong 1986b; Wortzel 1983; state enterprises: Byrd et al. 1984; Granick 1990; Jefferson 1990; rural collectives: Lin 1987, 1988; Puttermann 1987, 1988a, 1990a; Sicular 1986a; and urban households: Hu et al. 1988; Veeck and Pannell 1989.) The possibilities abound; for example, surveys of enterprises and households; case studies of provinces, cities, counties, villages,
households, and enterprises; and extensive interviews with leaders as well as
groups working and living in a variety of situations. Chinese scholars in China
are also actively conducting surveys, collecting data, and researching China's
economy. And since joining the International Monetary Fund and the World
Bank in 1980, China has provided data and other information as required by
these institutions.

As these data become available, many interesting questions can be explored.
Work already done has shown significant variations between and within prov-
inces, between urban and rural areas, and by type of enterprise. County-level
data make it possible to study regions defined by economic variables rather than
administrative boundaries. Micro studies have also revealed complex relation­ships between levels of government administration and economic actors. Analyz­
ing these relations is crucial for explaining China's pattern of economic
development.

Although a full evaluation of this work for broad implications for the field
and for China's economy is premature, one result does stand out. The notion that
there is one Chinese economy may be gone forever. Researchers have discovered
that what is relevant for one part of China may not be relevant at all for another
part. The variations apply to policy, performance, institutions, and how things
actually get done. This raises a question for further research: Is the extent of
regional variation primarily a result of China's reforms, or is it an accurate
characterization of earlier decades as well?

Generalists Join the Field

A second way in which the study of China's economy has changed in the last
decade is that economists with little or no previous experience with China
have begun to address their particular issues using the Chinese case. For
example, David Granick (1990) applied a property-rights framework to China, a
framework that he developed over many years within the context of the
Soviet Union and central Europe. (Examples of other U.S. economists who
have not specialized in China but who have recently engaged in research on
China's economy are Adelman and Sunding 1987; Anderson and Tyers 1987;
Bahl 1988; Bahl and Zhang 1989; Balassa 1987; Feder et al. 1989; Gordon
and Svejnar 1990.) One strength of works by scholars with varied back­
grounds is the ability to identify China's similarities and differences with
other economies—characteristics and relationships that are less obvious to
those who concentrate primarily on the Chinese economy. Many of the pro­
jects that these people have been involved with have been the result of some
form of collaboration with Chinese scholars. Such collaboration is one way to
overcome the language and data interpretation challenges that face students
of China.
The Next Generation of Scholars of China’s Economy

The third significant way in which China’s opening and reform has affected the study of China’s economy is the training of Chinese scholars, working both inside and outside of China, who are concerned with their own economy. Many of these scholars studied at universities in other countries, while others benefited from programs such as the Committee on Economics Education and Research in China, Fulbright, and others that arrange for foreign professors to teach in China.

This group of scholars is just emerging since some of them have only recently been awarded their Ph.D.’s. Nonetheless, these researchers have already made major contributions to the study of China’s economy and will no doubt transform it appreciably. In the United States the China Economists Society was formed in 1984 to support students from China studying China’s economic problems. This group supports its own journal dedicated to publishing research on China’s economy.

Economic Research on China since 1980

To look more specifically at what type of research was done in the 1980s and early 1990s it is helpful to organize recent work according to the following categories: 1) theory; 2) institutions, policy, and performance; 3) China in the world economy; and 4) interdisciplinary work on China’s economy. Since some of the works fit into more than one category, the choice of where to discuss or reference a work was based on each work’s primary purpose. In some cases works are referenced more than once.

Applying General Economic Theories to the China Case

With the opening of China to American scholars, there has been a renewed interest in understanding China using applicable theoretical frameworks. This type of research has concentrated on planning, planning with markets, and input-output models: Byrd (1987a, 1989); Chang (1989); Fung (1987); B. Reynolds (1987b); Sicular (1983, 1988c); macroeconomic relationships: Chow (1985b, 1987b); Felstenstein and Ha (1991); Naughton (1986b, 1987b); Portes and Santorum (1987); and labor allocation and incentives within agriculture: Chinn (1979, 1980); Lin (1985, 1987, 1988, 1991); Putterman (1985b, 1987, 1990, 1992); Sicular (1986c). Another aspect has been the inclusion of China in multiple-country economic models: Baumol (1986); Baumol and Wolff (1988); S. Brown (1989); Perkins and Syrquin (1988–89); and Waelbroeck (1976). China can serve as a non-Western, developing country case study for many questions of broad interest. This type of work is valuable for exposing the often subtle interrelationships between sectors, resource and institutional constraints, and individual
or group behavior. It also brings China research into the economics discipline by utilizing the discipline's tools and addressing its concerns.

For example, Terry Sicuro (1988c) has developed a general equilibrium model for agriculture incorporating markets with planning to ask whether a mixed system like the one emerging in China is theoretically feasible. She uses the standard neoclassical profit and utility maximization assumptions for producers and consumers, but incorporates quotas, rationing, and price constraints of China's state plan.

Despite the simplicity of Sicuro's model relative to the complexities of how market and planning decisions are actually made in China, the results of the model are generally consistent with what has been happening in the agricultural sector. The model is therefore extremely helpful in identifying fundamental variables and constraints. Sicuro's results suggest that market signals and not the state plan are directing economic behavior because state prices are in fact constrained by market prices, and not the other way around. As a result, the efficiency and distribution function of planning is improved with this system, while the plan's ability to influence production and consumption directly is reduced.

William Byrd (1987a, 1989, 1991) has developed a general equilibrium model of a dual plan-market system for state industry. This model allows for an array of equilibria from some or all markets being constrained by the plan to a fully unconstrained situation that results in a market solution overriding all plan variables. Byrd's formulation of the constraints differs from Sicuro's and others in that all enterprises have planned targets, but some choose, if "unconstrained," also to buy inputs or sell outputs on the market, depending on market prices and planned target levels. When constrained, an enterprise chooses not to participate in markets, rather than being prevented from doing so, in order to maximize profits. The results are that the unconstrained equilibrium is efficient and optimal, while the constrained equilibrium is not. Byrd hypothesizes that in the constrained case, plan adjustments could be made to move the economy to a more efficient position.

One implication of Sicuro's and Byrd's models is that theoretically China's mixed system is economically sustainable. Their work also suggests that introducing markets into the planned system has facilitated further reform by forcing prices to reflect scarcity more accurately and allowing enterprises to respond to these prices. Sustainability and momentum are, of course, critical if China is to succeed with economic reform. Even more important, China is reforming the economy from within. Also, in marked contrast to the former Soviet Union and central Europe, living standards have risen on average during the reform period. These models provide explanations about how that process is working.

Significantly, Barry Naughton (1986b, 1987b) comes to similar conclusions in his analysis of macro policy, despite China's experience with periodically having to back off from certain reform measures because growth has been too rapid and imbalanced. Naughton first links the behavior of actors in the economy
through a series of general financial flow identities for centrally planned economies and then applies this framework to China using carefully adjusted data from the banking system. By looking at savings and investment measures, he concludes that the responses of households and enterprises to reform measures have offset the state budget problem to some extent. In this way budgetary allocations, which in themselves help to minimize opposition to reform, can continue without having to alter the fundamental directions of reform.

Naughton’s research nonetheless points to serious problems of macro imbalances that must be managed. After this work was completed, the budgetary imbalance worsened. The revenue and inflationary consequences caused the central government to impose austerity beginning in the fall of 1988. The student demonstrations in the spring of 1989 added political tension to the already severe economic concerns. By the early 1990s the worse economic restrictions had been eased and reform was again going forward, but the budget situation continued to worsen. Some analysts argue that these disruptive economic cycles are evidence that China’s mix of plan and market is not sustainable after all (Prybyla 1990).

Another example of research that adapts economic theory to the Chinese case is Louis Putterman’s (1987, 1990) and Justin Lin’s (1987, 1988) work on incentives in collective agricultural production. While incentives are the basis for most explanations of the apparent success of the household responsibility system, Putterman and Lin make explicit the assumptions and conditions that would actually lead to this result. Putterman shows that incentive problems need not be the result of collective production per se and that other problems such as measuring labor input for the purpose of compensation play a critical role. Lin’s research focuses on the relationship between supervision and supervision costs, and work incentives. Again in these studies the application of theory clarifies the complexities and subtleties of the issues involved.

The development and application of economic theories and models to China can now be tested empirically. Until recently even the use of standard planning methodologies such as input-output tables was frustrated by insufficient data. Again, the possibilities of new contributions of this type are now more promising. But some caution is in order. While the amount of data has increased substantially, there are many pitfalls in using these data. For example, prices may not reflect choices made on the basis of utility or profit maximization, and many categories of data have changed over time. Without careful consideration of these data issues, applications of theory could be misleading.

Understanding China’s Economic Institutions, Policy, and Performance

Two tasks fall into this category: reevaluating the past, and evaluating the post-1978 reform period itself.

One question addressed by these works taken collectively is in what ways the economy was succeeding or failing before the reform period. On the one hand, if the current Chinese leaders are to be believed, the reaction against the past as expressed in the radical reform measures is the result of an economy in extreme disarray; on the other hand, if the economic problems were this severe, how were any gains achieved and why did the system not collapse sooner? In addressing these questions recent work has tried to understand the extent of central control over the economy in different periods, the process by which this control weakened, and the implications of central-local control for the economic system and performance. Clearly both the central government and localities played important economic roles, but the balance between them and their implications continue to be debated.

Recent research on institutions, policy, and performance for the reform period has been extensive, especially in the late 1980s and early 1990s. For ease of presentation, these works are grouped into the following subject areas: agriculture, industrial productivity, intersectoral linkages, income distribution, comparative, and general.

Agriculture

Because increases in surplus output in agriculture are fundamental to the growth potential of the rest of the economy, much recent research on agriculture has focused on how reforms have affected agricultural growth and efficiency. While it is agreed that output has risen substantially with reforms, the reasons for these increases, and their sustainability, have been debated.

For example, Nicholas Lardy's study (1983a) of agriculture attributes much of this increase to improved comparative advantage in cropping patterns, but
suggests that these were primarily one-time improvements. He argues that major investment in agriculture, and further increases in marketing and specialization, will be essential for continued progress (see also 1986a, 1986b). Thomas Lyons (1988) also looks at these issues using interprovincial comparisons through 1985. He finds substantial change in regional output patterns, reversing the pre-1979 trend toward provincial self-sufficiency. However, Lyons also concludes with the caveat that it is too early to know whether these changes toward specialization are temporary or permanent. Clifton Pannell, working in economic geography (1985, 1987–88), also reaches similar conclusions.

A related approach to studying China's agricultural reforms focuses on the development of markets, which would encourage more accurate price signals as well as household incentives to produce surplus for sale. The general picture these works give is one of increasing market activity pushing prices to reflect scarcity, with significant household response but with many remaining problems, including continued bureaucratic interference. Other works relevant to this issue are: Hsu (1984); Kueh (1984); Rada (1983); Sicular (1985a, 1985b, 1986b, 1988a, 1988b); Wiens (1981, 1982, 1983, 1985, 1987).

Another line of inquiry concerns the response of production to new incentives resulting from institutional changes allowing rural households decision-making power and therefore also allowing them to bear the risk of losses and benefits of profits. One aspect of this research has been to understand what these institutional changes have been and their significance (Crook 1986; Hsu 1982; Nee and Young 1991; Stone 1986; Surls 1984, 1986; Wiens 1983); a second has been to understand what incentives are working and why (Aslanbeigui and Summerfield 1989; Chinn 1979, 1980; Cremer 1982; Koo 1990; Lin 1987, 1988; Putterman 1985b, 1988b; Sicular 1986c); and a third has been to measure agricultural output and productivity (Field 1988; McMillan et al. 1989; L. Wong 1987).

**Industry**

Industrial output has also grown quickly, though questions have been raised with respect to the accuracy of industrial output data (Rawski 1991; Taylor and Banister 1989a; C. Wong 1988b) and the role of productivity in industry's performance.

One reason for the progress in productivity estimates is that the ability to reconstruct disaggregated, annual series of input and output data is now feasible. One example is the recent work of Chen et al. ("New Estimates" 1988, "Productivity Change" 1988). This work is based on careful reconstruction of capital data in China’s state industry to take out residential construction and to put the series in constant price indices. With these changes estimates of capital stock growth are revised downward. When the revised capital series are used to estimate partial and total factor productivity, productivity change appears more favorable than with earlier estimates using unrevised data.

The Chen et al. estimates, albeit based on better data, still rely on several critical assumptions, and therefore are likely to be revised with further study. For example, the share of housing in state industrial capital stock is unknown, so the proportion for the whole state sector is used. More important, there are many difficulties in reconstructing the components of fixed capital in constant prices (Chen et al. "New Estimates," 1988, 247–50), including estimating how prices have changed and knowing what parts of the official data were reported in current or other prices in order to deflate them (Lardy 1987d, 10–11).

Aside from affecting how China’s past performance is viewed, input estimates affect measures of whether or not reforms are improving efficiency. Although there is some debate over the treatment of the data, most estimates have shown improvements in productivity consequent with reforms. Nonetheless recent work also suggests that productivity performance has varied by industry, enterprise, and region (Jefferson and Xu 1991a; Naughton 1992). Next steps will be to separate the relative importance of technological and institutional change from growth in the factors of production, and to distinguish what types of inefficiencies exist (Jefferson 1990, 1991b; Jefferson and Xu 1991b).

**Intersectoral Linkages**

Before the reform period in China the most important determinant of linkages was the plan. One notable earlier work dealing with the relevance of markets in a centrally planned economy is Perkins (1966). With reforms, numerous non-plan linkages have developed, creating a new area of interest for research. For example, new work has been done on the role of factor markets, pricing, and allocation in enterprise behavior and performance: Byrd (1983b, 1985); Byrd and Tidrick (1987); Chang (1984); K. Chen (1990); Grub and Sudweeks (1988); Jefferson and Xu (1991a, 1991b); Naughton (1988a); Perkins (1991); Rawski (1982a); Rehn and Simon (1988); Stepanek (1991); Stone and Zhong (1989); Wiemer (1992); Wiemer and Liu (1989); inter-provincial linkages: Denny (1991); Lardy (1990); Lyons (1987c, 1990); Prime (1992a); Tao and Holton (1989); labor flows: Emerson (1983); Orleans and Burnham (1984); Taylor (1985, 1986b, 1986c, 1988); Taylor and Banister (1989b); distribution networks: Holton and Sicular (1991); Kung (1992); Lyons (1992); the role of demand: Bowen (1992); Taylor and Hardee (1986); Theil and Seale (1987); the interaction of markets,

The primary focus of this research is trying to understand how these linkages work, how they have developed, and their consequences and problems. For example, as discussed in conjunction with theory, William Byrd has focused on the introduction of markets into China’s planned system, which has taken the form of enterprises producing and selling some output within a plan and some without. Byrd’s analysis suggests that under certain circumstances the incentives involved in this system predict that the market sector will grow while the planned sector will shrink, in an almost natural, if not assured, way. Even where the dual system would remain, prices and resource allocation would be influenced primarily by the market portion. These conclusions are consistent with the model developed by Sicular (1988c) and imply that the direction of the system changes being experienced in China is feasible and sustainable, and even reinforcing, at least in theory.

In contrast, Christine Wong’s research (1986a) suggests a much more important, and perhaps destabilizing, role for Komai’s “soft budget constraint” phenomenon, which mitigates against the potential benefits of introducing markets into a planned system. Wong argues that increased funds under the control of localities and enterprises without proper macro guidance in their use, combined with enterprises’ ability to negotiate key parameters such as prices and taxes, have led to overexpansion, worsened inefficiencies, and exacerbated macro imbalances. She argues further that while the second phase of reforms saw some improvements in the policies being attempted, the incentives countering the “softening” tendencies were weak and too late. This version of what is happening in China’s industrial sector, especially state industry, suggests that the dynamic of partial reforms is self-destabilizing both economically and politically, rather than progressively reinforcing.

Tidrick’s chapter on planning and supply in Tidrick and Chen (1987) also raises questions about the efficacy of a dual system. Based on extensive interviews with twenty enterprises, Tidrick describes pervasive bargaining between enterprises and supervising bodies, and a weakening of links between plan targets and incentives, to the point that “bonus and welfare payments determine profit retention and plan targets, not the reverse” (p. 184). Both Tidrick’s and Wong’s research raise the question of whether the results of the simple theoretical models are actually useful in the face of the complexity of China’s economic and political system.

**Income Distribution**

Income distribution is a key issue with respect to the process and performance of development, and one to which Chinese policymakers have been particularly
sensitive. Nonetheless the conclusions of research on this question range from characterizing China's degree of inequality in the pre-1978 period from substantial to low by international standards. (See Adelman and Sunding 1987; Hare 1991; Hsiung and Putterman 1988; Hu et al. 1988; Lardy 1984; Perkins and Yusuf 1984, chap. 6; Rawski 1982b; Riskin 1987, chap. 10; Travers 1984, 1985, 1986.) Research results on the reform period are equally contradictory, for some suggest that inequalities are increasing while others suggest the opposite. Part of the problem is the varying units of analysis investigated, and part is the existence of major problems and gaps in the available data, despite a substantial increase in information in the form of case studies, surveys, and macro indicators.

For example, for the first time an estimate of China's national distribution of income is possible and has been done by Irma Adelman and David Sunding (1987) for the years 1952 to 1983. They combine various data sources for the rural and urban size distribution to estimate the national distribution for 1952, 1978, and 1983. They conclude that rural inequality remained the same between 1952 and 1978, and increased between 1978 and 1983. National income inequality, however, fell in the reform period because of rising peasant incomes and a decreasing rural-urban income differential.

These conclusions conform to what might be expected a priori, and are consistent with reports from local units (e.g., Hsiung and Putterman 1989). These results need to be viewed with caution, however, because the estimates are based on a number of critical assumptions that make their conclusions questionable. For example, since there are no size distributions for urban areas in 1952 and 1978, Adelman and Sunding assume that the distribution in these two years had the same shape as in 1981. A second example is that estimates of average income in each class in rural areas are based on estimates of the relationship of household size and per capita income, while data are available for the urban sector eliminating the intermediate step. Further problems with this study arise with respect to measuring subsidies, and whether the categories of "rural" and "urban" have changed over time affecting the corresponding measures of income and population. So even though Adelman and Sunding's work represents a step forward in what can be attempted in research on income distribution in China, their conclusions are still tentative.

Comparative Studies

Comparisons between China's economic system and development and those of other countries are often made, but formal comparisons are less numerous. Some examples of recent work are comparisons of China with other planned or market socialist economies: Balassa (1987); Granick (1987); Hewett (1989); Prybyla (1990); Van Ness (1989); Wiens (1985); with developing countries: Demberger (1980); Demberger and Eckaus (1988); Lyons (1987a); Malenbaum (1982, 1985, 1990); Perkins (1986, 1988); Putterman (1980, 1985a); Rosen (1990a, 1990b);
Sicular (1989); Srinivasan (1987, 1990); L. Wong (1987); and with Taiwan: Meyers (1991); Prime (1986). Much of this work simply puts studies of two or more countries together in one volume, or uses examples from other countries to enhance the discussion of China. So far few studies actually attempt to explain similarities and differences analytically.

The importance of such studies works both ways; that is, China could benefit from knowing which experiences of other countries are relevant, just as other countries could benefit by learning from China. The success of such an exchange of knowledge, however, depends on a full understanding of what is relevant, and why, and what results particular policies or institutions have achieved. Problems of data comparability are immense. Much comparative work suffers from using unadjusted data for China and therefore distorting the comparative picture.

Wilfred Malenbaum’s work (1982) comparing India and China is one example where the comparability of data is carefully examined. He argues that if China’s data problems are explicitly considered, China’s past economic performance is not substantially different from that of India. Double-counting, valuation, and coverage are particularly troublesome in the Chinese data. Unfortunately because of the timing of Malenbaum’s study, he was not able to take advantage of the substantial increase in official statistical information that was published in China after his research was completed.

General Studies

There has been a plethora of books and articles written on China’s current economic change generally. These primarily describe policy, point out problems, and try to decipher functions of institutions (Bahl 1989; Chen et al. 1992; Chow 1987a; Dernberger 1986, 1987, 1991; Fei and Reynolds 1987; Griffin 1984; Lee 1990; Myers 1988; Naughton 1987a, 1990b, 1991c, 1991d; Perry and Wong 1985; Prime 1991b; Prybyla 1982, 1991; Putterman 1989; B. Reynolds 1982, 1987a; Rothenberg 1987; Schmidt 1987; Sicular 1990; Tidrick 1987; C. Wong 1985a, 1985c). There are also numerous sectoral studies dealing, for example, with international trade and investment, agriculture, finance, energy, technology, and macroeconomic issues such as inflation and unemployment. Before the 1980s numerous sectoral studies were done (Perkins 1983, 360). More recent work has been done on international trade and investment: Kamath (1990); Noyes (1986); Prybyla (1984); Svejnar and Smith (1982); Taylor (1989); Tsao (1987); World Bank (1988a); agriculture: Lardy (1983a); Perkins and Yusuf (1984); Walker (1984a, 1984b); finance: Bahl (1988); Bahl and Zhang (1989); Byrd (1983a); Carver (1986); Dernberger and Eckaus (1988); Gordon (1988); Hsiao (1984, 1987); Lyons and Yan (1988); Naughton (1985, 1986a); Prime (1991a, 1991c, 1992b); P. Reynolds (1982); C. Wong (1990, 1991); World Bank (1988b, 1990b); energy: W. Brown (1986); Keidel (1986); Lewik (1986); technology: Simon (1986a, 1986b, 1986c); Rehn and Simon (1988); Stone (1988);
transport: Rawski (1986); and macroeconomic topics: Chen and Hou (1986); Chow (1987b); Jefferson and Rawski (1992); Naughton (1991c, 1991e); Taylor (1985); World Bank (1990a); Yeh (1984).

There are few up-to-date, comprehensive overviews of China's economy, however. The periodic collections of articles published by the Joint Economic Committee (see U.S. Congress) are important in this respect. Cheng (1982) and Riskin (1987) concentrate on the pre-reform period; Chow's book (1985a) was written primarily for a Chinese audience; the World Bank's various studies are primarily sector studies, except for the 1985 World Bank study, which projects future growth paths. Johnson's book (1990) is a brief overview of the reform period, with a short summary of the pre-reform years.

Understanding China in the World Economy

Academia

Academic research has only begun to deal with the impact of changes in China on the international economy (Anderson and Tyers 1987; Carter and Zhong 1991; Lardy 1987a, 1992; Melvin and Zhou 1989; Perkins 1986; B. Reynolds 1985). Many new questions have suddenly become more relevant, for example: how China's export growth and demand for imports will affect other countries' trade flows; what difference China's opening to foreign investment will make to capital flows to Latin America; and the credit consequences for other countries of China's membership in the World Bank and as a recipient of other public and private financing.

Anderson and Tyers (1987) investigate some of these issues using a global dynamic simulation model for grain, livestock, and sugar to predict production, consumption, and trade trends for China into the 1990s. Their results suggest that China's comparative advantage in agriculture will decline, and if allowed to affect trade flows, would lead China to become a net importer of food even if increases in agricultural productivity continue. Lardy's analysis (1987b) is consistent with these results. He argues that China's future economic progress crucially depends on furthering its integration into world markets, which in turn will depend on domestic changes including pursuing their comparative advantage in labor-intensive manufactured goods. Lardy does not speculate explicitly on the impact this would have on food production and trade, but Perkins (1986) suggests that China will not be willing to allow food imports to grow too large, and therefore may have to accept lower productivity growth than other countries in East Asia.

Government and Business

Understanding China in the world economy is essential for government and business. In government, publications such as the Joint Economic Committee series (see U.S. Congress) and government department staff papers make timely
information and analyses available to legislators. Another format begun in the U.S. Department of Agriculture is a newsletter (see Crook and Tuan) whose purpose is to improve communications among economists working on China's agricultural situation. Formal Congressional briefings, seminars, and panels (e.g., Dernberger 1988) are other ways that promote informed decision-making. As Chapter 9 by Tom Fingar in this volume makes clear, however, much more could be done.

Interaction between the U.S. business community and researchers of China's economy is even less developed. Some examples of work relevant to businesses are: Fisher (1986a, 1986b); Grow (1986, 1987); Grub and Lin (1988); Pegels (1987); Szuprowicz and Szuprowicz (1978); Tung (1980, 1982). Perhaps the most effective publication in this regard is *The China Business Review*, published by the U.S.-China Business Council, which often includes articles by academic researchers as well as its own staff. The Asia Society's annual publication of *China Briefing* (Goldstein 1984; Kane 1988; Major 1986; Major and Kane 1987) also serves the business community as well as academia and government. When compared with Japan's support for China research to help Japanese business, however, these efforts seem small indeed (Lardy 1987a, 54).

**Incorporating Economics into Interdisciplinary Studies of Contemporary China**

To answer questions such as what impact China is likely to have on the world economy, and to predict events such as the student demonstrations in 1989, factors other than economics must be considered. Research on China's economy is read and used by other disciplines, and vice versa, but given the potential for cross-fertilization, much more interdisciplinary or collaborative work could be done. Collections of essays drawn from various disciplines are numerous, but work on China's economy that attempts interdisciplinary approaches and methodologies is rare. Research on the changing power of political cadre under economic reforms, for example, could potentially benefit from rent-seeking, principal agent, or interest group theories in economics, just as economic work could benefit from formally incorporating non-economic power relationships into models of allocation and decision-making in China. Generally, scholars from other disciplines, especially political science and sociology, have attempted to use and explain economic phenomena in their analyses more than economists have incorporated the work of other disciplines. (See, for example, Halpern 1985; Liu 1992; Pearson 1991; Tong 1989, 1991; Walder 1986a, 1986b, 1989; Zweig 1991. See also Chapters 3 by Tom Gold and 6 by Nina Halpern in this volume.) With the extent of economic change in China in recent years, there have been some concerted efforts to encourage collaborative work that includes economists. The support from the Luce Foundation for collaborative, interdisciplinary projects is one example.
There are a few areas within economics that tend to be more interdisciplinary than others. These are research on socialism in China, which explicitly deals with historical and political factors; ideology and economic development (Dirlik and Meisner 1989; Lippit 1987; Lippit and Selden 1982; Michael et al. 1990; Prybyla 1990; Raichur 1981; *World Development* 11 [1983]); economic demography (Ashton et al. 1984; Lately 1984); economic geography (Pannell 1980, 1981, 1985, 1988; Pannell and Ma 1983; Pannell and Welch 1980; Veeck 1991; Veeck and Pannell 1989); and economic history (Brandt 1985, 1987, 1989; Brandt and Sargent 1989; Chao 1983; Gottschang 1987; Myers 1980; Myers and Sands 1986; Rawski 1989; Weins 1982b). Recent research on China's economic history—by both economists and historians—is a good example of integrating economics with other research on China. This research has led to serious debate over the degree of commercialization and its effect on living standards and income distribution historically. These questions have important implications for understanding the possible effects of market reforms now, as well as for reevaluating the post-1949 years in light of the history situation.

However, the more economists publish their China research in economic journals, the less likely it is that integration or cross-fertilization with other China research will occur. This is partly because of the technical way in which much economic research is presented and because these journals are not typically followed by the China specialist audience. One possible solution is for economists to publish their technical results in economics journals, and then to rewrite them for China studies journals or as monographs aimed at wider audiences. In cases where results cannot be adequately explained without the methodology that generated them, technical aspects of the argument and data issues could be presented in appendices.

**The Data Dilemma**

While research on China's economy expanded with the changed data situation in the 1980s, many of the problems raised in the discussion thus far have in one way or another touched on the formidable obstacles in interpreting the data. First, we must understand what these data mean. There are many unanswered questions: the coverage of data categories; how categories have changed over time; what information is not being collected; how samples are taken; how variables are defined; what interest rates, price deflators, and depreciation rates have been used; what prices mean; and in what ways China's data are comparable with data from other countries. One example of the significance of these data problems is that despite releasing infinitely richer data in the 1980s as compared with the 1970s, economic system and data category changes make these data inappropriate for meaningful time-series estimation.

Second, more could be done to make these data and their interpretations available to other people who want to work on China's economy. The last
attempt at a statistical handbook was based on a conference held in 1976 (Eckstein 1980). Easy access to both data issues and thorough overviews of various sectors in China's economy would improve the feasibility and quality of research by economists who are not China specialists. The availability of such materials would also help China specialists themselves, since no one person can productively cover all the areas single-handedly anymore. No matter how sophisticated the questions or methods applied to the field become, until these tasks are taken seriously, many of the results will be questionable and much effort will be wasted. Recent studies that have focused on such data problems are Chen et al. ("New Estimates" 1988); Chow (1986); Crook (1988); Field et al. (1975, 1976); Jefferson (1988); Kravis (1981); Lardy (1983b); Le Gall (1986); Rawski (1983, 1991); Stone (1984); Taylor (1983, 1984, 1986a, 1987); Taylor and Banister (1989a); and C. Wong (1988b).

Collaborative research between U.S. and Chinese scholars is one way to help with these tasks, the K. Chen et al. ("New Estimates" 1988, "Productivity Change" 1988) work being a good example. Some collaborative research has been published, and numerous others are in progress (Bahl and Zhang 1989; Byrd and Lin 1990; Byrd et al. 1984; Chen et al. "New Estimates" 1988, "Productivity Change" 1988; Feder et al. 1989; Hu et al. 1988; Tidrick and Chen 1987; Wu and Reynolds 1988).

Fortunately Chinese scholars at economic institutions in China are also working on these problems in the process of doing their own data collection, modeling, and research. The contribution of this work will increasingly aid foreign scholars doing research on China. Unless a scholar can read Chinese, however, this contribution will be limited by the few formats in which Chinese work appears in English. Chinese scholars who have studied and published in the United States will also bridge the two academic communities.

The Contributions, Pitfalls, and Opportunities of New Research on China's Economy

Since the late 1970s, China has questioned many aspects of its economic system and policies, and has experimented with major changes. At the same time, access to information and statistical data on China's economy has increased dramatically for both the reform period and the historical data. How has economic research on China reflected these significant changes?

First, there have been renewed attempts to model theoretically how China's economic system works. Reasons for the attempts include a better understanding of the institutions and relationships within the economy, opportunities to test theoretical models, and the fact that with reform China's system has more market elements and therefore is more suited to standard assumptions used in economic theory.

Second, research is now able to capture rich detail and deal with many units of analyses, expanding the general knowledge about China's economy in a way that was not possible before. Research on households, enterprises, and farms, as
well as by counties, cities, and provinces, has added new perspectives and questions, and has enabled reinvestigation of commonly held beliefs.

Third, both the number of those interested in doing economic research on China and the audiences this research serves have expanded. Evidence of this is seen in the increased variety of journals and presses publishing economic research on China. This reflects increased access to China for scholars and businesses, and China’s growing economic and political importance in regional and world affairs.

While substantial contributions are evident, taking this body of research as a whole one might ask why more has not already been done. For example, there are obvious gaps in overviews of China’s economy, studies related to business, and those explaining the relationship between reform and development. There also continues to be major discrepancies in conclusions concerning basic economic phenomena. For example, debates are ongoing concerning the extent to which planning functions, whether state enterprises have improved their performance, and how the reforms are affecting the distribution of income.

Part of the problem is simply one of timing. First, much of the work included in this survey that was published in the early 1980s was based on research carried out in the 1970s. Second, some work published even in the late 1980s was basically earlier research that the authors tried to revise as new information became available. Since great change was occurring within China’s economy as well, the question of when to stop revising was a difficult one. And third, there is a lengthy lag between research and publication. However, the large amount of research by economists that has been published since 1990 is an indication that these timing problems have become less serious.

Another part of the problem is that there are too few economists doing research on China’s economy. Just keeping abreast of changes occurring in China is itself an enormous task—one that must precede any serious attempt to build or test economic models. The entrance of generalists working on China and the new generation of Chinese scholars trained in Western methods will help in this regard.8

Serious pitfalls still remain, however. Data limitations and inconsistencies must be taken seriously, or results will be misleading. Further, with market reforms and more informal market activity, it is tempting to apply economic theories developed for market economies. While in some cases these theories may be appropriate and provide useful insights, their appropriateness should not be taken for granted. (See Badgett [1988, 5–11] for a discussion of the problem of applying economic theory applicable to market economies in economic research on the Soviet Union.) While much of the new research suggests relatively strong market results, it is helpful to recall the extent to which the assumptions and methodology may be shaping those results. Incorporating more of China’s particular institutions and goals, as well as studying the reform period in light of the past, may be essential for accurately understanding the economy and predicting future performance.
Another potential pitfall is a tendency to draw conclusions that on balance are consistent with the interpretations of those in power in China, that overestimate the extent to which policy intentions have been implemented, or that let data availability decide which questions are asked. Before the reform period, researchers pointed out problems that existed in China's economy, but few stressed the extent of the problems that have been acknowledged in hindsight. Likewise, evaluations of progress during the reform period have sometimes been more laudatory than perhaps was merited. While overall balance in perspective has generally been maintained, it is useful to be aware of the factors shaping the available information. (See the Introduction by David Shambaugh in this volume.)

Keeping these caveats in mind, however, opportunities abound. The Chinese case could add new understanding to a whole range of issues. For example, if regional variations are so marked, what factors determine these variations? What has been the relative importance of modern inputs, organizational change in production and commerce, and technological change in recent increases in agricultural output? What are the sources of growth, and constraints, in state industry? What are the linkages between rural industry and agriculture, and rural and state industry, that might explain China's recent rapid growth?

Under what conditions could China become the next East Asian NIC (Newly Industrialized Country)?

Comparing work done earlier with research done since 1980 suggests that the lack of specific economic data motivated people to think more in broad ways that cut across disciplines, but marginalized China vis-à-vis the economics discipline. It is now possible to tackle more specific economic problems for the first time to fill in the numerous gaps that have remained guesswork or assumptions. Further, work on China is becoming part of the mainstream within the discipline.

This can be seen in scholarly journals publishing economic research, especially in the areas of comparative economic systems and development. The Economic Literature Index, which covers all major economics journals, reported that the number of articles on China published between 1980 and March 1991 was 1,381. This compares with only 279 articles on China published between 1969 and 1979. Compared with the total number of articles published, these numbers represent an increase from 0.4 percent to 0.9 percent.


Interestingly, however, there has been virtually no change in the contribution of China research to general economic theory as represented by two of the main theory journals in the discipline. The American Economic Review published eleven articles on China between 1980 and 1991, and the same number during the decade before. The Journal of Political Economy published five China articles since 1980 and four in the period before.
Since the dominant economic theories are most applicable to advanced market economies, the fact that China research has been a minor contributor in these areas is not surprising. More important is the fact that China research is playing a significant and growing role in understanding questions of system transition and developing economies.

But the potential also exists for a generalizable economic theory to be developed out of the Chinese experience that is comparable to, for example, Janos Kornai’s theory of the soft budget constraint based on the Hungarian experience. China is currently an important case for studying the process of reform in a planned economy—one to which even Kornai has turned (Kornai 1989; Kornai and Daniel 1986). But so far even Kornai’s theory has not been tested for China. When his theory is used, it is assumed to be relevant, even though the reasons why it appears relevant in China may be very different than why it is so in Hungary.

China research could also lead to a generalizable theory of economic systems reforming with continuity of political system and living standards. China’s experience with privatization, for example, is wholly different than that of other formerly centrally planned economies. In China, private enterprises have grown up around, in conjunction with, or in spite of, the state-owned sector. Simultaneously, state enterprises have begun to behave more like private firms. (See, for example, Rawski 1992. For one attempt to develop the elements of a theory of reform, see Jefferson and Rawski 1991.) While not smooth by many measures, reform in China has so far been carried out without the devastation of economic life that has occurred in the former Soviet Union.

All these questions make China an interesting case, which might contribute to the frontiers of various aspects of economic theory. And with systematic empirical work now possible, much previous understanding about China’s economy will be questioned and expanded. By taking care with methodology, data, and perspective, China research can bring the China case into the economics discipline.

But a tradeoff may be occurring. Economists may tend to ignore the larger, interrelated questions about Chinese society. This could happen more readily than with researchers in other disciplines because of the pressure to address questions relevant primarily to economics and to publish in a particular type of economics journal for tenure and promotion. In fact, in many American economics departments publications in area studies journals do not count for tenure and promotion. This could be the price that the field will pay. The gain could be more rigorous and generalizable research that is readily accepted within the discipline of economics.

Notes

1. In preparing this paper I have benefited greatly from discussions and correspondence with Tom Bouye, Loren Brandt, William Byrd, Robert Dernberger, Nicholas Lardy, Barry Naughton, Dwight Perkins, Louis Putterman, Thomas Rawski, David Shambaugh,
and Christine Wong. I have not, however, tried to present a consensus, and I am responsible for the interpretations and any mistakes.

2. In the interests of space and focus, the scope of this chapter is limited in at least four ways. First, many students from China are working on, or have finished, economics graduate work in the United States. These scholars are currently doing important work on China’s economy using methods that fall into the mainstream of the economics discipline. Some of this work has been included in this review but not all. In addition, at the time of this writing, many research projects are at the dissertation stage and not yet published.

Second, much important work on China’s economy has been done by scholars outside the United States, for example, in Europe, Japan, Australia, and, of course, in China. Again, for practical reasons, this review focuses primarily on work by U.S. scholars.

Third, this chapter surveys work dealing with mainland China only. Obviously much important work has been done on Hong Kong, Taiwan, and other Chinese communities, but this work is beyond the scope of this review.

Finally, this review focuses on the work of scholars trained as economists. Scholars in other disciplines have contributed greatly to issues pertaining to China’s economy. This work cannot be adequately reviewed in this chapter, although it is mentioned in the section on interdisciplinary research.

3. This committee is administered under the Committee on Scholarly Communication with China.

4. They have also made substantial contributions to the field of economics generally.

5. This journal is currently edited by Bruce Reynolds at Union College. Another group of China economists is the Chinese Economic Association in North America (CEANA). This association has a large number of members from Taiwan and accepts non-Chinese members. CEANA’s goal is to promote its members in the economics profession generally, not necessarily as researchers of China’s economy, though some members are engaged in research on China.

6. The works discussed in this section are ones that primarily use information that has become recently available. In the interests of space and focus, I have chosen to leave out work on intellectual and policy-oriented economic thought. I do not intend to be comprehensive, since the focus of this chapter is research on China’s post-1949 economy by U.S. economists.

7. These staff papers are often available to the general public. For example, the China Section, Centrally Planned Economies Branch, Economic Research Service, Washington, D.C., and the China Branch, Bureau of Census, U.S. Department of Commerce, Washington, D.C., have staff paper series and newsletters that can be obtained by writing directly.

8. A counter tendency, however, is that many potential researchers of China’s economy have turned their attention to other parts of the world where extraordinary change is also occurring, such as the former Soviet Union, central Europe, and Vietnam.

9. These numbers are based on a computer search of the Economic Literature Index database counting articles that had “China” or “Chinese” in the title or as key words. To the extent that these articles deal with the Republic of China (and have “China” in the title), these numbers overestimate the amount of research on the People’s Republic of China per se. Importantly, however, China Quarterly, the leading journal in the China field that publishes articles on the Chinese economy, is not considered a bona fide economics journal by the compilers of the Economic Literature Index and thus does not include China Quarterly articles in the Index.

10. Only three articles on China were published in the Journal of Comparative Economics before 1980, but this is misleading because the journal began publication in 1977.
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