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50th Anniversary Essay

How Has China's Economic Emergence Contributed to the Field of Economics?

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China's economic transformation demonstrates that the paths of transition and development are broader and more varied than generally predicted by economic research relating to other countries. Research focused on China's experience contributes to the scope and richness of the economics literature in notable ways. The China literature illustrates and makes more vivid established insights and paradigms, including those of Nobel laureates whose work relates to development and institutions. Furthermore, China is inspiring new insights and understanding regarding the central role of institutions. This paper, in particular, focuses its review on the literature that expands our understanding of the process of induced institutional change.
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INTRODUCTION

Noteworthy innovations in the field of economics over the past three decades, particularly in the field of institutional economics, have coincided with China's transformation from a relatively minor, centrally planned economy to a burgeoning economy with the highest sustained rate of economic growth on record. China is now poised to become the world's third largest economy and is widely expected to regain by mid-century its position last enjoyed circa 1820 as the world's largest economy (Maddison, 2003). Measured in terms of GDP at purchasing power parity (PPP), the overtaking of the US economy may materialise within a single

decade.[1] Of course, it is difficult to isolate the impact that China's economic transformation has had on the field of economics. Other important changes have occurred in recent times, including economic transitions in Eastern Europe, the former Soviet Union, and Vietnam and the rapid globalisation of the world economy, involving the establishment and expansion of the World Trade Organization and the deepening and expanded reach of a growing array of financial markets.

Nonetheless, my thesis in this paper is that China's dramatic economic transformation has itself inspired a broad body of research that substantially enriches the field of economics. While I will argue that the China-related economic literature is noteworthy in numerous respects, one feature stands out. Many country economic analyses address the issue of why a particular country has not lived up to its performance expectations. Usually, the answer is deemed to be obvious. That is, the country did not follow the appropriate policy; it deviated in fatal ways from orthodox policy prescriptions associated with the so-called Washington Consensus. Alternatively, if the country indeed did appear to have conformed to the tenets of this neo-liberal doctrine, the literature probes the question as to why a country that dutifully carried out the policy consensus did not reap the expected benefits.

China is different. Much of the China literature addresses a contrary puzzle: with institutions and policies that have deviated greatly from established orthodoxy, how could China be performing so well? China's economic emergence has contributed to the field of economics simply by posing this very different puzzle and forcing members of our discipline to come to terms with the fundamental contradiction between expectations shaped by theory and the observed outcomes. Certainly no body of literature has focused on this puzzle to the extent that the China literature has. Since the nature of the puzzle is so fundamentally different from the usual formulations that spur research, it should not be surprising that the literature addressing this puzzle represents a unique contribution.

This paper argues that research on China's experience deserves attention for its focus on two areas. First, as both a transitioning economy and a developing economy, China provides a large, heterogeneous, fast evolving laboratory for testing and illustrating many important and enduring insights of the economics discipline. The paper focuses on the work of economics

[1] In its recent revision of relative purchasing power parity measures of GDP, the World Bank estimates that China's GDP is 40% less than previously reported by the Bank. http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:21589281~pagePK:34370~piPK:34424~theSitePK:4607,00.html. This revision adjusts China's PPP measure of GDP to somewhat less than one-half that of the US. However, at the time of the writing of this paper, China's exchange rate is widely believed to be substantially undervalued in relation to the US dollar.

Nobel laureates whose insights and conclusions have been made far more vivid and accessible when viewed through the lens of China's economic experience. These insights include, but are not limited to, the work of Solow in growth, Lewis, Kuznets, and Sen in development and Buchanan, Coase, and North in institutional economics.

Second, research on the Chinese experience expands the scope of economic analysis. The story of China's economic experience is about the evolution of a system involving complex interactions and feedback mechanisms that cut across institutions and time. Much of the answer to the puzzle of China's distinctiveness has to do with viewing economic transition as a *series of interrelated process* rather than a *collection of events*, that is, the process of reassigning property rights, the process of becoming a market economy, the process of technology transfer and innovation, and the process of learning and adapting mental models to new economic realities. As such, China-related research emphasises and expands the scope of the endogenous nature of economic reform and development.

For example, the restructuring of only a small proportion of China's state-owned enterprises (SOEs) was the immediate and direct outcome of state action. Edicts, such as those liberalising new entry and sanctioning enterprise restructuring, had little direct impact on SOE performance. However, the competition that resulted from liberalisation did create pressures and opportunities that altered the relative marginal benefits and costs of institutional change. Such changes in the incentive structure motivated local government officials, managers, workers, and outside investors to search for new governance arrangements and new technologies that led to China's incremental enterprise restructuring. This cursory account of China's corporate governance reform is but one example of China's reform experience that illustrates the dynamic, endogenous character of China's transition and development process.

China's government has played a central and on-going role in the economy's transition. The transitions of Eastern Europe and the former Soviet Union (EEFSU) and that of China reflect a key difference. Whereas the functioning and authority of the EEFSU political systems collapsed, China's ruling party and central government have remained intact with the legitimacy and administrative capacity to steer China's economic transformation. China's government has played a central role in reassigning property rights from the state to individuals, thereby incentivising workers, managers, and investors to serve as agents of economic growth. If there is an unfinished chapter relating to China's experience, it is likely to be how property rights, now extensively in the hands of individuals and non-state organisations, are operating through feedback mechanisms to reshape the structure and functioning of China's government and political system.

China's experience offers a now irrefutable lesson. Economic transition and development is a far more complicated phenomenon than simply putting in place the principal elements of the neoclassical model, whose policy implications have been dubbed the Washington Consensus, or even adhering to an enlarged doctrine that incorporates the basic tenets of the New Institutional Economics (NIE). With respect to the latter, stressing that there are many paths to the fulfillment of different visions of a market economy, Murrell (1991) argues: 'The institutions of capitalism come in many varieties and cannot be put in place instantaneously. There are many alternative reform paths, depending upon the importance attributed to each of these institutions' (p. 59). More than any other country, China's experience gives life to this insight.

The following sections examine these themes as well as the specific literature on China that develops these themes. In writing this essay, I faced a tension between giving an account of China's economic reform and then identifying the literature that maps into this paradigm of transition and development or undertaking a full review of the literature from which a synthesis of various themes would naturally emerge. In principle, the latter approach seemed preferable, but given my somewhat inflexible priors regarding the essential lessons of China's reform experience as well as the difficulty of confronting the now vast literature on China's transition and development, I judged the full immersion approach to be infeasible.[2] Hopefully, there would be substantial agreement in the conclusions arising from the two approaches. How differently these two approaches to carrying out this assignment might have turned out I leave to you, the reader, to assess. While this paper no doubt misses important contributions, it attempts to capture the essential character of the forest if not all the trees that populate it.

The paper is organised as follows. The next section highlights some of the quantitative impacts of the growth of China-related economic research on the field, including the coming on line of extensive data sets and proliferation of journals, books and compilations relating to China's economy. The third section describes the distinctive nature of the puzzle that shapes the China research agenda – why China's economy is performing as well as it is given China's deviation from economic orthodoxy. One theme of this paper is that the research that chronicles and analyses China's economic transformation vividly illustrates and in some cases deepens the insights of important areas of the established economics literature. The fourth section 4 illustrates this

[2] I believe that the last comprehensive review of the literature relating to China economic reforms was conducted by Perkins (1988).

theme. The fifth section develops a second theme regarding the distinctive contribution of China-related research; that is the focus on understanding the evolution of economic systems as a process that cuts across institutions and time. This section sets out an analytical framework into which we situate much of the salient research on China's economic experience. The sixth section reviews and synthesises that research and the seventh section investigates the distinctive features of China's economy and assesses the extent to which these may or may not limit the transferability of analyses and lessons drawn from the Chinese experience to other countries and regions. Finally the last section reviews the key conclusions of the paper and speculates on new directions for China-related economic research.

QUANTITATIVE IMPACTS

Before examining the intellectual contributions that China's economic emergence and performance have inspired, it may be useful to acknowledge two quantitative measures of China's contribution to the field of economic research. One is the rich trove of economic data that has been collected, in part by government agencies and in part by research groups outside the Chinese government. The other quantitative measure of research inspired by China's economic emergence is the variety and volume of research outputs, journals, articles, conferences, and workshops that seek to make sense of China's experience.

Some of the data now available on China's economy are unparalleled in their scope and completeness. Among these are firm-level data based on the annual collection by China's National Bureau of Statistics (NBS) of data from China's nearly 300,000 large-, medium-, and small-scale industrial enterprises with annual sales exceeding five million Rmb (approximately $700,000). Within this group, the NBS collects more detailed data on the now approximately 30,000 large- and medium-size enterprises (LMEs). These data sets include nearly 100 variables on the economic and financial condition of China's LMEs and another 100 variables describing various science and technology inputs and outputs including R&D spending, new product development, and patenting. A similar detailed annual survey is conducted by China's Ministry of Science and Technology spanning the nation's approximately 4,000 research institutes. The NBS also administers an annual survey of China's most energy-intensive industrial firms. This survey, which has recently been extended to include all of China's LMEs, includes for each firm a profile of the quantity and value consumed, from which

individual prices can be imputed, for 20 different energy types. China's Ministry of Commerce maintains detailed data on trade and foreign direct investment (FDI), including that which is more detailed than normally available, such as the ownership shares of exporting firms and exports originating from the special zones at the six-digit SIC level.[3] In addition, the NBS and other Chinese organisations, including the Ministry of Agriculture, regularly conduct household surveys that have supported extensive research on migration, fertility, educational and occupational choice, and other forms of household behaviour. Researchers have conducted a host of other special surveys that are too numerous to reference here. That conducted by Li *et al*. (2007, 2008) of village elections and household insurance and consumption patterns allows for an investigation of the impact of village elections on health care services and consumption risk-sharing at the village level. This research is but one illustration of the extreme heterogeneity of China's economy, including that of households, firms, and village administrative and political structures, which allows for a rich array of research agendas focused on China (see Li *et al*., 2007, 2008).

Some of these data, especially data for the broad income accounts that are passed up through multiple lower jurisdictions to the central NBS, include numbers that are of questionable accuracy (see Holz, 2003, 2004). Other survey data, particularly that collected from individual firms, remain proprietary and difficult to access. Nonetheless, collections of these data, usually combined at various levels of aggregation, are conveniently complied and accessible in the form of specialised statistical yearbooks, often online, that span many topics, including energy, finance, science and technology, foreign trade, various industries, as well as individual sub-jurisdictions, including cities and provinces.

A more widely conspicuous consequence of China's economic emergence has been the proliferation of workshops, conferences, working papers, and published scholarly articles describing, analysing, and comparing China's economic experience. China research continues to be a growth industry. Some of these initiatives have resulted in the establishment of whole new programmes or centres at well-known research organisations, including the Brookings Institution, the Carnegie Endowment, and the National Bureau of Economic Research, as well as at many universities. In recent decades international organisations, notably the World Bank, IMF, and OECD, have

[3] While these data sets are unusually detailed, significant aspects of these data have yet to be fully reconciled with those of other nations. Also, see the NBER website http://www.nber.org/~confer/2007/cwt07/cwt07prg.html for a workshop on this topic as well as the websites of Robert Feenstra and Chad Bown for information on current data and recent research using these trade data.

dedicated substantial resources for extending advice to, and publishing analyses and policy papers about, China.[4]

At the same time China's research has led to the inauguration of new journals, including the *China Economic Review* and numerous Chinese language journals as well as new and existing economic journals that substantially if not exclusively publish the research on China. Thus, China research now provides a steady source of materials for publication in journals, such as the *Journal of Comparative Economics*, the *Economics of Transition*, the *Journal of Development Economics*, and many others.[5] At the 2008 ASSA meetings held in New Orleans, the programme included no fewer than 43 papers on the subject of China. In addition, approximately 315 authors, co-authors, or discussants with Chinese surnames appeared on the 480 panels, a strikingly high proportion of Chinese researchers given that it was only about 20 years ago that a substantial flow of young Chinese students began to do PhD work overseas.[6]

One of the benefits of this proliferation of data and research outputs is that it supports a stream of analysis, evaluating the performance of China's evolving institutions and those that vie to replace them. By enabling private and public entrepreneurs to gain a deeper understanding of the deficiencies and possibilities for China's institutions, including enterprises and banks of various ownership forms, the IPR system, and other private and public institutions, this research expands the nation's social science knowledge base, thereby facilitating institutional change.

THE PUZZLE – WHAT IS IT?

Reviewing the landscape of economic reform and transition over the previous two decades, Lin (2005) observes, 'The most prevalent reform policy advice according to the existing neo-classical economics theories is the ''Washington Consensus''' (p. 248).[7] Dani Rodrik (2004), Zhang Jun (1997), and others

[4] See, for example, Brandt and Rawski (2008), a compilation of research papers resulting from a broad effort to match specialists in functional areas, such as economic transition, agriculture, and industrial organisation with their counterparts who specialise in China.

[5] These include journals published in Japan, such as the *Journal of Chinese Economic Studies* and the *Journal of Econometric Study of Northeast Asia*.

[6] The count of economists with Chinese surnames cannot distinguish among the country or region of origin, for example, Mainland China, Taiwan, Hong Kong, the US.

[7] According to Williamson (2002), who is generally viewed as the author of the Washington Consensus (Williamson and Miller, 1987), the doctrine consists of 'ten reforms that I originally presented as a summary of what most people in Washington believe Latin America (not all countries) ought to be undertaking as of 1988 (not all times).' Subsequently, the Washington Consensus became widely viewed as the intellectual foundation for the shock therapy proposed by economist for the transitional economies of Eastern Europe and the former Soviet Union.

pose the China puzzle, that is, since China inaugurated its reform process in the late 1970s, its economy can be characterised by the following conditions, which taken together depart substantially from the Washington Consensus and the tenets of shock therapy. These deviations include

- a weak system of private property rights;
- a repressed financial system;
- continuation of an authoritarian political system;
- corruption, low ranking of transparency;
- deviation from best practice in corporate governance; and
- a weak legal system and law enforcement.

In fact, Zhang's list above reveals that China's puzzle involves far more than its deviation from the tenets of the Washington Consensus. Just as fundamental, China's transition and development experience deviates from the policy prescriptions that can be derived from the approach of the NIE. Since its reform began in 1978, China's institutional arrangements have run counter to the basic tenets of the NIE that stress the interactions of institutions, economic incentives, and behaviour of individuals and thereby shape the performance of the overall economic system.

In summarising the transition experience of Eastern Europe, Lipton (2007) notes that 'Most governments concluded that reform was a seamless web, such that liberalisation and structural reforms must be woven together simultaneously'. He and other advocates of the shock therapy approach view economic transition as bundles of reforms that stand in fixed proportions and fixed sequence. Deviations from these complementarities and sequences render piecemeal reforms substantially ineffectual.[8]

Yet, in 1993, 15 years into its reform, nearly the same duration as the EEFSU transition from 1990 to the present, China's economy was anything but a 'seamless web' of simultaneous reform. After a decade and a half of reform, state-owned units still accounted for 61% of total government revenue and captured an even larger share of total investment in fixed assets. Also, in 1993, 43% of total industrial output originated from state industry. Moreover, these figures considerably underestimate the role of public ownership at that time, as *collective ownership* continued to play a substantial role throughout China's economy.[9] Because constitutional protections of

[8] Also see Fischer and Gelb (1991) and the World Bank (1996) for accounts of blueprints and sequencing across key dimensions of the orthodox reform agenda.

[9] According to the China Statistical Yearbook 2006 (NBS, 2006, Ch. 15, Industry, Explanatory Notes on Main Statistical Indicators), 'Collective enterprises constitute an integral part of the socialist economy with public ownership.' Political sub-jurisdications, such as municipalities, towns, and villages, generally own a substantial share of such collective-owned enterprises.

private property were not added to the constitution until 1999 and even then required still further clarification in 2004 and 2007, it was understandable that the growth of private ownership was tentative during the first decades of China's reform. Although the proportion of public ownership has declined over the past 15 years, it remains significant, particularly within the financial system. Furthermore, observers would argue that China's political system, which ultimately drives the reform process, remains substantially unreformed. In 2004, John Williamson, the individual most closely associated with the Washington Consensus, characterised China's movement towards the constituent policy prescriptions as 'unambiguous but slow'.[10] In 2005, the Heritage Foundation and the *Wall Street Journal* ranked China 112 out of 155 countries in their Index of Economic Freedom, an overall score that barely improved on China's 1995 rank (Miles *et al.*, 2005).

Given China's weak compliance with the core principles of the Washington/NIE Consensus, how has it been possible for China to establish and sustain such impressively high rates of economic growth? Much of the China-related research establishes its distinctiveness by addressing this question. The difference in the reform styles of China and the EEFSU countries has made the debate over the respective advantages and disadvantages of gradual *versus* big bang reforms meaningful. In the absence of China's experience, it is likely that the economics profession would view the rapid, comprehensive reform scenario as the only theoretical and empirically valid approach. Instead, the arguments have become far more nuanced.

ILLUSTRATING THE BASIC MODELS

While part of the body of literature on China's economy is distinctively innovative, much of the contribution of the recent China research is found in the application, confirmation, and extension of well-established models, including those of a number of Nobel laureates. One effect of this literature has been to make the core insights of these classic works more vivid and broadly applicable. The ability of the China literature to illustrate the power of now-established paradigms is particularly relevant for demonstrating the central role and functioning of technology and institutions, particularly in the context of economic transition and development.

From a broad, macroeconomic perspective one of the most basic and enduring insights that is central to China's experience is the critical role of

[10] John Williamson, 'The Washington Consensus as Policy Prescription for Development' (http://info.worldbank.org/etools/bspan/Presentation View.asp?PID = 520&EID = 257).

rising productivity in driving China's economic growth. Above all, China's experience underscores the fundamental lesson of Solow's neoclassical growth model (1956). That is, the prime driver of the sustained growth of living standards is *productivity growth* that arises from combinations of technological change, institutional change, and their interaction, and in turn continuously shifts out the economy's production function. While at any moment in time the most proximate and conspicuous source of China's economic growth has been the sheer volume of savings and investment, the key driver in China's rapid increase in capital-deepening and living standards has been on-going productivity change that offsets the diminishing returns associated with China's torrid rates of investment.

The central importance of productivity growth in China's economic transformation should not be diluted by the myriad of TFP studies that have been applied to China, including those of this author and his colleagues. Most of these studies, including Maddison (1998), Young (2003), and Perkins and Rawski (2008), show the growth of TFP accounting for less than one-half of China's growth in per capita income. The Perkins-Rawski study, for example, estimates that, during 1978–2005, 60% of China's economic growth was attributable to investment in fixed capital and education; they conclude that only 40% resulted from TFP growth.

Nonetheless, as Hulton (1975), Prescott (1998), and Easterly (2001) emphasise, the standard productivity growth equation is seriously misspecified. It is indeed ironic that a year after introducing his neoclassical model of growth, which demonstrates that sustained capital deepening and rising living standards require on-going productivity growth, Solow in 1957 followed with his growth accounting paper in which capital deepening is presented as an independent, exogenous phenomenon – a 'source' of economic growth. While growth accounting accounts for the respective roles of capital, labour, and productivity change as proximate sources of growth, taken by itself growth accounting is an atheoretic description of the growth process. Growth accounting identifies the *accounting* contributions to growth and rising living standards, not the *economic* contributions.[11]

Hence the productivity studies cited above utilise a misspecified economic structure that seriously underestimates the true contribution of productivity growth, since the growth of productivity drives both the demand for investment through technical change and the supply of savings by

[11] Perkins and Rawski acknowledge the fundamental role of productivity growth in driving the measured contribution of capital: 'The rise in the contribution of capital did not occur independently of the rise in productivity… . Thus it was the jump in productivity growth (after 1978) that led to a higher GDP growth rate that made possible the greater contribution of capital' (p. 19).

increasing the savings per capita needed to finance new rounds of investment. While Easterly's (2001) section heading 'It's Technology, Stupid', conveys his basic proposition bluntly, he elegantly illustrates his argument with references to countries in which large forced investments in physical and human capital have yielded little payoff in the absence of underlying technological change. By contrast, China illustrates the Solow model as it was intended to work. It is difficult to image that in the absence of reform, opening, and technology transfer, that China's economy would be raising living standards any more rapidly than the negligible rate at which living standards rose in the last decade of the pre-reform period when investment rates exceeded one-third. While China's high rate of savings and low rate of population growth may have contributed to higher levels of living standards, sustained rates of growth of living standards have relied on sustained productivity growth.[12]

A vivid illustration of the importance of productivity growth in driving the demand for human capital investment is shown by Naughton (2007). Even as Table 8.1 of his text documents a dramatic expansion of educational attainment, at the same time, Figure 8.4 shows, paradoxically, over the same period a two-and-a-half-fold increase in the returns to education, a juxtaposition of surging supply and rising returns that would seem to violate the principle of diminishing returns. Clearly, the rise in labour's productivity associated with the abolition of the labour allocation system, corporate governance reform, and the opening of the economy to inflows of new technology have elevated the returns to human capital thereby motivating the surge in human capital investment in China.[13]

While Solow's, 1956 model underscores the centrality of productivity change, the power of China's technological advance and institutional change also operates through other well-known models. The elevation of several hundred million Chinese out of poverty during the 1980s and 1990s, illustrates the power of the insights of Lewis (1954) and the follow-on work of Fei and Ranis (1964) into the dynamics of the dual economy.[14] The literature

[12] In the spirit of endogenous growth theory, the emphasis on productivity growth does not preclude the possibility that China's high rates of savings and low population growth have themselves contributed to productivity growth. Specifically, they may have affected productivity by promoting human capital investment, which may increase returns to scale at the firm level or facilitate technology spillovers from the broad economy to individual firms (see Romer, 1986). The point is that to the extent that high savings rates and limited population growth have contributed to the sustained growth of living standards, they have done so through their indirect contributions to productivity growth.

[13] See Zhang *et al*. (2005) for an account of the sources of China's rising returns to education.

[14] Naughton (2007, Figure 9.1) shows two substantially different estimates of the decline in poverty – an official Chinese estimate and a World Bank estimate. However, both involve more than 25% of China's rural population escaping poverty status.

on China's rising regional and sectoral cleavages and the resulting migration frames our understanding of the largest reduction in poverty in human history spanning a single generation (Ravallion and Chen, 1999).

However, the dual economy model is fundamentally a story about productivity growth – that is of differential rates of productivity growth between the industrial and agricultural sectors that result in allocative inefficiencies that in turn drive factor reallocations, notably labour migration. Hence the Solow and Lewis and Fei and Ranis models are fundamentally linked by their shared reliance on productivity growth to spur rising efficiency and living standards. Brandt *et al.* (2008) demonstrate this importance by calculating the economic contribution of TFP in agriculture to China's overall growth; agricultural reform contributes to the pool of surplus labour whose productivity multiplies as it migrates to higher wage jobs in the urban industrial sector.[15]

While the conventional two-sector model is generally associated with two distinct regions, rural agriculture and urban industry, and the sources of differential urban–rural productivity gains are assumed, not described, in that model, China researchers tell a more complete, nuanced story. That story engages the central role of institutions and the migration of workers from farm to factory *within* China's vast rural economy as well as between China's rural and urban sectors. In China, the rapid implementation of the Household Responsibility System (HRS) fundamentally altered incentives in the farm sector (Lin, 1992a, b; Rozelle and Li, 1998), thus spurring the rise of agricultural productivity and rural incomes. The replacement of China's collectives with family-managed farms offers powerful confirmation of the tenets of the NIE regarding how institutions shape individual incentives, behaviour, and economic performance. Although China's agricultural reforms remains incomplete, since land transfer rights remain with local governments, the powerful impetus to work effort and productivity make the HRS arguably the most single important institutional innovation that has fueled China's economic transformation. It is difficult to locate another example of such a fundamental reassignment of property rights that has exhibited such widespread effects and by underscoring the importance of institutions and incentives so clearly illustrates the logic of North and Coase.

During the first decade of the reform era, rising agricultural productivity, in turn, spurred fresh demands for basic consumer goods and agricultural inputs and implements manufactured by China's rural township and village enterprises (TVEs). During the decade of the 1980s, much of the impetus for

[15] For China, Hsieh and Klenow (2007) estimate potential gains from allocative efficiency to be in the vicinity of 40%; for India, the potential gains are close to 60%.

China's migration and rising incomes occurred within the rural sector as the TVE workforce rose to more than 120 million in 1994 and its share of China's total gross industrial output expanded to 27.5%, double its level in 1985. Yet, by 2000, well into China's privatisation movement, the share of collective-owned industry, of which the TVEs were but a part, had fallen to just 6.6% of total Chinese industry (NBS, 1994, p. 373; 1995, pp. 401, 364; 2004, p. 513). Although driven by the early surge in agricultural productivity and incomes, the rise and fall of China's TVEs underscores how much of China's advance has proceeded in stages with a variety of sectors leading the transformation at different times.

The widespread impact of China's decollectivisation movement also underscores the central importance of institutional change in driving China's reform process. In fact, Easterly's shock message might have been 'It's *institutional* change, stupid', since the core driver of China's transformation has been institutional change to at least the same degree as technological change. The Chinese experience has shown how inseparable institutional change and technological change are as long-term drivers of productivity growth.

Researchers have documented and reported on the highlights of each of these reform stages, including the work cited above on agricultural productivity growth, Groves *et al*. (1994), Hay *et al*. (1994), Jefferson and Singh (1999) on the managerial reform of SOEs, and Byrd (1992), Weitzman and Xu (1993), and Putterman (1995) on TVEs. One feature that all of these analyses share is their focus on transitional institutions in which control rights became better defined but nonetheless retained notable ambiguous features. In each case, however, the literature documents substantial efficiency gains associated with the strengthened, if still substantially incomplete, control rights. The transformations of collectives, SOEs, and TVEs are all accounts of the reassignment of property rights and the 'becoming' of market institutions in the spirit of Buchanan (1979). The market institutions, in turn, evolved from episodes of North-like learning with successions of mental models and from Schumpeterian creative destruction that arose from liberalisation in the 1980s that enabled a growing role for prices and new entry. In the sixth section, we examine the literature's characterisation of these transitional institutions and their processes of change in greater depth.

While the analysis of transition in Eastern Europe and the FSU is about the impact of economic policy, the China literature is more focused on the economics of inducements to institutional change. In the remainder of this paper, we construct a model of China's transition and development that provides a context for situating the key contributions of both the general and China-specific literature.

INDUCED INSTITUTIONAL CHANGE

Against the backdrop of China's gradual, evolutionary economic transition, the literature that documents the process of induced institutional change, however fragmented, stands out as a principal contribution of the China-related economic research. As with other applied research, analyses of induced institutional change in China have developed against the background of established theoretical and analytical perspectives. The theoretical antecedents include the work of Buchanan (1979), Coase (1960, 1992), North (1990, 1994), Schumpeter (1942), and Sen (1988). While this classic literature is not built on formal structures or models, Ruttan (2001) reviews the rather sparse literature that formally attempts to construct and estimate models induced institutional change.

Although the NIE has fundamentally recast economics, its focus is largely static. That is, its method of analysis is comparative statics, which assesses the relative merits of two or more distinctive sets of institutional arrangements, involving different configurations or assignments of property rights assignments, as in the Coase Theorem.[16] However, within the NIE literature there is relatively little emphasis on the *process* by which property rights become reassigned or better specified. The central issue in the paradigm of induced institutional change is what conditions drive or induce institutions and their embodied property rights assignments to evolve over time.

Reviewing the literature on the subject, Ruttan summarises the problem in terms of demand and supply conditions that drive institutional innovation. Within the commercial arena, private entrepreneurs investigate and pursue opportunities for institutional change until the marginal benefit and cost of institutional innovation roughly equate. However, in the public arena, Ruttan (2001) postulates:

> Institutional innovation will be supplied if the expected return from the innovation that can be captured by the political entrepreneur exceeds the marginal cost of mobilizing the resources necessary to introduce the innovation. To the extent that the private return to the political entrepreneurs is different from the social return, the institutional innovation will not be supplied at a socially optimal level. (p. 130)

In his summary of the induced innovation literature, many of the illustrations reviewed by Ruttan involve the emergence of disequilibria between the

[16] Another example analyses the implications of alternative assignments of property rights, such as the right of the lender to monitor for the purpose of mitigating problems associated with asymmetric information in credit allocation, for example Dewatripont and Maskin (1995).

marginal return and marginal cost of institutional change that result from changes in factor endowments or technical change.[17] When the underlying disequilibria emerge, competition becomes critical as it enables market participants to calibrate the gains to institutional change as measured by the observable differences in the returns to good performers and bad performers. Having calculated these potential gains, agents can then decide whether the expected gains exceed the costs of adopting the new institutional arrangements.

Schumpeter and North explicitly focus on the role of competition. Schumpeter views the role of competition from a systemic, macroeconomic perspective as the well-spring of the capitalist system that drives its continuous reinvention. While Schumpeter's focus (1942) on 'the perennial gale of creative destruction' is generally associated with the phenomenon of technological change, like North he sees competition as the driving force behind all forms of change: '(what counts is) the competition from the new commodity, the new technology, the new source of supply, the new type of organization…' (p. 84). By contrast, North has a more microeconomic, behaviour-centred perspective in which incipient competition, which may even exist in a collective setting such as an array of township and village-owned enterprises, spawns meaningful incentives for search and learning and for the ensuing adoption of institutional and technological change. North celebrates this link between competition and learning: 'While idle curiosity will result in learning, the rate of learning will reflect the intensity of competition amongst organizations. Competition, reflecting ubiquitous scarcity, induces organizations to engage in learning to survive…' (p. 362). Thus, while for Schumpeter, capitalism is a precondition for Schumpeterian 'creative destruction', from North's more eclectic perspective, competition may function as a key motive for driving individual organisations or whole economies from one system to another. North's broad interpretation of the role of competition gives it the powers to motivate a once-socialist, centrally planned economy like China's to 'grow out of the plan', to use Naughton's phrase (see Naughton, 1995). North's elaboration on the role of competition inspires us to consider the explicit processes whereby competition destroys institutional arrangements devised under the old planned economy, creating in their stead market-oriented capitalist institutions.

[17] Ruttan particularly focuses on a case study of institutional innovation conducted by Hayami and Kikuchi (1981) in a Philippine village involving changes in technology and resource endowments associated with the introduction of high yielding varieties of rice and a national irrigation system. These changes led during 1966–1976 to a shift from share tenure to lease tenure and to a dramatic increase in sub-tenancy arrangements (p. 362).

If competition has been the driving force of China's institutional transition, then the literature must face the question of what conditions have opened the door to competition. The process of China's opening or liberalisation clearly differs from the EEFSU model of reform agents rapidly opening the spigots of market activity. China occupies the opposite end of the spectrum, in which its reform agents initially limited market activity to a 'bird cage', to use Chen Yun's metaphor, in service to the command economy only to come under the spell of the gains from sustained incremental increases in the scope of the market. Lau *et al.* (2000) identify the source of these political and economic gains as deriving from 'reform without losers'.

Rather than viewing China's institutional change as a purely endogenous phenomenon, Bromley and Yao (2006) formulate a model of multi-layered institutional arrangements. In their model, constitutional and legislative authorities at the top of the political hierarchy frame the legal architecture that shapes the rules, norms, and behaviour of lower-level institutions that are nested within the institutional hierarchy. Initial, exogenous changes in constitutional and legislative rule-making induce changes in the design and functioning of lower-level institutions. Changes in lower-level institutions, in turn, operate through feedback mechanisms, such as monitoring and learning by higher-level authorities, to induce changes at the top of the institutional hierarchy. Hence, once in motion, the process of institutional change can feed on itself to sustain an ongoing, path-dependent process that is reinforced by feedback driven by competition, search, and learning, which, in the case of China's economy, together serve to alter the mental models of the agents responsible for reform. In this spirit, Jefferson and Rawski (1994) characterise China's reform experience as a 'process rather than an event' that incorporates aspects of Hirschman's 'unbalanced' development model in which imbalances and disequilibria force new reform initiatives through systems of feedback and learning. The following section characterises the three central elements of China's 'process of becoming' and induced institutional change.

THREE ELEMENTS OF CHINA'S REFORM PROCESS

This section is organised into three subsections that describe the essential elements and literature relating to the three elements of the China-related literature on induced institutional innovation. These are transitional institutions, competition and learning, and a generally stable, pragmatic, political environment.

- *Transitional institutions*. Transitional institutions are viewed as having two distinct defining characteristics. First, they embody a fundamental

institutional weakness, typically associated with a state-centred or unclear assignment of property rights (eg a legacy of state ownership). Second, they are susceptible to competitive pressure, that is, able to phase out or evolve into a higher-order, market-oriented institution, while continuing to lag behind best practice. An extensive literature has accumulated that analyses and documents China's institutional deficiencies while also attempting to identify the factors that motivate efforts to improve their functioning.[18]

- *Competition and learning*. A recurring theme of the China literature is the role of competition as the key driver of institutional reform in China's economy. This literature describes and documents the sources of the competition, created both internally and through China's opening. A portion of the literature analyses the nature of the learning resulting from the competition, including the formulation of new 'mental models' that enable the design, adoption, and diffusion of new institutional arrangements.
- *A generally, stable, pragmatic political environment*. A key aspect of China's transition has been a political system that has been responsible for reassigning, clarifying, and mediating property rights, while maintaining a stable macroeconomy and political economy and itself being susceptible to institutional change.

The interaction of these three elements, transitional institutions, competition and learning, and a stable, pragmatic political economy, go a long way towards identifying the ingredients of China's heretofore successful economic reform process. Taken together these three elements shift the prism of the NIE literature from that of an emphasis on the nature of 'good' institutions to that of the process of becoming better institutions. Each of these three elements has been necessary; none is sufficient, for shaping China's robust reform path. The omission of any one of the three elements would have disabled the reform process or at least implied a fundamentally different reform trajectory.

No one article in the China literature describes all three elements and their interactions sufficiently. The literature addressing the essential character of each of these conditions is reviewed below. Some, describe the central aspects of individual parts of the process, such as Weitzman and Xu (1993) for transitional TVEs and Qian and Xu (1993) for regional experimentation and competition. Others, such as Qian (2002) and Jefferson and Rawski (1994) attempt to integrate the elements of transitional institutions and competition, Bromley and Yao (2006) introduce the key third element of the role of political economy. As yet, however, none has fully integrated these

[18] Guo (2005) provides a broad context for understanding the certain advantages associated with the relative 'backwardness' of China's institutions.

into a single model of institutional evolution. Highlights of the literature are reviewed below.

Transitional institutions

The transitional institution that first began China's reform process was the rural collective. The fact that it was made up of production teams that were, in turn, collections of households made it capable of being restructured by making the household the irreducible unit of production. The fact that, in some collectives, one or few households took the lead in agricultural production, particularly in those areas that specialised in husbandry, made decollectivisation more feasible. Moreover, by leasing, not selling, land use rights to households, decollectivisation side-stepped the issue of land transfer rights and instead struggled with the more tractable problem of distributing machinery, livestock, and crop revenues across households.

According to Qian (2000), the first recorded practice of household responsibility farming took place in December 1978 in the Xiaogang Production Brigade of Fengyang County in Anhui Province, where 20 farmers representing as many households put their fingerprints on a 'contract' to divide the commune's land among the households. By doing so they also promised to fulfill the procurement quota of grain to the state. Under the HRS, households became residual claimants and obtained almost all control rights over production, except for the right to transfer their ownership rights. With the HRS resulting in dramatic gains in farm productivity and household incomes, by the end of 1983, 98% of the production teams in China had adopted the new household-based farming system. What conditions led to this institutional revolution in China's countryside?

The following conditions first opened the door for and then propelled the decollectivisation of agricultural production and adoption of the HRS.

- Following the trauma of the Great Leap that resulted in man-made famines, the death of tens of millions, and later the disturbances of the Cultural Revolution, including the suspension of higher education for a decade, China's political leaders were desperate to restore the legitimacy of the Party and political system. One initiative authorised experimentation in China's poorer areas to raise economic productivity and living standards. The tragic errors of the Maoist era thus altered the ideology of China's political leadership, making it easier – indeed imperative – to initiate institutional change.
- The dramatic success of the household responsibility experiment among a small number of production teams in Anhui Province inspired its spontaneous adoption across much of China, which raced ahead of the Party's acceptance of the grass roots decollectivisation movement. Once the

substantial payoff to adoption of the HRS had become widely demonstrated, it became relatively easy for the Chinese Communist Party (CCP) to give its full recognition.

Lin (1987, 1995) proposes that the rapid diffusion of the HRS through China's countryside can be explained by the induced institutional innovation hypothesis of Hayami and Ruttan (1985). According to Lin (1987):

> For the institution to be adopted, as Hayami and Ruttan postulated, it was necessary that gains to the innovators be large enough to offset the social costs involved in changing the relationships. The costs to attain consensus should be smaller if it is easy to divide the team endowments and to parcel out the team obligations to the households. The costs should also be smaller when the merits of the new system have come to light through the performances of those households that have already adopted the new system (p. 411).

Lin (1987) and Fan (1991) view the decollectivisation movement as resulting from the widespread recognition of a large differential between crop yields under the collective system and those potentially available under an incentivised farming scheme, estimated to be as large as 30% in favour of the latter. Lin (1987) hypothesises that the specific payoff to decollectivisation was a function of the size of production teams, where large teams made efficient monitoring and reward more difficult. He also hypothesised that rates of diffusion of the HRS were determined by the cost of transitioning to the new system. Transition costs rose in relation to the proportion of farm output dedicated to crop production *versus* husbandry, since much of the latter was already managed by individual households within the collective. In addition, the less the use of machinery, which was relatively indivisible, the easier the dissolution of the production team. At the same time, the greater use of draft animals, whose numbers made them relatively divisible, led to higher rates of diffusion of the HRS. Using provincial level data for the period 1981–1983, Lin finds reasonably robust support for this analytical framework for balancing the marginal cost and marginal benefit of decollectivisation.

Following the initial spurt in agricultural productivity during the first half of the 1980s, it became evident that under the land-assignment scheme the lease of use-rights alone created insufficient incentives for farmers to invest, while also encouraging small-scale farming and the excessive scattering of plots.[19] The growing perception of the costs of the leasing of fragmented plots *versus* the benefits of assigning residual ownership rights, including the right

[19] Bowlus and Sicular (2003) also show that the absence of land markets that function across villages contribute to both labour shortages and surpluses.

of sale, to farmers, has spurred active debate and search for politically acceptable solutions to the land ownership issue that challenges the most basic tenets of the socialist doctrine. Although the central government remains unable to resolve the dispute over the matter of privatising agricultural land, the search for resolution has encouraged local governments to allow permissive institutional experimentation, including hiring in farm labour, sub-leasing, and longer land contracts extending in some cases more than 15 years (Bromley and Yao, 2006).

This marginal cost–marginal benefit model of institutional restructuring also resonates with China's SOE reform experience. One of the Chinese names for the state-ownership, ownership by all of the people (*quanmin suoyouzhi*), readily captures the condition of the SOE as a 'tragedy of the commons'. Like trees in a public forest that can be freely used as firewood, the essential institutional problem is that, with weak monitoring, stakeholders with access to the SOE, notably managers, workers, and officials, enjoy the ability to enter and strip the assets, either directly in the form of theft or indirectly in the form of shirking that yields rewards in excess of their real contributions. The result is a leaching of the assets of the SOE. When these assets are replenished through subsidies or loans that become bad loans, the SOE crosses the line from an exhaustible commons to an inexhaustible public good.[20] As in Jensen and Meckling's classic (1976) characterisation of agency costs, the SOE problem is essentially a monitoring problem – a weak assignment of managerial control rights. SOE managers lack the motivation and authority to monitor the productivity of inputs and calibrate the warranted rewards.

Within this institutional setting in which wages are compressed, so long as the skilled and motivated workers face no opportunity cost for shirking, that is, the right to migrate to a job that rewards in accord with skill and effort, the low-effort and low-pay equilibrium persists. In the absence of a market in labour quality, workers of all ability levels shirk. This low-level equilibrium was finally disrupted in the latter half of the 1980s when China's government carried out two reforms.[21]

The first policy reform was liberalisation that allowed for the entry of new enterprise forms, including the expansion of TVEs, joint ventures involving shares of foreign ownership, and individual household enterprises (*getihu*). Unlike their SOE counterparts, managers operating within these enterprises types enjoyed a relatively full range of the managerial control rights that

[20] See Jefferson's (1998) characterisation of the state-owned enterprise as a public good.

[21] See Jefferson's account of the problem of markets in labour quality within China's SOEs, 'Missing Markets in Labor Quality: The Role of Quality Markets in Transition,' http://people.brandeis.edu/~jefferso/res.html.

frame both a more profit-oriented motivation and the ability to monitor and reward the workforce to increase the firm's profit.

The second reform that disrupted the low-level shirking equilibrium gave workers the right to search for work. Until the mid-1980s, China's workers and graduating students were typically assigned jobs in SOEs with no right or opportunity to transfer to the non-state sector where reward for extraordinary skill and effort could be found.[22] However, by the end of the 1980s, with the abolition of the labour allocation system and proliferation of non-state enterprises, top-tier workers could exit to work settings in which managers enjoyed the authority to monitor and reward workers in accord with their skill and effort.

These changes essentially created a market for labour quality where such a market had previously been absent in China. Unfortunately, China's SOEs did not have the managerial capacity to compete for labour quality. The transitional characteristics of the SOE system then came into play. The emergence of functioning markets for labour quality outside the SOE system motivated the most productive SOE workers to exit to higher wage jobs in the newly established enterprise sector. The exit of high productivity workers from SOEs led to relative reductions in average productivity levels and revenues in the state sector, thereby limiting wage increases there relative to those available in the emerging non-state sector.

This growing wage disparity, documented in national wage statistics,[23] then motivated the next tier of productive workers to exit, with further declines in productivity, revenue, and relative compensation. The process of adverse selection arising from the inability of SOEs to compete in markets in labour quality disrupted the SOE low-level shirking equilibrium. During the late 1980s and early 1990s, as successive tiers of productive workers exited, SOE performance continued to deteriorate in relation to the non-state sector.

By creating more financial and managerial challenges for SOEs, the emergence of markets in labour quality forced local governments and the SOE supervisory agencies either to increase subsidies continuously, reform

[22] During the academic year 1986–1987 when the author was teaching in the School of Economics at Wuhan University, he observed that the graduate students were not quite as diligent as he had anticipated. They explained that this was due to the fact they anticipated assignments under the labour allocation system that were not likely to require them to use their advanced economics training.

[23] In 1985, the average wage of staff and workers in SOEs was 0.845 that of the firms operating under other types of ownership. From 1985, the relative SOE wage fell year-on-year until 1993 when it stood at 0.712, a 16% decline over 8 years. Thereafter, as managers acquired greater rights to set compensation and furlough workers (ie *xiagang*), the relative wage of SOE workers began to rise. Jefferson *et al*. (forthcoming) document a rapid rise in the relative productivity levels of SOEs from 1998 to 2005.

managerial control rights to enable SOE managers to compete in labour quality markets, or to liquidate or sell off the enterprises. All of these occurred in some measure.[24] Where governments reassigned control rights to SOE managers, the government in some measure extended the *market in labour quality* to China's SOEs.[25] Creating these markets in labour quality replicated conditions associated with the classic case of the creation of a Coasian market in water quality. With a clear assignment of managerial control rights (to the manager) and low transaction costs, management (the downstream party) could compensate labour (the upstream party) to provide higher quality labour services.

During the decade following the government's 1995 decree to 'retain the large (SOEs) and let the small (SOEs) go', the number of SOEs fell dramatically. Even among the large- and medium-size enterprises, the proportion of SOEs declined from 64% in 1996 (12,216) to just 11% (3,396) in 2006. Among those retained by the state, Premier Zhu Rongji called for the implementation of 'modern management systems' seemingly with some effect. Although during 1985–1995, the relative productivity of enterprises that retained their SOE status declined, during 1995–2005, starting from a relatively low level, the productivity of China's SOEs grew more rapidly than that of the economy's non-state enterprises (see Jefferson *et al.*, forthcoming, Table 5).

Various studies point to the role of competition in motivating SOE restructuring. Li *et al.* (2000), for example, start with the recognition that for most SOEs, local governments, which hold the residual claim on after-tax profits, also have the right to decide whether or not to shift these residual claims to management, that is, to privatise. According to their hypothesis, when competition becomes sufficiently intense, thus eroding or threatening to erode, profitability and tax revenue, local governments are induced to shift residual claims to the manager. This link between competition and enterprise restructuring is probably the most frequently tested causal hypothesis in the Chinese enterprise reform literature.[26] The model of missing markets in

[24] See the survey of Jefferson *et al.* (1999) of differential assignments of managerial control rights in samples of SOEs and TVEs.

[25] Bai *et al.* (2000) argue that in the absence of an umbrella safety net, such as unemployment insurance, SOEs continue to play a critical transition. Because independent institutions for social safety are lacking and firms with strong profit incentives have little incentives to promote social stability due to its public good nature, SOEs are needed to continue their role in providing social welfare. Charged with the multi-tasks of efficient production as well as social welfare provision, SOEs continue to be given low-profit incentives and consequently, their financial performance continues to be poor.

[26] Cao *et al.* (1999), Li *et al.* (2000) and Li (1997) all find empirical evidence to support this view.

labour quality is useful for understanding at least one set of dynamic processes involving spillovers from liberalisation and competition that has motivated the restructuring or liquidation of China's SOEs.

China's dual-track system, which framed the emergence of the markets in labour quality sketched above, served as the administrative and pricing framework for a range of institutions to phase out of their plan structures. Lau *et al*. (2000) document the Pareto-improving impacts of both the agricultural and industrial market liberalisations under the dual-track system. To best appreciate the central role of the dual-track system, however, one must understand how it encapsulated the whole of China's economic transition in which phase outs in one sector created spillovers in the form of supply and demand linkages and competition that enabled or incentivised other sectors to grow out of their plans. By dramatically raising agricultural productivity, the supply of surplus labour, and rural incomes during 1978–1984, decollectivisation set the stage for the rapid emergence and expansion of the TVE sector during the 1984–1994 period. Responding to the rise in purchasing power in China's vast rural economy, TVEs at once filled empty product niches, expanded supply chains, and generated new sources of competition for SOEs. At the same time, the opening of export markets even as the planned trade system remained in force, paved the way for foreign investment and joint ventures, which also competed with SOEs for domestic and overseas markets and quality labour. By 1994, the robustness of the TVE and foreign sectors had substantially eroded the advantages that SOEs had once enjoyed. The cost–benefit calculus of SOE restructuring shifted in favour of reform and SOE restructuring accelerated rapidly. In this sense the TVEs and JVs served as the bridge between China's successful agricultural reforms and the deepening, if delayed, state sector reform during the latter half of the 1990s.

Other institutions that embody the attributes of ambiguous assignments of property rights and susceptibility to competition remain in critical phases of their transition, none more so than the banking system, which has absorbed hundreds of billions of dollars in public funds to recapitalise its depleted assets.[27] However, it too is exhibiting responsiveness to rising competition with China's financial sector, particularly as the provisions of the WTO agreement governing financial liberalisation have taken effect. Keidel (2007) investigates how over the past decade China's financial sector has turned in a credible performance with a respectable ICOR, rising returns to investment, a high degree of financial stability, and the ability to sustain high

[27] Lardy (1998, 2002) documents these losses, chronicles the government's attempts to reform the banking system, and describes the rule changes associated with China's accession to the WTO.

growth.[28] Like the SOE reform scenario sketched above, Keidel's model of induced restructuring focuses on institutional complementarities, in this case within the financial system. He argues that the successful strengthening of China's financial system has resulted from the 'two-part' or dual-track structure in which the publicly financed portion of the system provides a stable backdrop to the emerging private institutions and market operations. The two parts perform mutually complementary roles; one providing stability, the other serving as a competitive impetus to restructuring. As the WTO provisions for financial sector liberalisation take hold, foreign competition and inflows of foreign capital ensuing rising ownership shares in the Chinese banking system sustain reform progress, as the element of state ownership and backup the necessary ingredient of stability and confidence. Of course, this somewhat idealised account implies the right mix of liberalisation and competition with suitable control and guarantees as if driven by an enlightened despot. This involves the role of China's generally stable, pragmatic political environment, which is addressed later in this section.

Jefferson and Rawski (2002) explicitly apply the Coase Theorem to formulate their analysis of the development of China's market in corporate assets. They argue that reforms involving the clarification of Chinese corporate asset ownership and the reduction in transaction costs resulting from financial sector reform and the development of company and contract law have led to the emergence of an active market in corporate assets, mergers, and acquisitions. China's emerging stock markets are a key element of this market in corporate assets. The access these markets are giving to foreign firms includes the opportunity for foreign financial institutions to purchase substantial blocks of shares in China's state-owned banks thereby clarifying the property rights assignments within these banks and creating access to foreign banking technology and management practices.

Viewed through the lens of a Coasian missing market, each of the transitional institutions described above can be seen as embodying a missing market of one form or another, whether rights over the use of land and the disposition of crops in farm production, the supply and demand for quality labour services in SOEs, the right to issue, monitor, and collect loans in financial services, or the right to transfer corporate assets. China continues to struggle with other realms of missing markets, including intellectual property and environmental quality. George Stigler said of the Coase theorem, that its logic cannot be questioned, only its domain (Stigler, 1989). Research on

[28] See recent estimate of returns to investment by Bai *et al*. (2006) and Jefferson *et al*. (2006). Both find increasing return to capital in the China's secondary (industrial) sectors.

China's transitional institutions has served to considerably expand our appreciation of the expanding domain of the Coase theorem.

The innovative feature of the China literature is its ability to deepen our understanding of the dynamic processes that are leading to the creation of varieties of markets and capitalist institutions where such markets and institutions had not previously existed. The examples of the agricultural decollectivisation movement and state enterprise reform show how initial steps by the government can disrupt existing equilibria and set in motion, whether intentional or not, pressures to extend and deepen the reform of transitional institutions in accord with the logic of Coase.

This section clearly points to competition as the driving force for China's transition. The next section examines the role of competition and its corollary, learning, in motivating and directing the search for institutional innovations. Thereafter, the section looks at the critical role of government and the political system in initiating and orchestrating the reform initiatives that motivate and enable individuals and organisations to search ways of adopting and achieving more efficient institutions.

Competition and learning

In the neoclassical paradigm, competition plays a critical role in setting prices and motivating static economic efficiency. Schumpeter (1942) and North (1994), however, view competition in a dynamic setting; it is the mainspring of economic progress.

It is difficult to appreciate the degree of competition that lay latent in China's economic system at the beginning of its reform process.[29] One of the unintended accomplishments of the socialist era was to create the preconditions that facilitated the burst of competition that followed from the economic liberalisation of the 1980s. The sporadic emphasis on decentralisation during the socialist era was associated with the construction of relatively complete sets of industries across many of China's then 29 provinces. In the wake of the decentralisation movements, by 1980 most provinces had a steel mill, a textile factory, a factory producing heavy transportation equipment, and multiple factories established for the production of beer, bicycles, TVs and other household appliances, as well as a wide variety of other manufactured goods.[30] According to Xu (2006), at the outset

[29] Mao's decentralisation movement accompanied the Great Leap. In 1958, the number of SOEs subordinated to the central government was reduced from 9,300 in 1957 to 1,200 in 1958 (Qian, 2002, p. 25). Recentralisation followed the Great Leap disaster. The second wave of decentralisation (1970) shared many features of the 1958 decentralisation but went even further. Qian (p. 27). The number of SOEs under central government supervision fell from 10,533 in 1965 to just 142 in 1970.

[30] These bundles of regional production capabilities are documented in Naughton (2007).

of the reforms, almost all of the two thousand counties in China had SOEs producing agricultural machinery; 300 countries had steel plants, more than 20 provinces had SOEs producing automobiles or tractors. Small regional SOEs produced 69% of China's total fertiliser output and 59% of its cement. Moreover, because in 1980 19 of these provinces had populations that exceeded 25 million, of which eight had populations that matched or exceeded the size of Great Britain, with sufficient liberalisation, the proliferation of factories created the prospect of high levels of competition and the ensuing restructuring with the potential for multiple plants competing at minimum efficient scale.

Qian and Xu (1993), Qian and Weingast (1997), and Qian *et al.* (2006) offer a critical insight regarding how China's system of regional government has fostered decentralised, experimental transition and inter-regional competition.[31] Although, under its constitution, China is not a federalist system, in important ways, China's regional governments are more powerful than their counterparts in most federalist countries. Most governmental functions are administered by regional governments. Wong (2006) documents the total expenditure of China's regional governments in the early 2000s to have been about 70% of the national level, a proportion that is far larger than that of the world's largest federalist countries, including the US (46%), Germany (40%) and Russia (38%).

According to Qian and Xu (1993) during the early stages of reform, '…the central government delegated more autonomous power and provided stronger incentives to regional government in trying out reforms and in promoting economic growth'. One consequence of this delegation is that provincial and municipal leaders have aggressively competed by shaping their policies – tax, subsidies, public infrastructure investment, education, and technology policies – to gain advantage in attracting new investment, both domestic and foreign.[32] In accord with the central government's policy for China's provinces of 'compete to become rich quicker', provincial officials anticipated that when their province enjoyed higher growth than others, the head of the province would be afforded greater power and be more likely to be promoted (Xu, 2006, p. 3).

The second source of the competition that is driving China's transition and development is the economy's remarkable openness to the global

[31] Young (2000) argues that substantial barriers to trade exist between Chinese provinces. Other research (eg Bai (2004) and Long and Zhang (2008)) since 1990 find a clear trend toward greater regional specialisation.

[32] Chinese policy makers refer facetiously to the '10 + 1' policy paradigm, that is, 'If province X will give you those 10 incentives, then our province will give you those 10 plus this one more.'

economy; from just 9.8% in 1978, China's trade ratio rose to 63.9% in 2005 (NBS, 2006).[33] The speed of China's opening had its roots partially in the 19th century and first half of the 20th century during which commercial links were established between the mainland and the economies of Hong Kong, Macao, Taiwan, and the Chaozhou people of Southeast Asia. The four special economic zones, Shenzhen, Zhuhai, Xiamen, and Shantao, established in the early 1980s to rekindle these historical commercial links became the initial impetus for China's burgeoning trade and FDI[34] Commercial operations in these areas rapidly extended access to supply chains, experienced managerial know-how, and advanced overseas technologies.

Using a large cross-country sample, Aghion *et al.* (2006) confirm that foreign entry induces productivity growth among the relatively productive domestic firms, particularly in technologically advanced industries. Deng and Jefferson (2008) extend that work using large- and medium-size industrial enterprise data for China to show that, in response to foreign entry, Chinese-owned firms that operate closer to the technology frontier defined by their foreign are able to raise productivity, while those firms that are more distant from the frontier are frequently restructured. As North might anticipate, the China literature finds that competition associated with foreign entry results in overall productivity advance by domestic Chinese firms. However, as Schumpeter predicts, while competition strengthens some firms, it also enfeebles weaker firms, often setting them on the path to restructuring or liquidation.

According to North (1994), the link between competition and institutional change is not automatic. In this model of induced institutional change, the phenomenon of learning is the critical avenue linking competition and institutional change. North memorialises this connection: 'While idle curiosity will result in learning, the rate of learning will reflect the intensity of competition amongst organisations. Competition, reflecting ubiquitous scarcity, induces organisations to engage in learning to survive…' (p. 362).

In addition to their finding that foreign entry results in a bifurcation of productivity response, with strong productivity gains in stronger firms and declines in weaker firms, Deng and Jefferson (2008) find a similar response in R&D spending. As higher productivity firms increase their R&D expenditure, weaker firms cut back on R&D spending. Consistent with the finding of Deng and Jefferson, Girma *et al.* (forthcoming), also using Chinese firm-level data, show that foreign entry accelerates the pace of new product development. In a similar vein, even after controlling for firm-level R&D expenditure, Hu and Jefferson (2008) show that rising concentrations of industry FDI in China

[33] The trade ration is defined conventionally as (imports + exports)/GDP.
[34] See Naughton (2007), Ch. 1, 'Legacies and Settings.'

contribute substantially to the incidence of new patent applications. Hence, a substantial body of China-related literature confirms the important role that international competition plays in motivating learning that leads to productivity upgrading, R&D intensification, patent development, and rising product quality.

While the literature cited above focuses on technical learning within industry, Bromley and Yao (2006) argue that system-wide learning, including that arising from early productivity advances in agriculture, emboldened the reformers to further modify their ideology and thus to undertake yet further institutional innovation in other sectors. According to Bromley and Yao, China's early reform process was:

> …a process of individual leaders gradually revising their beliefs, experimenting on a few modest fronts, observing the results of those new institutions, learning from those pilot projects, revising the analytical and prescriptive models of their economic advisors, crafting yet another set of new institutional arrangements, and continuing to watch, learn, revise, observe, and then revise accordingly (p. 44).

In their seven-stage description of China's reform process, which they entitle 'China's Decision to Create a Market-Based Economic System is an Endogenous Outcome of the Partial Reform Process', Jefferson and Rawski (1994) describe key changes that occurred in the early 1990s:

> The rise of pro-market sentiments among the political and administrative elite represents the biggest feedback of all in China's partial reform process. In the early 1990 s these changes coalesced into a stunning reversal of deep-seated attitudes. Ideas that only ten years earlier stood far beyond the limits of permissible discussion now took center stage…. China's Communist Party announced a national goal of creating a decentralized market economy. (Decision, 1993, p. 150)

This decision of the 14th Party Congress, as well as decisions exhibiting changing attitudes towards the role of private property in Chinese society, including the 1999 constitutional amendment placing private business on an equal footing with the public sector, offer vivid examples of the evolution of a succession of North-like mental models that have framed the gradual, but generally continuous advance of China's reform agenda.[35] The

[35] Wu (2000) describes the transformation of a mental model associated with the Fourth Plenum of the 15 CCP National Congress (1989). According to Wu, that Congress 'rejected the Soviet-style view that the quality of the socialist state was proportional to the size of the state sector..(The Congress called for) an economic system based on the principle of ''Three Benefits'': …the domain of the state system shall be narrowed; develop multiple forms of public ownership; encourage the development of the non-public sector such as private enterprises.'

remaining question relating to this model of interactions among transitional institutions, competition and learning, and the political environment is: What has been the role of government and China's political economy in initiating and sustaining China's economic transition and institutional change? The following section examines the role of China's political economy and the literature that describes its functioning in China's reform process.

A generally stable, pragmatic political environment

Governments oversee the transition process. Apart from its focus on individual policy choices, the transition literature affords less attention to the role of government than it should. The role of government has been particularly important for China where the political system has managed a gradual, long-duration transition spanning decades. As the overseer of a long-duration transition process, China's political system has not only defined the speed and scope of reform, it has shaped the mental models that inform the reform process, both for decision makers and the general public, and established the means for generating feedback and learning so as to enable mid-course corrections to China's reform strategy. Furthermore, as the initiator and arbiter of rule changes that create the regulatory architecture for China's transitioning economy, China's political system and its own evolution are themselves critical subjects for research and analysis.

Both China's leaders and researchers have created various mental models of the essential nature of China's reform process. The most inclusive and best-known mental model of China's reform doctrine was set forth by Deng Xiaoping in his famous expression: 'groping for stones to cross the river', which in a single phase captured the dimensions of speed, learning, and the centrality of path dependency in shaping China's economic transformation. Invoking the metaphor of the 'orchestra conductor', Bromley and Yao (2006) offer an alternative image of the methods by which China's 'authoritative agents' oversee legal and regulatory change.

Although groping for stones and orchestrating music offer very different images of China's reform process, these contrasting metaphors can be viewed as representing different segments in the time line of China's reform process. At the outset of the reform process, reform agents first groped as they learned to read music, studied the sounds of the different instruments, accessed the capabilities of members of the orchestra, and gained experience in sequencing and harmonising the range of instrumentation. The contrasting Deng and Bromley-Yao metaphors underscore the extraordinary accumulation of learning and experience by China's reformers while still

allowing that China's political system retains its distinctive experimental, regressive, and sometimes dissonant character.[36]

In broad strokes (to mix metaphors), from an *ex post* perspective, the Chinese government and CCP have effectively orchestrated the reassignment of property rights from the state to individuals and organisations. The conductor metaphor captures North's (1994) conception of the political system as the authority responsible for setting rules and for assigning and clarifying property rights so as to 'shape perceptions about the payoffs' to various forms of behaviour. The reshaping of these perceptions about payoffs are moving millions of individual actors within China to restructure their local institutional environments. This reassignment, in turn, motivated by the goal of incentivising China's economy to rapidly enhance living standards has substantially restored and maintained the Party's performance legitimacy, as sought by Deng and his party colleagues. However, as discussed later, the reassignment of property rights has itself set in motion new forces that are challenging that legitimacy.

One element of China's successful transition that has received surprisingly little attention has been the ability of China's political system to at once advance its reform agenda while maintaining a stable political environment. Popov (2007) emphasises the critical role of state institutions: 'The ability of state institutions (can be) understood as the ability of the state to enforce its own rules and regulations…'. According to Popov, '…the data seem to suggest that both authoritarian and democratic regimes can have strong rule of law and can deliver efficient institutions, whereas under the weak rule of law, authoritarian regimes do a better job in maintaining efficient institutions than democracies' (p. 28). Popov concludes that 'It is precisely this strong institutional framework that should be held responsible for both (China's and Vietnam's success), where strong authoritarian regimes were preserved and CPE institutions were not dismantled before new market institutions were created…' (p. 3).

Djankov *et al*. (2003) analyse the tension between disorder and dictatorship, which is the tradeoff between social losses due to private expropriation and social losses due to state expropriation. They represent this tradeoff in the form of the Institutional Possibilities Frontier (IPF), that is, a locus of points, such that disorder (dictatorship) cannot be reduced without

[36] Consistent with the Bromley-Yao imagery, Wei (1997) assigns to his reform agents the responsibility of delegating 'different parts of a reform program into groups. Within each group, there is strong interdependence. Across groups there is no strong interdependence' (p. 1,236). The gradual reform process entails the implementation of rapid, simultaneous reform within interdependent groups, while coordination across groups may proceed more slowly.

increasing dictatorship (disorder). In their formulation, dictatorship compensates for the absence of established, well-functioning rule of law, and is therefore consistent with Popov's view that under a weak rule of law, authoritarian regimes perform better in maintaining efficient institutions than democracies.[37] However, the Djankov–Popov model may be increasingly unsuited for China.

Enjoying the economic fruits of a stable political regime, China's leadership and much of its intelligentsia and prospering middle class remain leery of the risks associated with moving too quickly along the IPF so long as dictatorship is able to orchestrate the reassignment of property rights and maintain a stable political environment in which these rights can be broken in, exercised, and mediated. However, the reassignment of property rights, originally motivated by the determination of China's party leadership to incentivise the economy and re-legitimate the Party, has created a growing circle of individuals and organisations that are intent on both securing these newly acquired rights and extracting from them the maximum returns. As the owners of corporate assets, homeowners, landowners, and owners of intellectual property exercise their newly acquired rights, these rights are increasingly likely to come into conflict with established interests as well as the interests of other newly empowered groups.

As a result of the reassignment and democratisation of property rights, China is experiencing an increasingly wide range of social divisions and discontents. These divisions centre on the rights of individuals on opposite sides of divides regarding the nation's growing income disparities, a quality environmental, and access to social services and insurance. In its effort to achieve a 'harmonious society', China's leadership is aware of the growing need of the political system to mediate conflict over contending rights and resource allocation priorities.[38]

However, the ability of the political system to mediate conflicts in the assignment and exercise of rights requires legitimacy that cannot be fulfilled through achieving high-growth performance alone. In order for the political

[37] Josef Brada inquires how China 'evolved from a government that gave us the Great Leap Forward, the Great Famine, and other economic and social disasters…to one that seems almost Socratic in its steering of economic reform.' Brada continues, '…this is not the message of the classical public choice school of thought like Tullock and Olsen.' Brada's question goes to the heart of the question concerning the nature of the Chinese leadership's objective function that underlies the 'generally stable, pragmatic political environment,' which is the focus of this section. I leave it to another to identify the objective function of the Chinese leadership and CCP that answers Brada's question.

[38] Elements of this argument are set forth in Jefferson and Zhang (2007).

system to mediate China's growing economic and social conflict that has raised from the devolution of property rights the ruling party will most likely require procedural legitimacy that can only be achieved through formal electoral procedures. That is, China may be returning to a condition of 'class struggle', this time not one imposed from the top down as in the Maoist era, but one that operates through popular channels similar to those in advanced democratic states. The agent with the authority to mediate these struggles will need to emerge from a formal political contest in which the losers know that they can look forward to a day, stretching but a few years into the future, when they can again contest for power in a fair and transparent manner. According to Naughton (2006):

> …the growth of independent economic powers, the increasing education and sophistication of the population, and the expanding demands for property rights and personal security will challenge the Party. Powerful interest groups currently grouped within the Communist Party will fragment, struggle over distribution of spoils and protection from losses. At some point, interest groups will stare at each (other) over a chasm of social chaos, and decide that a real rule of law and political democracy are better than a fight to the death. A truce in the struggle for wealth and power is more likely to lead to political democracy than is a carefully constructed harmonious society…. (p. 10)

This particular feedback loop, the blowback from China's broad popular reassignment of an array of property rights, is a phase of China's transition process and its institutional becoming that promises to offer a rich mine for students of political economy for decades to come.[39]

Summarising, the central argument of this section is that the most distinctive body of literature inspired by China's economic transformation is that which gives insight into the phenomenon of induced institutional change. This contribution is important not only because the literature in this field is sparse but also because China's 30-year transition and development process has been shaped by the process of induced institutional change. No one or two of the three elements set forth here, the transitional institutions, competition and learning, and a stable, pragmatic political environment, could have resulted in the reform trajectory that

[39] In spite of this assessment that a process of political transition or blowback is underway, the view of Wu (2000) is not atypical: 'The key feature of the old system is the unification of the three entities – the party, the government, and the economy…. The interrelationship that arises from this unification is deep and complicated….(Soviet) people, particularly the social and political elites, have tremendous interest in maintaining the old system….As such the reforms face enormous resistance.'

has materialised over the past three decades. Interactions among all three of the three elements have been necessary to induce China's sustained institutional change.

CHINA'S DISTINCTIVENESS? – THE LIMITS OF TRANSFERABILITY

China's intellectuals and policy makers often refer to China's 'special characteristics' (*tese*). These characteristics, which generally relate to China's size, geography, history, and institutions, are touted as features of China that make it highly distinctive, thus causing its economic challenges not to be easily understood or addressed through the usual analytical framework or policy remedies.

But the implications of uniqueness operate in both directions. Just as the special characteristics of the Chinese situation may justify unorthodox analytical and policy approaches, these special characteristics may also limit the applicability of China's experience, including the economic literature that it has inspired, to other areas of the world. China's four special economic zones that were facilitated by historic commercial links with Hong Kong (Shenzhen), Macao (Zhuhai), Taiwan (Xiamen), and the Chaozhou people of Southeast Asia (Shantou) may not take such fertile root in India or Africa, or even Vietnam. The substantial administrative decentralisation of China's economy may have enabled a process of regional initiative, experimentation, and gradual transition not available to many other administratively more centralised economic systems. The pronounced aversion to social chaos rooted in the wars and upheavals of the 19th and 20th centuries, reinforced by the collapse of the Soviet Union, and Party control may sustain a greater tolerance for authoritarian control and slow-paced reform than displayed elsewhere. The list can be greatly extended.

Still, China is populated by *homo economicus*, who has responded in generally predictable ways to the incentivisation of China's economy. Reassignments of property rights, including the restoration of the family farm, homeownership, labour mobility and the purchase and sale of corporate stock, have engendered generally predictable behaviour. Moreover, as a member of the IMF–World Bank system and the WTO, China is bound to behave by sets of rules that govern other nations. Furthermore, instructive comparisons may be drawn with India, the US, the European Union, and other multi-country federations of significant size. In addition, China shares certain cultural attributes with other East Asian economies, notably Taiwan, Hong Kong, South Korea, and Japan, including higher than average propensities to save, high literacy rates, active industrial policy,

and various cultural attributes that invite comparisons with the experiences of these countries.[40]

Comparisons may be in order for yet another reason. Once the list of *ceteris paribus* conditions has been accounted for and notable differences persist, contrasts also can be helpful. Perhaps the most conspicuous condition that sets China aside from virtually every other country is its sheer demographic scale and rapidly rising living standards. As Xu (2006) points out, 'The current size of the Chinese economy, in terms of GDP, is larger than the sum of 83 countries in Eastern Europe, the former USSR and all of Africa' (p. 1). As a result of this scale, MNCs see China as an essential part of their global footprint thereby bestowing on Chinese policy makers prerogatives, such as claims on technology transfer as a condition for market access, that are simply unavailable to smaller countries. A more enduring advantage of scale is that it has enabled China to become the world's largest producer and consumer of many conventional industrial staples and high-tech products, such as steel, TV sets, PCs, and cell phones, with the likelihood that the Chinese economy will one day dominate global production in the areas of specialised machinery and equipment, automobiles, and aerospace vehicles. Yet, the same scale characteristics cause China to project conspicuous impacts on world markets. The important role of government in creating public goods, such as food and product standards, intellectual property rights, and environmental protection, are all magnified in the Chinese case. Such scale causes interest groups and politicians in seemingly threatened countries to be far more vocal in their criticism of China than would be the case if China were but the name of a region spanning 83 separate nation-states. Hence, China's economic experience is likely to offer the most illuminating illustration of the costs and benefits of national scale.

As Sala-i-Martin (2002) has shown, China's sheer size can also be decisive in overturning conclusions regarding our understanding of fundamental economic beliefs, often relating to globalisation. While most literature using the country economy as the unit of analysis concludes that over the past 30 years or more global income distribution has become increasingly unequal, using the household as the unit of observation Sala-i-Martin arrives

[40] See, for example, Rawski (forthcoming) regarding China's culture, market, and entrepreneurial legacies. Roland (2004) notes that Sachs and Woo (1994) attribute China's recent high growth rates to the country's 'backwardness' in the immediately preceding period. Seen in a long-run historical perspective, however, Roland argues that China has been anything but backward. For example, Chinese agriculture, which was the initial engine of growth early in the transition, has always been among the most productive in the world. I therefore suggest that one of the clues to the success of China's transition is not its 'backwardness' at the onset of the transition but the inherited high level of knowledge and culture relative to its economic performance.

at a contrary finding; once China's preponderant number of households are taken into account, global income distribution is shown to have become more, not less, uniformly distributed.[41]

In a real sense, one of China's most enduring contributions to the economic literature may be not be a deepened understanding of how China is achieving economic prosperity; rather it may be the fading of a certain perspective on China that has all but vanished. Not long ago, much attention was given to China's institutional uniqueness. In 1992, the CCP adopted the phrase 'socialist market economy' to describe its model involving extensive state and social ownership and state interventions that advantage returns to labour in relation to those to capital, land, and other natural resources. Whether China is creating institutional arrangements that are distinctly different from their Western counterpart institutions is a key question. Some, such as Roland (2004) believed at least a decade or so ago this to be the case:

> Based on its existing stock of cultural knowledge (which differs strongly from that in the West), China, like other Asian countries, has developed unique fast-moving institutions in achieving its recent growth trajectory. Thus, China is experimenting with its own institutions for the market economy instead of importing Western institutions. Whether Asian capitalist institutions are more efficient is not the right question to ask here. A more appropriate question relates to the one posed earlier about institutional transplantation: what would have happened if Western-style institutions had been directly imported into a cultural context that exhibits deep differences from those of the West?

The possibility of China's experience creating alternative sustainable, even superior, institutional arrangements drew thoughtful attention, including that of Weitzman and Xu (1994). Investigating the surprisingly robust expansion of China's TVEs during the late 1980s and early 1990s, Weitzman and Xu speculated on the exceptional ability of communities of TVE stakeholders to resolve prisoners' dilemma-type free-riding problems internally without the inclusion of explicitly defined property rights. During the subsequent decade, however, the vast majority of China's TVEs have been privatised either in the form of shareholding firms or private companies.

As the forms of Chinese governance come increasingly to look like those of the OECD economies, the literature is less focused on the unique features of China's institutional arrangements. Lee *et al*. (2001), for example,

[41] Likewise Sala-i-Martin (2002) shows that as China's middle class grows and graduates into the ranks of the world's relatively high income population, China, by itself, has the capacity to reverse this convergence trend and become a key source of an increasing maldistribution of global income.

speculate that China's corporate sector is evolving towards the Anglo-Saxon model, rather than the Japanese-Korean variant of the Asian model. To support their argument, the authors point to several emerging conditions that imitate the US–UK corporate economy model: among listed companies outside investors are becoming increasingly visible while restrictions are imposed on bank ownership, high labour market flexibility, including the relative ease of layoffs, and competitive and open domestic markets, including large numbers of foreign owned companies.

Other observers of China's transition are downplaying the distinctiveness of China's institutions. In his recent review of China's transition and development experience, emphasising the tendency for China's institutions to converge towards those of the world's more successful developing countries, Naughton (2007) refers to China as 'becoming ''a normal country''.' Putterman (2004) alludes to 'China's brush with market socialism'. He proposes that China evokes an image from space exploration, that is, the image of a 'fly by' or 'a close encounter on the path to a very different destination' (p. 1). Although China probably represents the 'last best chance' to engage the imagination of economic system theorists in an alternative universe of economic institutions, China's leadership and intelligentsia now seem to be headed towards familiar institutional terrain.[42] Rather than have this question of just how 'special' China's reform characteristics are drift out of sight, the matter is worthy of active assessment, debate, and understanding whatever the outcome may be.

Nonetheless, it increasingly appears that the uniqueness of China's experience is not and will not be the nature of its institutions, rather its uniqueness is the manner in which its earlier institutions have become reconfigured – that is their process of becoming – so as to bear the resemblance they do to capitalist institutions. Thus China's uniqueness is likely to be far less in its destination than in its journey.

CONCLUSIONS AND FUTURE CONTRIBUTIONS

This essay is motivated by the question: 'How has China's economic emergence affected the field of economics?' Although no single model or collection of the China-related literature is likely to warrant a Nobel Prize, the

[42] Japan provides an interesting case of a country having received accolades for its special economic, institutions, culture, and achievements. While this admiration diminished as a result of the nation's apparent shift to a low-growth trajectory, Japan does retain its distinctiveness with respect to the Toyota system, involving just-in-time inventory, industrial policy, and close ties with suppliers (see Ezra Vogel, *Japan as Number One* , 1979).

literature that has been inspired by China's experience over the past 25 years has contributed to the field of economics in two important ways. First, the most populous country in the world with its variegated and fast moving institutions has generated a wealth of insights and empirical findings that vividly illustrate the insights of the established economics literature, including that of numerous Nobel laureates.

While some insights receive vivid support from China's experience, the robustness of other hypotheses remains to be established. Key among these is whether as China's living standards rise, patterns of income inequality and environmental quality will evolve in a manner consistent with Kuznets' well-known 'inverted U' curve (see Kuznets, 1966). Economists will surely investigate and document these associations, or ponder their absence, as China continues its advance. One reason to anticipate that income inequality will moderate in China is that, as a condition for China's continued economic advance, productivity cleavages will need to become less acute. In order for China's GDP to catch up with that of the US, China's GDP will need to multiply by a factor of five or more in relation to the US. At this point, even when China's GDP matches that of the US, China's considerably larger population will result in its GDP per capita being only one-quarter that of the US. However, it appears that the productivity of China's coastal industry is already at least one-quarter that of the US. The implication is that if China's GDP catch-up involves an equi-proportional growth of all regions and sectors of five-fold or more in relation to the US, then the productivity of China's coastal industry will grow to exceed that of the US. This is highly unlikely; since the growth of coastal industry productivity already exhibits a slowdown. As a result, GDP catch-up for China is likely to rely much more than it has in the past on productivity growth outside of coastal industry. It is therefore likely, but not certain, that China will conform to Kuznets' prediction that income inequality will follow the 'inverted ''U'' pattern'.[43]

The path of environmental quality in China, critical to China and the world, also remains to be determined. The extent to which Kuznets' environmental 'inverted U' curve defines the trajectory of China's environment may depend on the power of Amartya Sen's notion of 'value endogeneity'. As living standards in China have risen, China's middle class, the media, and political leadership have taken heed of the present and potential economic costs and health hazards caused by polluted water and dirty air. That environmental quality is weighing more heavily in China's social objective function than it did 30 years ago vividly illustrates the

[43] See Jefferson *et al.* (2006) who document distances between the technology frontiers of China and the US–Japan and internal patterns of productivity differences.

endogenous nature of the social values that may lead to China moderating or reversing its environmental deterioration.[44]

The second area in which China's economic experience has inspired a large body of literature, the process of induced institutional change, is theoretically more distinct and novel than that concerning reversals of income inequality and environmental degradation. Because this literature is fragmented and seldom directly speaks broadly to the nature of induced institutional change, this essay attempts to assemble the pieces into a reasonably coherent analytical framework. By reducing the essence of induced institutional change to interaction among just three elements, transitional institutions, competition, and learning, and a stable, pragmatic political environment, the model devised herein certainly oversimplifies the rich set of conditions that are driving China's economic transformation. Technology transfer, trade, FDI, comparative advantage, internal migration, and other factors are each strong candidates for the short list of key factors that are motivating China's economic advance. While these drivers of economic transformation have not been the focus of this essay, in order for these factors to come into play, certain institutional conditions need to be in place. At the same time, as these factors come into play, they serve to hasten the speed and expand the scope of institutional change. The story of induced institutional change is therefore both a precondition and a consequence of these complementary drivers of China's growth.

As a laboratory for induced institutional change, China's experience continues to unfold. That the factors motivating China's institutional change have had surprisingly fortuitous effects over the past 30 years is no guarantee that China will continue to defy the more pessimistic predictions in the future. China's political leadership has orchestrated the reassignment of broad swaths of property rights to its citizenry. The feedback from this reassignment is sure to reshape China's political institutional landscape. North notes (1994): 'It is the polity that defines and enforces property rights, and in consequence it is not surprising that efficient economic markets are so exceptional' (p. 361). North's observation reminds us that wrong turns along the path of political change will deliver bumps, obstacles, and reversals along the road to more efficient markets. The chapter analysing the conditions that induce China's political transformation has yet to be written.

[44] Of course, as in the US, certain pollutants, such as sulphur dioxide and nitrous oxides, may exhibit a turning point, while others, such as carbon emissions, do (have) not. As Naughton reports (2007, p. 490), ambient air quality has improved in many Chinese cities as gas and electricity use has substituted for coal for cooking and heating in many homes; also, leaded gasoline has been omitted. At the same time, as automobile use surges, concentrations of nitrous oxides have increased.

China's unfolding transformation will continue to generate notable contributions to the field of economics. As more Chinese researchers enter the field of economics and the scale and complexity of the Chinese economy grows, and with it its impact on the rest of the world, the contributions of the China-related economics research will only become more important.

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