PART III

Policy Implications

This page intentionally left blank

Chronicle of a Decline Foretold: Has China Reached the Lewis Turning Point?

MITALI DAS AND PAPA N'DIAYE

The final section of the book examines what needs to be done to complete the process of domestic rebalancing. Impending demographic changes make reform ever more urgent. China is on the eve of a demographic shift that will have profound consequences on its economic and social landscape. Within a few years the working-age population will reach a historical peak, and then begin a precipitous decline. This fact, along with anecdotes of rapidly rising migrant wages and episodic labor shortages, has raised questions about whether China is poised to cross the Lewis Turning Point, a juncture at which it would move from a vast supply of low-cost workers to a labor shortage economy. Crossing this threshold will have far-reaching implications for both China and the rest of the world. This chapter empirically assesses when the transition to a labor shortage economy is likely to occur. The central result is that on current trends, the Lewis Turning Point will emerge between 2020 and 2025. Alternative scenarios—with higher fertility, greater labor force participation rates, financial reform, or higher productivity—may peripherally delay or accelerate the onset of the turning point, but demographics will be the dominant force driving the depletion of surplus labor.

INTRODUCTION

China's large pool of surplus rural labor has played a key role in maintaining low inflation and supporting China's extensive growth model. In many ways, China's economic development echoes Sir Arthur Lewis's model, which argues that in an economy with excess labor in a low-productivity sector (agriculture in China's case), wage increases in the industrial sector are limited by wages in agriculture, as labor moves from the farms to industry (Lewis, 1954). Productivity gains in the industrial sector, achieved through more investment, raise employment in the industrial sector and the overall economy. Productivity running ahead of wages in the industrial sector makes the industrial sector more profitable than if the economy were at full employment, and promotes higher investment. As surplus labor in agriculture is exhausted, industrial wages rise faster, industrial profits are squeezed, and investment falls. At that point, the economy is said to have crossed the Lewis Turning Point (LTP) (Figure 9.1).
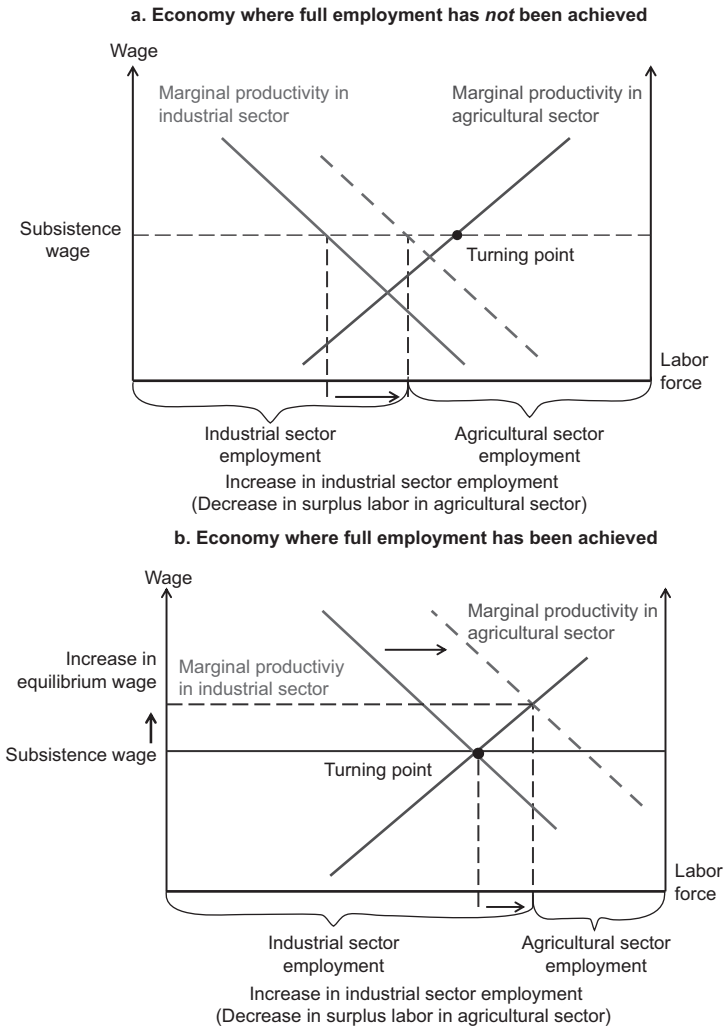
a. Economy where full employment has *not* been achieved

Wage

Marginal productivity in industrial sector

Marginal productivity in agricultural sector

Subsistence wage

Turning point

Labor force

Industrial sector employment

Agricultural sector employment

Increase in industrial sector employment
(Decrease in surplus labor in agricultural sector)

b. Economy where full employment has been achieved

Wage

Increase in equilibrium wage

Marginal productiviy in industrial sector

Marginal productivity in agricultural sector

Subsistence wage

Turning point

Labor force

Industrial sector employment

Agricultural sector employment

Increase in industrial sector employment
(Decrease in surplus labor in agricultural sector)

Figure 9.1 The Lewis Turning Point and Its Implications

Anecdotal evidence of rapid nominal wage increases and episodic labor shortages have raised questions about whether the era of cheap Chinese labor is coming to an end and whether China has reached the LTP. China's crossing the LTP would have consequences for both China and the rest of the world. For China, it would mean that the current extensive growth model that relies so heavily on factor input accumulation could not be sustained and that China would need to invest less, but in better, capital. China would thus need to switch to a more "intensive" growth model with a greater reliance on improving total factor productivity (TFP), which means accelerating implementation of the government's agenda to rebalance growth away from investment toward private consumption.

Successfully rebalancing China's growth pattern would yield significant positive external spillovers to the rest of the world, potentially raising output, particularly in those economies within the supply chain (mainly emerging Asia) and commodity exporters, and somewhat more limited spillovers to advanced economies (IMF, 2011). Moreover, rising labor costs—the impact of which will be felt in prices and corporate profit margins in China—will have implications for trade, employment, and price developments in key trading partners.

Against this backdrop, this chapter presents estimates of China's excess labor supply using a general procedure developed in Rosen and Quandt (1978), Quandt and Rosen (1986), and Rudebusch (1986). The empirical model attributes an explicit role to population composition, labor force participation, and productivity—characteristics of the Chinese labor market most likely to be relevant in an analysis of excess supply. The remainder of the chapter is organized as follows: The next section provides a brief overview of recent trends in China's labor market. The subsequent section presents the empirical framework and is followed by a section that presents baseline results. A scenario analysis around a central baseline forecast of future trends in the labor market is presented in the penultimate section, and the last section concludes.

RECENT DEVELOPMENTS

China's labor markets first came into focus in 2004, when reports of migrant labor shortages in the export-oriented coastal regions began to emerge. Anecdotal evidence of large increases in migrant wages in this period was viewed by some as an indication that China had depleted a previously vast supply of surplus labor, and the transition to a mature economy had begun (Garnaut, 2006; Cai and Wang, 2008). This view was bolstered by the demographic transition, in particular, a slowdown in the growth of the working-age population and a rising proportion of elderly to young Chinese workers. An alternative perspective, however, viewed rising migrant wages as a consequence of labor market segmentation (the result, for instance, of the household registration system, limited portability of benefits, and rising rural reservation wages), thus consistent with the coexistence of shortages on the coast and surplus labor inland (Chan, 2010; Zhang, Yang, and Wang, 2010; Knight, Deng, and Li, 2011).

Developments in the Chinese labor market since 2009 are reminiscent of the episode in the middle of the first decade of the 2000s—after a lull, wage increases have again been rapid, especially in inland provinces as companies relocate from the coast. However, the authors' reading of recent developments in Chinese labor markets suggests no conclusion about whether surplus Chinese labor has been exhausted. Despite localized signs of labor market pressures, aggregate nominal wage growth has ranged between 12 and 15 percent annually since 2000. Corporate profits have remained high, and even rose during 2009–11, as wage growth has trailed productivity gains. These developments appear inconsistent with the basic premise of the LTP depicted in Figure 9.2 (panel a). Anecdotally,

urban employers point to frictions such as skill and geographic mismatches, not labor scarcity itself, as causes of intermittent, localized wage escalation. Systematic labor shortages on the industrial coast would be reflected in divergence between coastal and industrial wage growth, but wage developments are to the contrary (Figure 9.2, panel c).
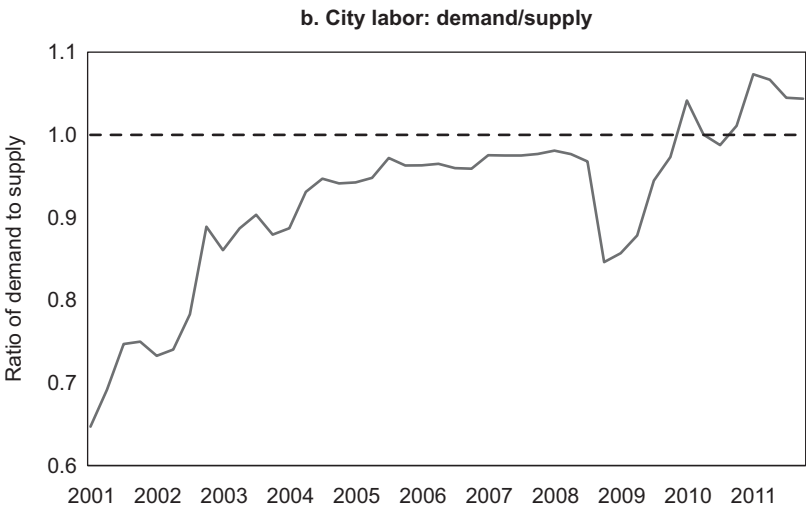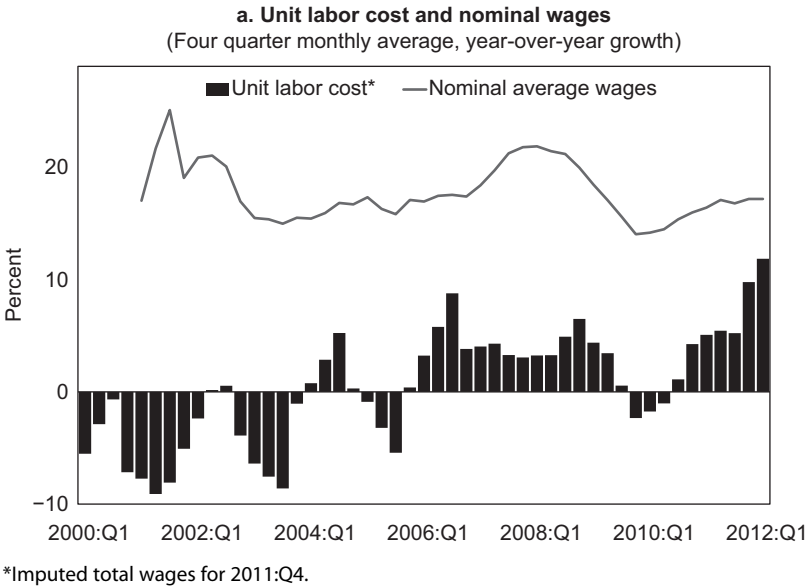
a. Unit labor cost and nominal wages
(Four quarter monthly average, year-over-year growth)

*Imputed total wages for 2011:Q4.

b. City labor: demand/supply

Figure 9.2 Labor, Wage, and Demographic Changes in China (panels a and b) *(continued)*
Source: CEIC; and IMF staff estimates.

c. Wage growth: Coastal vs. interior

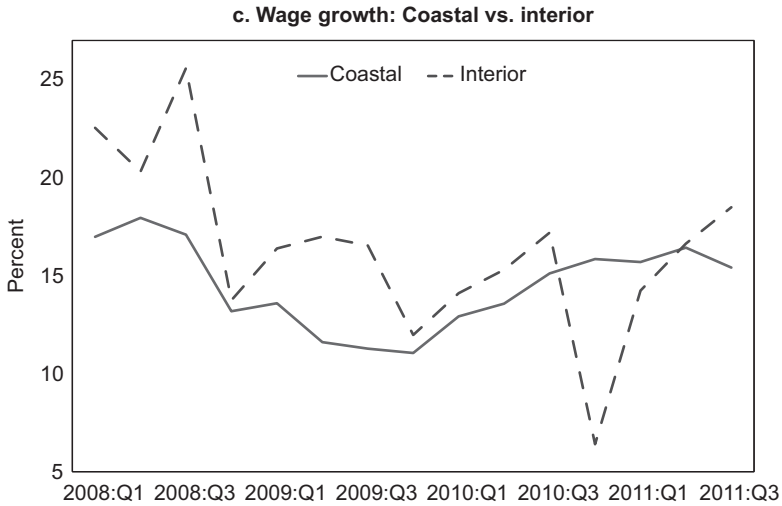**d. Growth of working-age population**

Figure 9.2 Labor, Wage, and Demographic Changes in China (panels c and d) *(continued)*
Source: IMF staff estimates.

Other evidence, however, suggests tightening labor market conditions. Urban registration records indicate that the margin between city demand and supply of labor has progressively narrowed and is now effectively closed (Figure 9.2, panel b).[1] The pace of industry relocation to the interior provinces—where wages

---

[1]This measure comes from the National Bureau of Statistics of China. However, it is unclear whether all firms are required to record demand and whether both informal and formal workers are recorded in the measure of labor supply.
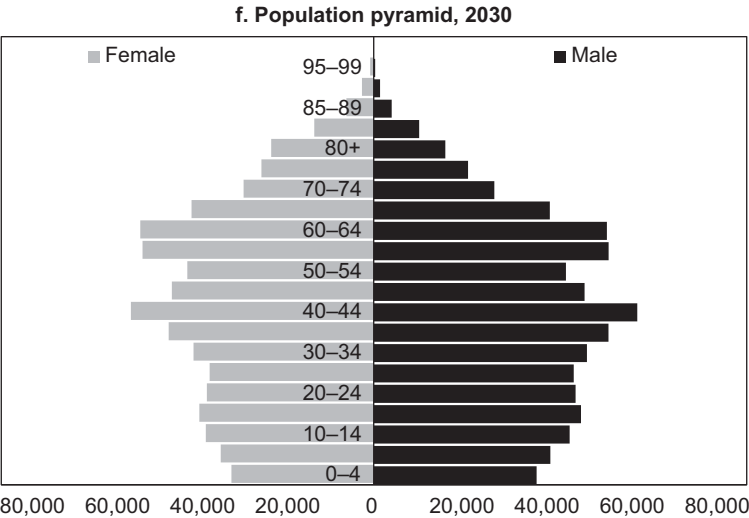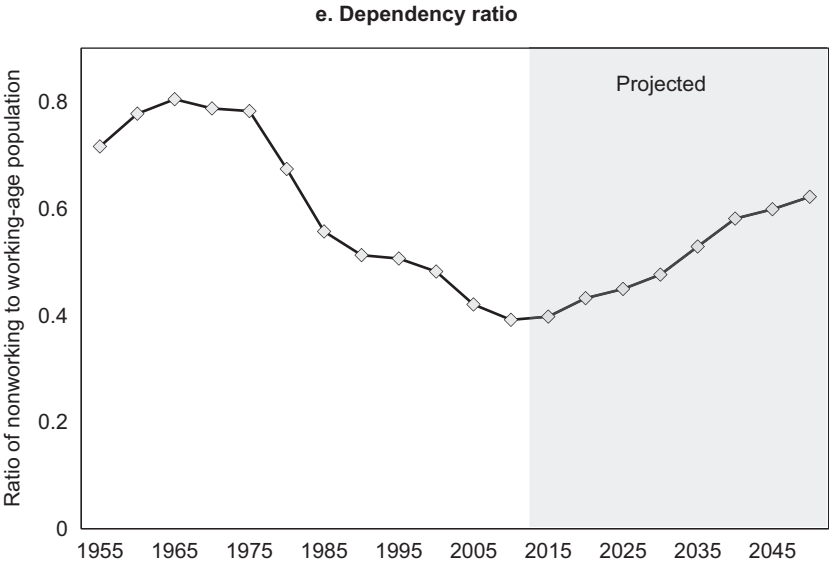
e. Dependency ratio

f. Population pyramid, 2030

Figure 9.2 Labor, Wage, and Demographic Changes in China (panels e and f) *(concluded)*
Source: IMF staff estimates.

are lower and the large reserve of rural labor resides—has picked up since the 2008–09 global financial crisis.[2] Parallel developments, such as an uptick in labor activism since the financial crisis, are also consistent with the strengthened bargaining power that accompanies a shrinking pool of labor. The rise in wages also reflects the government's decision to increase minimum wages as a means to support household income and promote consumption.

Thus, overall, labor market developments paint a mixed picture of excess labor: Wage developments do not suggest exhaustion of surplus labor, whereas employment, industrial relocation, and some policies signal tightening conditions.

However, demographics more forcefully suggest an imminent transition to a labor shortage economy. China is poised to undergo a profound demographic shift within the next decade, driven by the mutually reinforcing phenomena of declining fertility and aging. The UN projects that growth of the working-age (ages 15–64) population will turn negative about 2020 (Figure 9.2, panel d). This forecast potentially understates prospects for a labor shortage because industry employees are predominantly young (Garnaut, 2006); the growth rate of the core 20–39-year-old subpopulation, for example, shrank to zero in 2010 (Figure 9.3), and is projected to decline faster than the overall working-age population through 2035. Population data also show that after a protracted period of "demographic dividend," the share of dependents—those ages younger than 15 and older than 64 in China's population—bottomed out in 2010, and will rise to nearly 50 percent by 2035 (Figure 9.2, panel e).

Because the looming demographic changes are large, irreversible, and inevitable in the medium term, they will be key to the evolution of excess labor in China. Other factors could, however, be pivotal in accelerating or slowing this process. More progress in *hukou* reform (easing the ability of workers in provinces to move to cities) could spur rural labor to move to the city. Training rural workers to meet the skill requirements of industrial jobs could decongest urban labor bottlenecks. Although the Chinese primary sector employs nearly half of the labor force, agricultural value added was only about one-fifth of 2011 GDP. Raising agricultural productivity—by raising mechanization to comparators' levels, for instance—could result in a sizable release of rural workers that could partially offset shortfalls in urban labor demand.

In summary, the combined implications of demographics, labor developments, and policies suggest that China likely is on the eve of the LTP, but give little indication about when the transition will occur. Against this background, the next section attempts to gauge China's excess labor supply and project its likely evolution.

---

[2] Industrial relocation to the inland may not necessarily be a reflection of coastal cost pressures and instead reflect, for instance, expansion into the vast consumer base in inland provinces. In this scenario, labor bottlenecks in coastal areas may simply be a result of migrants' rising reservation wages for coastal employment, given greater opportunities inland.
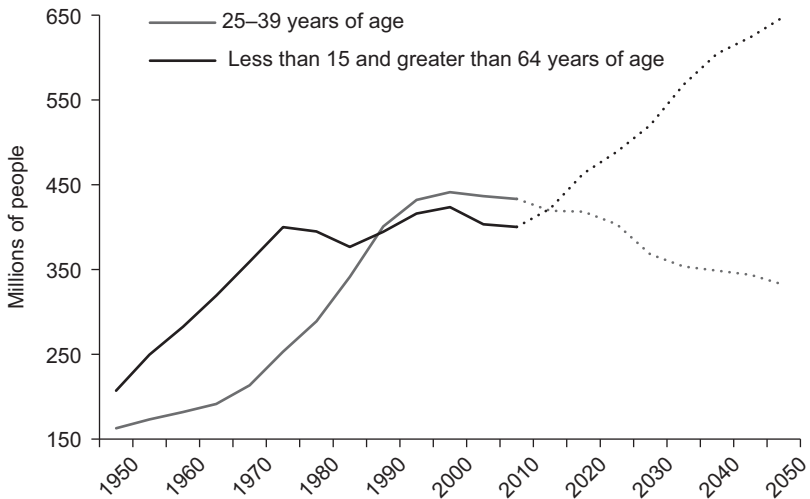
Figure 9.3 Demographic Pressures

Sources: UN Population Database; and IMF staff estimates.

EMPIRICAL FRAMEWORK

To quantify excess labor supply in China, a first step is to identify the appropriate analytical framework. One approach (e.g., Lucas and Rapping, 1969; Barro and Grossman, 1971) is the conventional simultaneous equation model. This approach assumes the labor market is in equilibrium, that is, that real wages clear the labor market and unemployment results from labor market frictions, such as mismatch, preferences (i.e., intertemporal substitution) and government policies. An alternative framework is the disequilibrium approach, which assumes that the observed real wage does not clear the labor market (Rosen and Quandt, 1978). Instead, in this approach the observed quantity of employment is the minimum of the notional supply of and demand for labor, and unemployment results from *excess labor supply*, that is, the supply of labor exceeds demand at the observed real wage (see, e.g., Quandt and Rosen, 1986; Hajivassiliou, 1993). In practice, this means that the excess supply of labor includes both the actual unemployed and underemployed, which would encompass part of China's large pool of migrant workers. Survey data from the National Bureau of Statistics show that about 169 million migrant workers were seeking jobs outside their home provinces as of end-September 2012. The number of unemployed people stood at 21.5 million as of end-2011, amounting to about 3 percent of the total labor force (the unemployment rate in urban areas is 4.1 percent).

Stylized facts of the Chinese labor market described above, in particular, wage growth that has trailed productivity growth for more than a decade, in addition to a rural share of the labor force near 50 percent and a labor share of income that is both low and has declined some 20 percentage points since 1980 (Aziz and Cui, 2007), suggest that the disequilibrium framework is well suited for analyzing the

Chinese labor market. Moreover, this framework is sufficiently general to nest the equilibrium approach as a limiting case. The main equations used in the analysis are described in Annex 9A; details of the approach are in Rosen and Quandt (1978), Quandt and Rosen (1986), and Rudebusch (1986).

RESULTS

The model is estimated using annual observations from 1992 through 2010. The dependent variable, L, is the natural logarithm of the total number of employees in urban and rural areas, including those in the government sector, state-owned enterprises, and the private sector. The wage variable, W, is nominal aggregate wages in billion renminbi deflated by the consumer price index (CPI). Wealth is measured as households' nominal net financial assets, while TFP is residually calculated from a standard growth accounting model with fixed labor and capital shares. Population, labor force, and working-age data are from the United Nations population database. A full list of the sources and definitions of the variables is given in Table 9.1.

Results are reported in Table 9.2 with estimated standard errors in parentheses.[3] Overall, the results are of the expected signs and of plausible magnitudes. The wage elasticity of labor demand is negative. Furthermore, the absolute value of the elasticity of labor demand with respect to real wages is less than 1, consistent with the stylized fact that labor costs in China represent a low fraction of total firm costs. The effect of TFP, which is assumed to raise labor demand by

TABLE 9.1

Variable Definitions and Sources		
Variable	**Description**	**Sources**
L	Ln of total employment; millions	CEIC Data
W	Ln of aggregate annual nominal wages deflated by CPI; billion renminbi	CEIC Data
GDP_p	Ln of weighted average of real GDP growth in Chinese trade partners; percent	WEO, DOTS, IMF staff calculations
TFP	Total factor productivity, residually calculated from growth accounting	CEIC Data, WEO, IMF staff calculations
H	Participation rate times population; millions	UN, WDI
Wealth	Net household financial wealth; 100 million renminbi	Haver Analytics
U	Unemployment rate; percent	CEIC Data

Note: CPI = consumer price index; DOTS = Direction of Trade Statistics; Ln = natural log; WDI = World Development Indicators; WEO = *World Economic Outlook*.

[3] Note, because the model is derived by assuming that $\delta \geq 0$, critical test values for the estimated δ are obtained from one-sided t-tables. This restriction is not imposed in estimation. Nonnegativity of δ is a testable assumption, and statistically significant nonnegativity of δ is a rejection of equilibrium in the labor market.

TABLE 9.2

Estimated Regression Coefficients for Excess Labor	
Variable	**Coefficient**
Labor demand	
Wages	−.063**
	(.013)
GDP_p	.001
	(.01)
TFP	.353**
	(.036)
Constant	7.3*
	(.137)
Labor supply	
Wages	.050**
	(.007)
Wealth	−.018**
	(.0002)
Unemployment	.0968**
	(.033)
Participation Rate × population	.0005**
	(.0001)
Constant	5.6**
	(.101)
Excess supply indicator	.018**
	(.0009)
Number of observations	36
Pseudo *R*-squared	.82

Note: Dependent variable: Employment (second stage). Standard errors in parentheses. See footnotes 3 and 4 in the text for additional details about the estimator.
* denotes statistical significance at the 10 percent error level; ** significance at the 5 percent error level.

increasing profitability, is positive, as expected, while trading partner GDP also has the expected positive sign but is statistically insignificant.[4]

Estimated supply-side coefficients are also consistent with theory. The wage elasticity of labor supply is positive and smaller in absolute size than the wage elasticity of labor demand, conforming to the stylized fact of a large pool of surplus labor in China. The wealth variable is negative, suggesting that an increase in households' net worth induces an increase in their consumption of leisure and a decline in hours supplied; conversely, the unemployment rate has the expected positive association with the supply of labor, supporting the presence of the "added-worker" effects. Finally, the elasticity of labor supply with respect to the

[4] Because the parameter δ appears in both the supply and demand equations, estimation is done by three-stage least squares of (9A.6). This approach yields the added benefit of doubling the observations available for estimation. In estimating the model, it is assumed that the errors ε_1 and ε_2 are each serially uncorrelated and $(\varepsilon_{i1}, \varepsilon_{i2}) \sim N(0, \Sigma)$ where Σ is possibly nondiagonal, that is, the errors may be contemporaneously correlated. Furthermore, it is assumed that only the wage variable is endogenous.
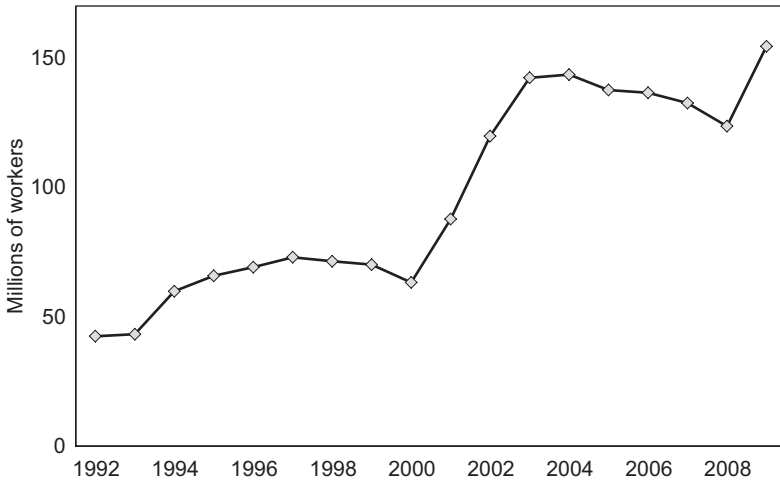
Figure 9.4   Estimated Excess Supply Levels
Source: IMF staff estimates.

scale variable, *H*, is positive, consistent with the idea that an increase in the size of the potential labor force is associated with an increase in aggregate labor supply.

The estimated coefficient on the excess supply indicator variable, δ, is positive and statistically significant at the 10 percent error level, suggesting that labor market tightness, measured as the deviation of the unemployment rate from its nonaccelerating inflation level, is statistically informative about the presence of excess labor. Furthermore, significance of δ is rejection of the null hypothesis in an equilibrium model (see Annex 9A).

The excess labor supply implied by these results is presented in Figure 9.4. There are several features to note: (1) China has had an excess supply of labor continuously since at least 1991; (2) the estimated surge in excess supply around 2000–04 coincides with the end of the reforms of state-owned enterprises, which resulted in job-shedding, underemployment, and unemployment; (3) after falling continuously between 2004 and 2008, surplus labor rises abruptly in 2009–10, reflecting the impact the global financial crisis has had on labor demand; and (4) the model generates an excess supply estimate of about 160 million in 2007, which encompasses the frequently cited 150–200 million estimate of the National Population Development Strategy Research Report (2007).

SCENARIO ANALYSIS

The empirical estimates presented above point to a long period of excess labor supply, notwithstanding significant job creation since about 1980 (which amounted to about 350 million jobs). Because the key question in this chapter is about the onset of the LTP, this section considers several scenarios to forecast the evolution of excess labor supply.

Baseline Scenario

The central forecast of the path of excess labor is the *baseline scenario*. Forecasts under the baseline are derived by making the following assumptions about the paths of variables that have been identified as key determinants of the notional supply of and demand for labor.

Real wage adjustment. Real wages at time *t* depend on real wages in the past two periods, on contemporaneous inflation, inflation in the past period, and the nonaccelerating inflation rate of unemployment (NAIRU) in the current period:

$$W_t = \gamma_1 W_{t-1} + \gamma_2 W_{t-2} + \gamma_3 \pi_t + \gamma_4 \pi_{t-1} + \gamma_5 U_t^* + . \tag{9.1}$$

The presence of lagged real wages captures potential sluggishness in real wage adjustments. Inflation, π, is included to reflect that workers' (nominal) wage demands rise with inflation. Finally, U^*, the NAIRU, is expected to affect wages because of the assumption that tighter labor market conditions (i.e., lower NAIRU) are likely to increase workers' bargaining power and result in higher wages. Inflation and NAIRU forecasts through 2017 are drawn from the IMF *World Economic Outlook* (WEO), and both variables are assumed to grow at the 2017 rate thereafter.

Household net wealth. The evolution of net financial wealth (*NFW*) is derived from a standard wealth accumulation equation in which net wealth increases each period as the result of interest payments on the stock, and the new flow from household saving:

$$NFW_t = NFW_{t-1} \times (1+i) + \alpha \times Household\ Saving_t, \tag{9.2}$$

in which i is the nominal deposit rate and α is a constant fraction of household saving that is assumed to flow into household wealth every period. The parameter α is estimated from a time series regression of *NFW* on household saving. The forecast of household saving is, in turn, derived by assuming that the household-saving-to-GDP ratio follows WEO projections of China's private-saving-to-GDP ratio.

Demographics. Population and working-age population (15–64 years) are obtained from the "constant fertility" variant of the UN population database. The constant fertility projections assume that the fertility rate through 2050 remains at the average rate of 2005–10. Forecasts of the labor force are derived from a nonlinear regression of the time series of labor force on a constant, the stock of working-age population, and its square (Figure 9.5).[5]

TFP. The TFP level is assumed to increase annually at the average of its 2005–10 growth rate (3.9 percent) until 2017, and remain at its 2017 level thereafter.

---

[5] Although the labor force could potentially include those outside the working-age population, this regression has high predictive power (adjusted R^2 = .998).
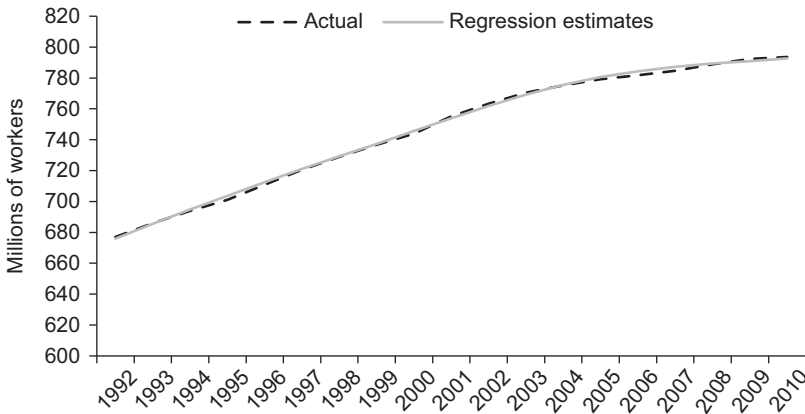
Figure 9.5 Labor Force, Actual and Regression Estimates
Sources: IMF staff estimates.

Unemployment rate. Forecasts are from the WEO through 2017. From 2017 onward, the unemployment rate is assumed to stay fixed at the 2017 rate (4 percent).

Partner GDP growth. Real GDP projections of China's eight largest trading partners, weighted by export shares, are obtained from the WEO and Direction of Trade Statistics (DOTS).[6] Real growth rates after 2017 are assumed to stay at the 2017 level; export shares are fixed at their 2011 level.

Under these assumptions, the projected path of excess supply in the baseline scenario indicates that China's excess supply of labor peaked in 2010 and is on the verge of a sharp decline: from 151 million in 2010, to 57 million in 2015, and 33 million in 2020 (Figure 9.6). The LTP is projected to emerge between 2020 and 2025, when excess supply turns negative (i.e., the labor market moves into excess demand). The rapid rate of decline in excess supply closely follows the projected path of the dependency ratio, which bottomed out in 2010 and is projected to rise rapidly.[7] The projected path of excess labor supply also reflects the expected evolution of wealth, which reduces labor supply, and TFP, which raises labor demand, in the baseline.

Baseline results are derived under the assumption that market conditions and economic policies remain unchanged. However, the significant demographic transition, the changing external environment, and rising social needs may well spur an endogenous policy response that could alter the structure of the economy, and an endogenous market response (e.g., higher wages, greater bargaining power) is also likely to emerge. In addition, the government's plans to change the

---

[6]These are the euro area, Hong Kong SAR, Japan, Korea, Singapore, the United Kingdom, the United States, and emerging and developing economies. This group received more than 92 percent of all Chinese exports in each year of the sample.

[7]The dependency ratio (less than 15 plus greater than 64 years of age, in fraction of the population) is not in the model; however, the working-age ratio is captured in the scale variable given that the participation rate is measured as working-age population normalized by the size of the labor force.
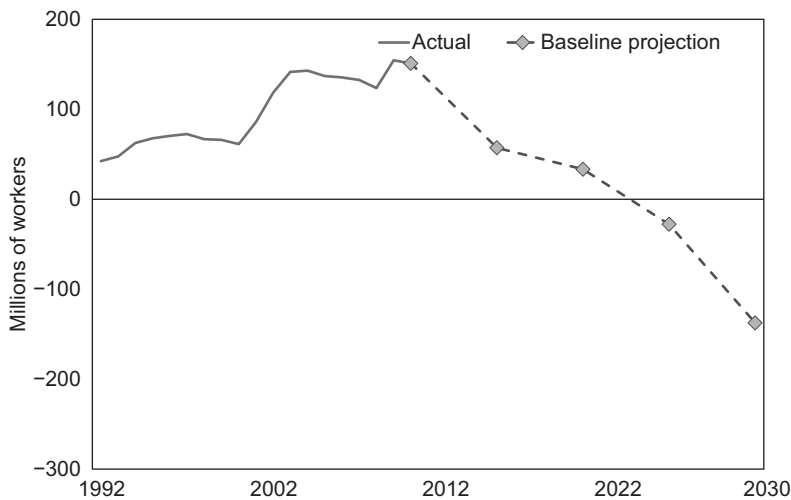
Figure 9.6 Baseline Scenario: Surplus Labor

Source: IMF staff estimates.

TABLE 9.3

Excess Labor Supply Scenarios (*millions*)				
Scenario	**2015**	**2020**	**2025**	**2030**
Baseline	57.1	33.2	−27.8	−137.5
Higher fertility	51.9	36.0	−16.8	−126.3
Higher labor force participation	92.3	68.1	5.31	−114.1
Financial sector reform	57.0	10.5	−70.4	−220.5
Product market reform	54.9	11.6	−44.0	−153.7

technological mix of industry, urbanization, and income distribution outlined in the 12th Five-Year Plan will likely impact the LTP by shifting the supply of or the demand for labor (or both). Therefore, the following section considers the consequences of assuming a higher fertility rate, a higher labor force participation rate, financial sector reform, and product market reform. The results of these scenarios are given in Table 9.3 and Figure 9.7.

Increase in the Fertility Rate

The first scenario considers the effects of a one-time permanent increase in the fertility rate, for example, by selective relaxation of the One Child Policy. This scenario is simulated using the UN's "high-fertility" variant to forecast working-age population,[8] and using these new variables to forecast the labor force. All other variables are left as in the baseline scenario.[9]

---

[8] The UN's high-fertility variant assumes 0.5 children more than the constant-fertility variant.

[9] In each subsequent scenario, with the exception of the variable whose impact on the LTP is examined, all other forecasts are left as in the baseline.
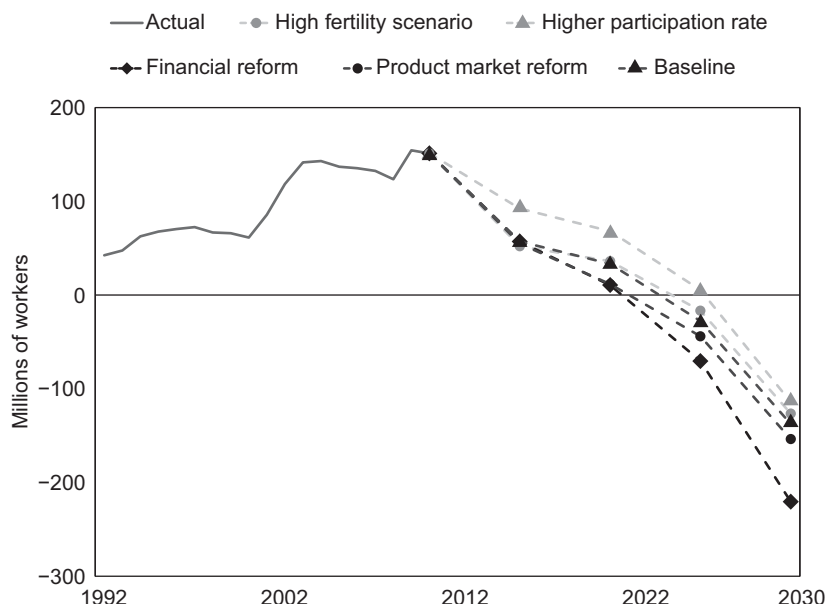
Figure 9.7 Alternative Scenarios: Surplus Labor

Source: IMF staff estimates.

Results are given in Figure 9.8. The estimates indicate that in a higher-fertility scenario, the LTP is delayed relative to the baseline. This result is consistent with the priors because higher fertility will result in a larger working-age population and larger potential labor force. However, the increase in excess supply relative to the baseline is small, rising from 33 million to 36 million in 2020 and from –27.8 million to –16.8 million in 2025. There are two possible explanations. First, higher fertility increases the potential labor force with a delay because it takes time for new larger cohorts to join the workforce. Second, the UN high-fertility variant is a modest increase in fertility that lifts China's fertility rate of about 1.6 to just around the replacement-level fertility rate of 2.1, with a correspondingly small induced increase in the working-age population relative to the baseline.[10]

Higher Labor Force Participation Rates

This scenario analyzes the impact of greater labor force participation on the LTP. Participation rates in China are high relative to comparators, but have fallen since the mid-1990s, from 0.87 in 1995 to 0.82 in 2010 (Figure 9.9). Given the disposition toward hiring younger workers and a relatively low retirement age, this decline reflects the growing share of older workers in the labor force. The stability

[10] Fertility rates are from Golley and Tyers (2006), replacement rate estimates from Zhang and Zhao (2006). The working-age population in the high-fertility variant is larger than the baseline working-age population by 0 percent, 1.4 percent, and 4 percent in 2025, 2030, and 2035, respectively.
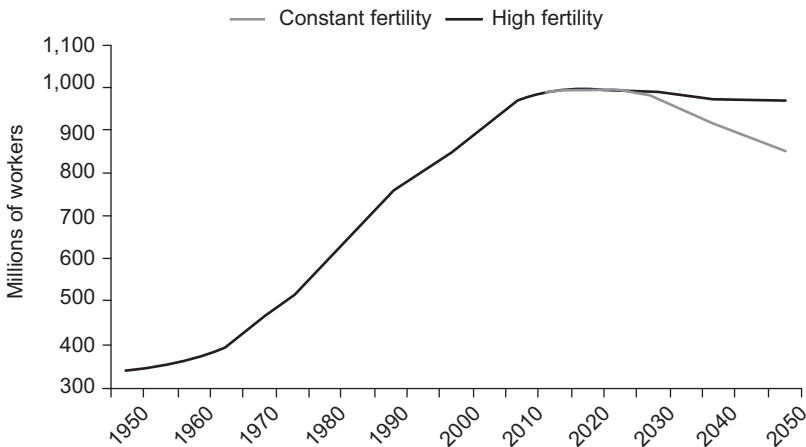
Figure 9.8 Working-Age Population: Constant Versus High Fertility
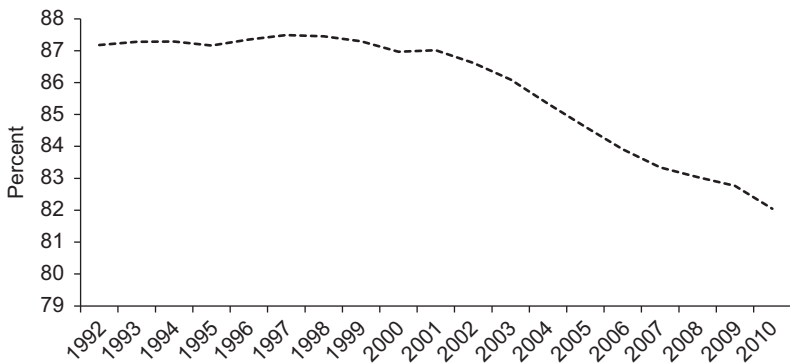Sources: UN Population Database; and IMF staff calculations.

Figure 9.9 Labor Force Participation Rate
Source: IMF staff estimates.

of the pension system has been suggested as another reason for declining participation (Yang and Wang, 2010). Although this chapter does not identify a specific mechanism for raising participation, one path is through greater interprovince labor mobility, for example, accelerated progress in *hukou* reform. The specific scenario is a one-time increase in the participation rate from 0.82 to 0.85, which amounts to the average rate of the past two decades.

The impact of higher participation rates on excess labor supply is significant. With higher participation, the analysis projects that an excess supply of labor persists beyond 2025 and the LTP emerges between 2025 and 2030. Unlike fertility, higher participation has an immediate impact on the size of the labor force and thus on the supply of labor. Therefore, higher participation causes a longer delay in the LTP relative to higher fertility.

Financial Sector Reform

The financial reform scenario considered here is a very specific one: interest rate deregulation that lifts deposit rates. The channel by which interest rates is assumed to affect excess supply is the wealth effect: Higher deposit rates raise the return on the stock of wealth, but decrease the flow into wealth as households meet saving targets more easily, which, in turn, reduces the supply of labor. The scenario is simulated for a 5 percentage point increase in nominal deposit rates, using estimates of the saving response to interest rates in Nabar, 2011 (also see Chapter 5 in this volume).

The results indicate that financial reform accelerates the crossing of the LTP. Whereas in the baseline the excess supply of labor in 2020 was in the range of 30 million, interest rate liberalization would reduce this excess to about 10 million, and the LTP would occur shortly after 2020. Because the depletion of excess labor is likely to be associated with higher wages, potentially raising labor's share of income, financial reform along the lines of this scenario is broadly consistent with Chinese authorities' objectives of raising household income in the medium term.

Product Market Reform

The final scenario considers product market reform that lifts TFP. Although TFP contribution to output growth in China has been positive since 1990, its growth has slowed in recent years. Raising TFP is consistent with a wide variety of policies announced in the 12th Five-Year Plan, such as greater competition in the services sector and investment in higher value added activities. Unlike in the other scenarios, higher TFP works through the labor demand side in this framework, raising firm profitability and thus the demand for labor (Freeman, 1980). This scenario is simulated through a one-time permanent increase in the growth rate of TFP to 4.5 percent, the average TFP growth since 1990.

The impact on the LTP from higher TFP is qualitatively similar to financial reform: a faster decline of excess labor supply, and a faster emergence of the LTP, relative to the baseline. However, this result is, in part, a consequence of the model specification in which TFP does not directly affect the supply of labor. In an alternative setup (e.g., Pissarides and Valenti, 2007) in which gains in productivity translate into lower unemployment—and thus a lower notional supply of labor—a smaller decrease in excess labor supply could result.

CONCLUSION

China is on the cusp of a demographic shift that will have profound consequences on its economic and social landscape. Within a few years the working-age population will reach a historical peak, and will then begin a precipitous decline. The core of the working-age population, those ages 20–39 years, has already begun to shrink. With this, the vast supply of low-cost workers—a core engine of China's growth model—will dissipate, with potentially far-reaching domestic and external implications.

This chapter empirically assesses when labor shortages might emerge. The central result is that, barring an endogenous market or policy response, the excess supply of labor—the reserve of unemployed and underemployed workers (currently in the range of 150 million)—will fall to about 30 million by 2020 and the LTP will be crossed between 2020 and 2025.

An endogenous policy response to potential labor shortages is, however, likely as the government tries to slow the transition to the LTP. Market mechanisms that result in higher wages as labor markets tighten, or induce a transition to more capital-intensive production, may also offset the shrinking labor pool. Scenario analysis reveals that higher fertility through relaxation of the one-child policy and greater labor force participation through *hukou* reform will delay depletion of excess labor. Financial reform and higher TFP, conversely, accelerate the transition to a labor shortage economy, through wealth effects and greater profitability of firms, respectively.

Quantitative estimates of the excess supply of labor and the timing of the LTP presented in this chapter are inherently uncertain. In addition, alternative scenario exercises are analyzed for specific reforms of particular magnitudes and do not take into account potential inter-scenario effects (e.g., the offsetting impacts of higher fertility and financial sector reform). That said, the main point of the analysis is that market and policy responses to the declining labor surplus will be largely peripheral; demographic forces play a dominant role in the imminent transition to a labor shortage economy.

ANNEX 9A. THE DISEQUILIBRIUM MODEL OF THE LABOR MARKET

Labor Demand. Aggregate demand for labor is specified as a function of the endogenous real wage, TFP—reflecting the standard Cobb-Douglas production function in which profit-maximizing firms demand more labor with technological progress—and partner GDP growth, a proxy for demand conditions given China's high dependence on exports. The model is log-linear with an additive stochastic error:

$$L^D = \alpha_1 + \beta_1 W + \beta_2 GDPp + \beta_3 TFP + \varepsilon_1, \tag{9A.1}$$

in which L^D denotes the natural logarithm of the notional aggregate demand for labor; W is the natural log of gross real wages (gross nominal wages deflated by the consumer price index); $GDPp$ is the natural log of the real GDP-weighted growth rate of trading partners; and TFP is total factor productivity, calculated as the residual of a growth accounting framework with capital and labor shares assumed in the literature.[11]

Labor Supply. Aggregate labor supply depends on real wages, net household wealth, the scale of the potential labor force (approximated by the participation rate interacted with population), and the unemployment rate. The unemployment rate is included to capture "added-worker effects," that is, the notion that under weak labor demand conditions, households may send additional individuals to look for work, resulting in a positive observed association between the supply of labor and the unemployment rate (Basu, Genicot, and Stiglitz, 2000):

$$L^S = \alpha_2 + \beta_4 W + \beta_5 \ln H + \beta_6 Wealth + \beta_7 U + \varepsilon_2, \tag{9A.2}$$

in which L^S is notional aggregate supply of labor, H denotes the natural log of the scale variable, and U is the unemployment rate.

In the equilibrium model, the observed quantity of labor equates the notional supply of labor, L^S, with the notional demand for labor, L^D. In the disequilibrium model, however, it is assumed that the observed quantity, L, is the minimum of the notional labor supplied and demanded:

$$L = \min\left(L^S, L^D\right). \tag{9A.3}$$

This assumption implies that if $L^S > L^D$, then $L = L^D$ and the observed quantity lies only on the demand curve, whereas $L^S < L^D$ indicates $L = L^S$ and the observed quantity lies only on the supply curve. This is the key contrast with the equilibrium model ($L = L^S = L^D$), because in the disequilibrium case, the demand for and supply of labor are unobservable unless they are the minimum in equation (9A.3). The deterministic function is defined as

$$L^S - L^D = \delta\left(I - I^*\right), \tag{9A.4}$$

---

[11]TFP is in level terms.

in which I denotes an indicator of excess supply, I^* denotes the equilibrium value of I, and δ is an unobserved parameter ($\delta > 0$ under the null hypothesis). In the empirical analysis, I is the unemployment rate and I^* is the NAIRU. Alternatives for I are wage inflation, the layoff rate, and the quit rate (Baily, 1982). Two additional variables are defined as

$$Q_S = \begin{cases} 1 \, if \, I - I^* > 0 \\ 0 \, \text{otherwise} \end{cases}$$
$$Q_D = \begin{cases} 1 \, if \, I - I^* < 0 \\ 0 \, \text{otherwise} \end{cases} \tag{9A.5}$$

Substituting equations (9A.4) and (9A.5) into equations (9A.1) and (9A.2) and rearranging yields the model to be estimated:

$$L^D = \alpha_1 + \beta_1 W + \beta_2 GDPp + \beta_3 TFP - [\delta(I - I^*) \times Q_D] + \varepsilon_1 \tag{9A.6}$$
$$L^S = \alpha_2 + \beta_4 W + \beta_5 \ln H + \beta_6 Wealth + \beta_7 U + [\delta(I - I^*) \times Q_S] + \varepsilon_2.$$

Identification follows immediately because both system equations are overidentified. Because δ enters both equations, the model is estimated by three-stage least squares.

Note, when $\delta = 0$, equation (9A.6) reduces to

$$L^D = \alpha_1 + \beta_1 W + \beta_2 GDPp + \beta_3 TFP + \varepsilon_1 \tag{9A.7}$$
$$L^S = \alpha_2 + \beta_4 W + \beta_5 \ln H + \beta_6 Wealth + \beta_7 U + \varepsilon_2,$$

which is identical to the standard equilibrium model with $L = L^S = L^D$. Thus, statistical rejection of $\delta = 0$ is evidence in support of disequilibrium.

ANNEX 9B. DERIVATION OF THE EMPIRICAL FRAMEWORK

Derivation of equation (9A.6) is as follows:

Switching model. The presence of the *min* condition in equation (9A.3) introduces computational difficulties caused by the nonlinearity of the resulting reduced-form equations for labor supply and demand. This issue is addressed by invoking a switching model in the spirit of Fair and Jaffe (1972). Specifically, the derivation assumes $\delta > 0$. Then, when $I > I^*$, it is inferred that the market is in excess supply, $L^S > L^D$ and $L = L^D$. The switching model overcomes the computational difficulties of the *min* condition because it exactly partitions the data into periods of excess supply and excess demand, effectively making the *min* condition redundant in the estimation (see below). The switching model is deterministic, but does not necessarily describe a causal relationship.

Disequilibrium simultaneous equations model. The key step in deriving equation (9A.6) is replacing the difference of the unobservable variable $(L^S - L^D)$ with the deterministic indicator and partitioning the data into regimes of excess supply or excess demand, which together yield a simultaneous equation model. Specifically, note the following:

If $I - I^* < 0$,

$$L = L^D - (L^S - L^D) \tag{9B.1}$$

$$= \alpha_1 + \beta_1 W + \beta_2 GDPp + \beta_3 TFP - \delta(I - I^*) + \varepsilon_1$$

$$L = L^S$$

$$= \alpha_2 + \beta_4 W + \beta_5 \ln H + \beta_6 Wealth + \beta_7 U + \varepsilon_2.$$

If $I - I^* > 0$,

$$L = L^D \tag{9B.2}$$

$$= \alpha_1 + \beta_1 W + \beta_2 GDPp + \beta_3 TFP + \varepsilon_1$$

$$L = L^S + (L^D - L^S)$$

$$= \alpha_2 + \beta_4 W + \beta_5 \ln H + \beta_6 Wealth + \delta(I - I^*) + \beta_7 U + \varepsilon_2.$$

REFERENCES

Aziz, J., and L. Cui, 2007, "Explaining China's Low Consumption: The Neglected Role of Household Income," IMF Working Paper 7/181 (Washington: International Monetary Fund).

Baily, M., 1982, *Workers, Jobs and Inflation* (Washington: The Brookings Institution).

Barro, R.J., and H.I. Grossman, 1971, "A General Disequilibrium Model of Income and Employment," *American Economic Review*, Vol. 61, No. 1, pp. 82–93.

Basu, K., G. Genicot, and J.E. Stiglitz, 2000, "Unemployment and Wage Rigidity When Labor Supply Is a Household Decision," Working Paper 00-10 (New York: Cornell University, Center for Analytic Economics).

Cai, F., and M. Wang, 2008, "A Counterfactual Analysis on Unlimited Surplus Labor in Rural China," *China and the World Economy*, Vol. 16, No. 1, pp. 51–65.

Chan, K.W., 2010, "A China Paradox: Migrant Labor Shortage amidst Rural Labor Supply Abundance," *Eurasia Geography and Economics*, Vol. 51, No. 4, pp. 513–30.

Fair, R., and A. Jaffe, 1972, "Methods of Estimation for Markets in Disequilibrium," *Econometrica*, Vol. 40, pp. 497–514.

Freeman, R., 1980, "The Evolution of the American Labor Market, 1948–80," in *The American Economy in Transition*, ed. by M. Feldstein (Chicago: University of Chicago Press).

Garnaut, R., 2006, "The Turning Point in China's Economic Development," in *The Turning Point in China's Economic Development,* ed. by Ross Garnaut and Ligang Song (Canberra: Asia Pacific Press).

Golley, J., and R. Tyers, 2006, "China's Growth to 2030: Demographic Change and the Labour Supply Constraint," Australian National University Working Paper (Canberra).

Hajivassiliou, V., 1993, "Macroeconomic Shocks in an Aggregative Disequilibrium Model," Cowles Foundation Discussion Paper No. 2063 (New Haven, Connecticut: Cowles Foundation, Yale University).

International Monetary Fund (IMF), 2011, *People's Republic of China: Spillover Report for the 2011 Article IV Consultation and Selected Issues* (Washington). www.imf.org/external/pubs/ft/scr/2011/cr11193.pdf.

Knight, J., Q. Deng, and S. Li, 2011, "The Puzzle of Migrant Labour Shortage and Rural Labour Surplus in China," *China Economic Review*, Vol. 22, No. 4, pp. 585–600.

Kwan, C.H., 2007, "China Shifts from Labor Surplus to Labor Shortage: Challenges and Opportunities in a New Stage of Development" (Tokyo: Research Institute of Economy Trade and Industry).

Lewis, W.A., 1954, "Economic Development with Unlimited Supplies of Labour," *Manchester School*, Vol. 22, No. 2, pp. 139–92.

Lucas, R.E., and L. Rapping, 1969, "Real Wages, Employment, and Inflation," *Journal of Political Economy*, Vol. 77, pp. 721–54.

Nabar, M., 2011, "Targets, Interest Rates and Household Saving in Urban China," IMF Working Paper 11/223 (Washington: International Monetary Fund).

National Population Development Strategy Research Report, 2007.

Pissarides, M., and G. Valenti, 2007, "The Impact of TFP Growth on Steady-State Unemployment," *International Economic Review*, Vol. 48, pp. 607–40.

Quandt, R.E., and H. Rosen, 1986, "Unemployment, Disequilibrium and the Short Run Phillips Curve: An Econometric Approach," *Journal of Applied Econometrics*, Vol. 1, No. 3, pp. 235–53.

Rosen, H., and R.E. Quandt, 1978, "Estimation of a Disequilibrium Aggregate Labor Market," *Review of Economics and Statistics*, Vol. 60, No. 3, pp. 371–79.

Rudebusch, G.D., 1986, "Testing for Labor Market Equilibrium with an Exact Excess Demand Disequilibrium Model," *Review of Economics and Statistics*, Vol. 68, No. 3, pp. 468–76.

Yang, D.U., and M. Wang, 2010, "Demographic Aging and Employment in China," Institute of Population and Labour Economics, Chinese Academy of Social Sciences.

Zhang, G., and Z. Zhao, 2006, "Reexamining China's Fertility Puzzle: Data Collection and Quality over the Last Two Decades," *Population and Development Review,* Vol. 32, pp. 293–321.

Zhang, X, J. Yang, and S. Wang, 2010, "China Has Reached the Lewis Turning Point," IFPRI Discussion Paper No. 977 (Washington: International Food Policy Research Network).

This page intentionally left blank

How Pro-Poor and Inclusive Is China's Growth? A Cross-Country Perspective

RAVI BALAKRISHNAN, CHAD STEINBERG, AND MURTAZA SYED

Poverty in China has fallen dramatically over the last 35 years of reform and opening up. However, inequality has increased since the early 1990s, dampening the impact of China's growth on poverty reduction and making it among the most unequal large economies in the world. This chapter finds that although China's recent period of growth has remained strongly pro-poor, it has been less inclusive compared with other regions. Based on cross-country experiences, policies that could broaden the benefits of growth in China include a fairer fiscal tax and expenditure system, higher public spending on health and education, enhanced social safety nets including conditional cash transfers, greater assistance for vulnerable workers, reforms to increase labor income, and improvements to financial access. As a beneficial by-product, many of these policies would also facilitate the rebalancing of China's growth model by rationalizing saving, boosting household incomes, and unleashing consumption.

INTRODUCTION

Income inequality has risen across much of the world since 1990. The academic literature attributes this rise to three main factors: globalization, skill-biased technological change, and the decreasing bargaining power of workers. In addition, country-specific features may also be at play, including diminished social spending, barriers to labor mobility, and geographic disparities. The 2008–09 global financial crisis and recent social turmoil in different parts of the world have heightened awareness of the potential impact of rising inequality on economic and social stability and the sustainability of growth. Such concerns have not bypassed China, where policymakers are placing high priority on finding ways to arrest rising inequality and share the fruits of growth more equitably.

This chapter quantifies the degree to which China's recent growth has been pro-poor and inclusive, and discusses what factors drive these outcomes and which policies could be considered to help make growth more broad-based and equitable. The main findings are that China's impressive growth has translated into a dramatic reduction in poverty. However, inequality has increased sharply since 1990, dampening the impact of growth on poverty reduction. As a result, relative

181

to other regions and in contrast to its own experience of equitable growth in the 1980s, China's recent period of growth has been less inclusive. To rein in this trend, opportunities are available for policy measures to broaden the benefits of growth, notably enhanced spending on health and education, stronger social safety nets, labor market interventions, and financial inclusion. Many of these policies would also help rebalance the Chinese economy toward household and private consumption.

This chapter is organized as follows: The next section motivates the research by comparing recent trends in poverty and inequality in China with those in other regions of the world. The two subsequent sections propose ways to quantify how pro-poor and inclusive growth is in any economy and use a regression approach to assess China's performance on these metrics relative to its peers. The final section draws lessons from international experiences in poverty-reduction initiatives and proposes potential policy interventions for broadening the benefits of growth in China.

POVERTY, INEQUALITY, AND GROWTH: CHINA IN AN INTERNATIONAL CONTEXT

Since 1990, growth in China and most Asian economies has been robust and higher on average than in other emerging regions. In turn, this growth has translated into significant reductions in poverty (Table 10.1).

When China's reforms began, it was one of the poorest countries in the world. In 1981, 84 percent of its population lived on less than $1.25 a day, the fifth-largest poverty incidence in the world. By 2008, this proportion had fallen to 13 percent, well below the developing-country average (Figure 10.1). Nevertheless, China's large population means that it still remains home to almost 175 million people who live in extreme poverty.

TABLE 10.1

People Living on Less Than $1.25 Per Day						
	Percent of Population		**Number (millions)**	**Percent of World Total**	**Number (millions)**	**Percent of World Total**
	1990	**2008**	**1990**		**2008**	
Europe and Central Asia	2	<1	9	<1	2	0
Latin America and The Caribbean	12	6	53	3	37	3
Middle East and North Africa	6	3	13	1	9	1
Sub-Saharan Africa	57	48	290	15	386	30
Asia	55	25	1,544	81	855	66
China	60	13	683	36	173	13
India	47	33	433	23	395	31
Rest of Asia	58	31	427	22	287	22
Total	43	22	1,909		1,290	

Source: World Bank, PovcalNet database.
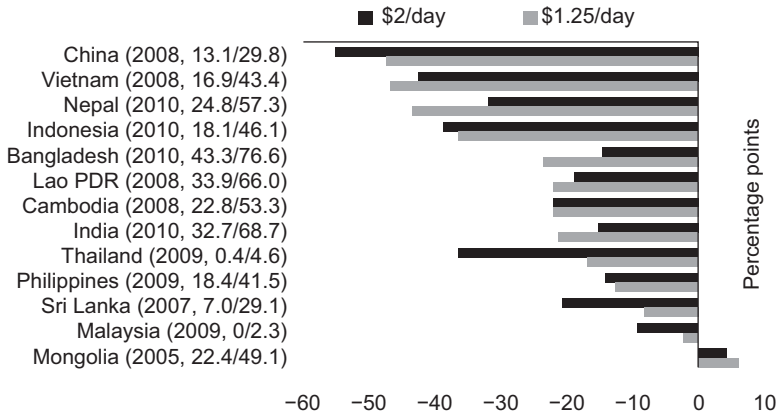Note: At 2005 purchasing-power-parity prices.

Figure 10.1   Asia: Change in Poverty Headcount since 1990

Source: World Bank; and IMF staff calculations.
Note: At 2005 purchasing-power-parity prices. In parentheses, the latest available year and corresponding poverty headcount ratios at $1.25 and $2 per day, respectively.

Poverty in China fell fastest during the early 1980s and mid-1990s, spurred by rural reforms and low initial inequality. With a relatively equal allocation of land—through land use rights rather than ownership—agricultural growth unleashed by the agricultural and rural economic reforms of the early 1980s translated into rapid poverty reduction. High access to health and education opportunities also ensured that the subsequent nonfarm growth in both rural and urban areas was poverty reducing.

Since the early 1990s, however, the nature of poverty in China has been changing. Growth in the agricultural sector has slowed and the benefits of agrarian reforms have started to dissipate. These changes have resulted in slower growth in rural employment and incomes, as well as a rise in urban poverty, partly reflecting large-scale migration from rural areas.

Most striking, inequality has increased sharply (Figure 10.2). According to the World Bank, China's Gini index increased from 29 percent in 1981 to more than 42 percent in 2005, a level higher than that of the United States.[1] Notwithstanding a downtick since 2009, official estimates report a Gini index of more than 47 in 2012.

Rising disparities have been characterized by increases in rural-urban inequality and regional inequality. In China, the rural-urban income gap has increased significantly since 1998, reaching a ratio of more than 3:1, which is high by international standards (Figure 10.3). For most other Asian economies, the ratio falls between 1.3 and 1.8 (Eastwood and Lipton, 2004).

At the same time, the historically slower pace of income growth in central and western regions compared with China's eastern coast has widened income gaps

---

[1]The Gini index is a commonly used measure of the extent to which the distribution of income or consumption expenditure within an economy deviates from a perfectly equal distribution. A Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.
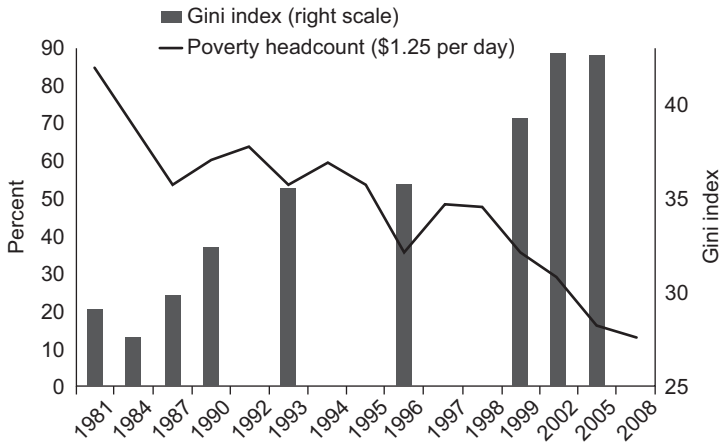
Figure 10.2   China: Trends in Poverty and Inequality

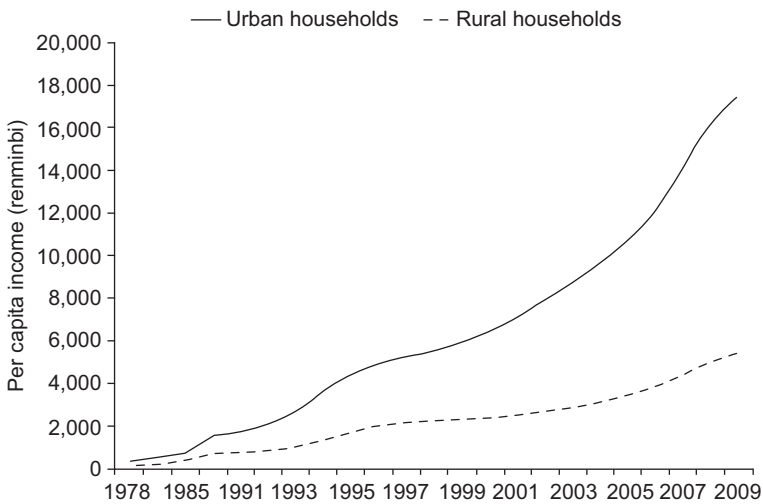Source: World Bank, World Development Indicators.

Figure 10.3   China: Rural and Urban per Capita Incomes

Source: National Bureau of Statistics.

among regions. The coastal regions, China's export centers, have provided more opportunities for nonagricultural employment and income. This regional inequality was partly the result of geographical advantages but was compounded by preferential policies, as well as persistent disparities in human capital and infrastructure (Fan, Kanbur, and Zhang, 2009). Since the mid-2000s, this trend has reversed somewhat, as the result of supportive government policies in the inland and western parts of China.

From a cross-country perspective, the rise in inequality has been an almost global phenomenon since 1990, with the exception of parts of Latin America and
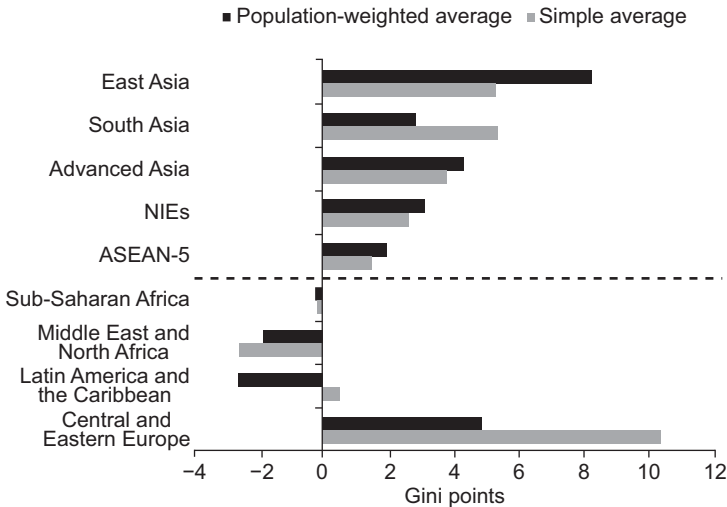
■ Population-weighted average ■ Simple average

East Asia
South Asia
Advanced Asia
NIEs
ASEAN-5
Sub-Saharan Africa
Middle East and North Africa
Latin America and the Caribbean
Central and Eastern Europe

−4 −2 0 2 4 6 8 10 12
Gini points

Figure 10.4 Emerging Economies: Change in Gini Index since 1990

Source: CEIC Data; World Bank, PovcalNet database; WIDER income inequality database; Milanovic, 2010; national authorities; and IMF staff calculations.

Note: ASEAN-5 = five largest economies in the Association of Southeast Asian Nations (Indonesia, Malaysia, the Philippines, Thailand, and Vietnam); NIE = newly industrialized economies.
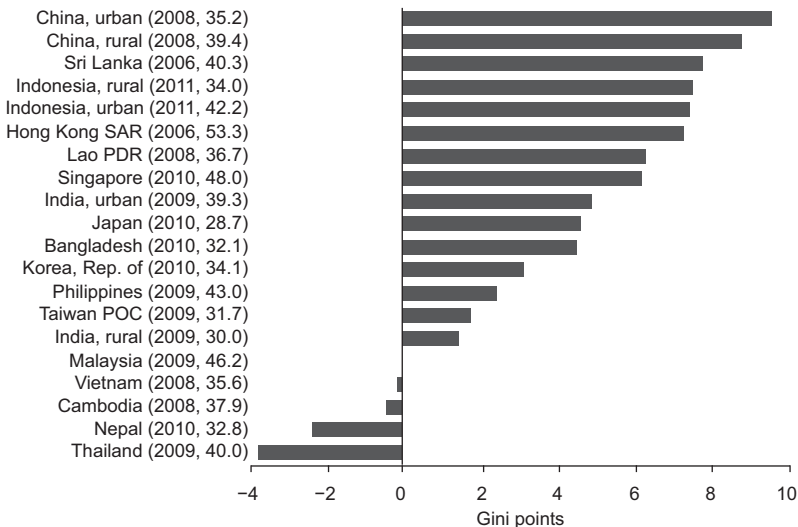
China, urban (2008, 35.2)
China, rural (2008, 39.4)
Sri Lanka (2006, 40.3)
Indonesia, rural (2011, 34.0)
Indonesia, urban (2011, 42.2)
Hong Kong SAR (2006, 53.3)
Lao PDR (2008, 36.7)
Singapore (2010, 48.0)
India, urban (2009, 39.3)
Japan (2010, 28.7)
Bangladesh (2010, 32.1)
Korea, Rep. of (2010, 34.1)
Philippines (2009, 43.0)
Taiwan POC (2009, 31.7)
India, rural (2009, 30.0)
Malaysia (2009, 46.2)
Vietnam (2008, 35.6)
Cambodia (2008, 37.9)
Nepal (2010, 32.8)
Thailand (2009, 40.0)

−4 −2 0 2 4 6 8 10
Gini points

Figure 10.5 Asia: Change in Gini Index since 1990

Source: World Bank; national authorities; and IMF staff calculations.

Note: In parentheses, the latest available year and corresponding Gini coefficients.

parts of the Middle East and North Africa (Figure 10.4). The rise has been especially pronounced in parts of Asia, including China (Figure 10.5). For China and other economies in the region, this rising inequity is in sharp contrast to the previous three-decade record of equitable growth in Japan, the newly industrialized
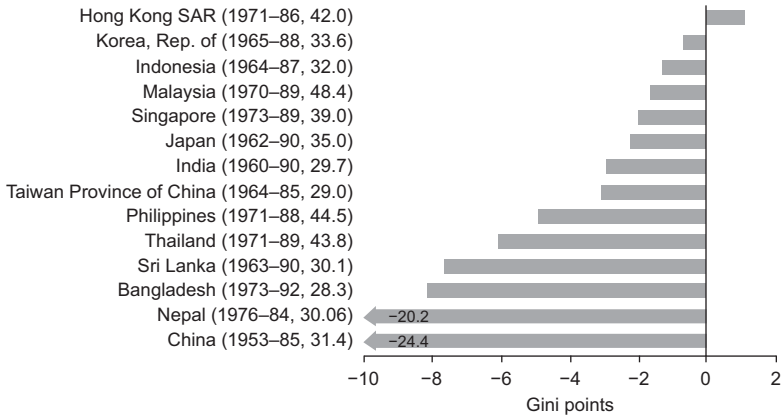
Hong Kong SAR (1971–86, 42.0)
Korea, Rep. of (1965–88, 33.6)
Indonesia (1964–87, 32.0)
Malaysia (1970–89, 48.4)
Singapore (1973–89, 39.0)
Japan (1962–90, 35.0)
India (1960–90, 29.7)
Taiwan Province of China (1964–85, 29.0)
Philippines (1971–88, 44.5)
Thailand (1971–89, 43.8)
Sri Lanka (1963–90, 30.1)
Bangladesh (1973–92, 28.3)
Nepal (1976–84, 30.06) −20.2
China (1953–85, 31.4) −24.4

Gini points

Figure 10.6 Asia: Change in Gini Index before 1990

Source: Milanovic, 2010; and IMF staff calculations.
Note: In parentheses, the time period and end-value for the Gini coefficients.

economies (NIEs), the members of the Association of Southeast Asian Nations, and China itself (Figure 10.6). At the same time, even as the size and purchasing power of China's middle class has grown, its share of overall income has fallen while that of the richest quintile has increased. By contrast, in Latin America and in the Middle East and North Africa, the share of the richest quintile has fallen. Earlier work (IMF, 2006) attributes the rise in inequality around the world to skill-biased technological change and the transition from agriculture to industry for lower-income Asian economies (consistent with the Kuznets hypothesis).[2]

HOW PRO-POOR IS CHINA'S GROWTH?

Going beyond these stylized facts, regression analysis can be used to quantify how pro-poor and inclusive China's growth is relative to other emerging regions.[3] There are various ways to interpret what it means for growth to be inclusive and pro-poor. This chapter follows the Ravallion and Chen (2003) approach and defines growth as pro-poor simply if it reduces poverty. Inclusive growth, in contrast, is defined as growth that is not associated with an increase in inequality, following Rauniyar and Kanbur (2010). More specifically, this chapter defines growth as inclusive when it is not associated with a reduction in the share of the bottom quintile of the income distribution.

[2] Jaumotte, Lall, and Papageorgiou (2008) also argue that skill-biased technological progress is a key driver of rising inequality.

[3] For the econometric analysis, the main sources of data are the latest versions of the PovcalNet database (updated in July 2012) and the Penn World Tables. PovcalNet was chosen because major efforts have been made to make its inequality and poverty data comparable across surveys and countries: It draws on 700 household surveys and 120 countries (econ.worldbank.org/povcalnet). Household survey data for the NIEs are added to this, resulting in an unbalanced panel between 1971 and 2010, with the sample skewed toward the latter part of the period.

To examine the relationship between poverty reduction and growth, the following regression is estimated:

$$ln\ P_{i,t} = \gamma_i + \beta_{i,d}\ ln y_{i,t} + \delta_{i,t}\ ln\ GINI_{i,t} + \rho_d + \varepsilon_{i,t},\quad\quad (10.1)$$

in which $P_{i,t}$ is the poverty headcount below the \$2 per day line in country i at time t, Y_i is a country dummy, $y_{i,t}$ is per capita income in country i at time t', $GINI_{i,t}$ is the Gini coefficient in country i at time t, and ρ_d is a set of decade dummies. Because the equation is in logs, β gives the impact of income growth on poverty reduction, and δ gives the impact of a change in the Gini coefficient. Both β and δ are allowed to vary across countries and decades.

To estimate the fixed effects, a set of benchmark countries is needed. Because the main interest of this analysis is to compare China with the rest of Asia and Latin America, all countries falling in other emerging and developing regions—notably, Europe and Central Asia, the Middle East and North Africa, and sub-Saharan Africa—are included in the benchmark category. An instrumental variables approach is used to take account of endogeneity bias and potential measurement error in the income variable. In particular, lags of real per capita income as measured in the Penn World Tables are used to instrument the household-survey-based average income variable.

The regression analysis presented in Table 10.2 suggests that for all countries in the sample, growth is in general pro-poor, with growth leading to significant declines in poverty across all economies and time periods. Specifically, a 1 percent increase in real per capita income leads to about a 2 percent decline in the poverty headcount (column 1). However, a 1 percent increase in the Gini coefficient almost directly offsets the beneficial impact on poverty reduction of the same increase in income. This finding is consistent with other work that suggests that the incidence of extreme poverty in China would have fallen to less than 5 percent had inequality not increased after 1990 (ADB, 2012).

Moreover, inequality interacts with income, meaning that a higher level of inequality tends to reduce the impact of income growth on poverty reduction (column 2). As an illustration, an increase in the Gini coefficient of about 25 percent (as in urban China from 1995 to 2005) reduces the impact of a 1 percent increase in income to about a 1½ percent decline in the poverty headcount from 2 percent in the base case. The implication of this result is that past rises in inequality are likely to reduce the future impact of income growth on poverty, even if the level of inequality remains constant. In addition, the impact of growth on poverty reduction is found to be somewhat lower during the 1990s, possibly as a result of a change in the nature of growth (column 3).

The relationship, however, varies across regions and economies (columns 4 and 5 and Figure 10.7). In particular, in East Asia and Latin America, income growth has a significantly lower impact on poverty than it does in the Middle East and North Africa, Eastern Europe and Central Asia, and sub-Saharan Africa, the baseline economies. The impact is particularly weak in India and Indonesia,

TABLE 10.2

Variables	(1) P	(2) P	(3) P	(4) P	(5) P
Pro-Poor Growth Regressions[1]					
Log of mean household income (y)	−2.146***	−8.205***	−2.627***	−3.406***	−10.536***
	(0.262)	(1.079)	(0.300)	(0.428)	(1.232)
EAP × y				1.258**	1.138*
				(0.616)	(0.644)
South Asia × y				−0.159	1.177**
				(1.202)	(0.584)
LAC × y				1.294***	0.653
				(0.502)	(0.506)
China × y				1.149	2.046***
				(0.712)	(0.743)
India × y				1.889***	2.178***
				(0.675)	(0.559)
Brazil × y				1.220***	0.640
				(0.436)	(0.409)
Indonesia × y				1.957***	2.432***
				(0.433)	(0.464)
Log of Gini index	2.258***	−5.838***	2.277***	2.003***	−7.799***
	(0.463)	(1.205)	(0.450)	(0.499)	(1.502)
Ninety (1990s decade dummy)			−0.743	0.074	0.054
			(0.536)	(0.075)	(0.075)
Noughty (2000s decade dummy)			0.694	0.262**	0.142
			(0.647)	(0.112)	(0.099)
Ninety × y			0.193*		
			(0.110)		
Noughty × y			−0.067		
			(0.126)		
Income-Gini interaction		1.723***			2.035***
		(0.267)			(0.317)
Observations	579	579	579	579	579
R-squared	0.558	0.654	0.558	0.461	0.591
Number of clusters	98	98	98	98	98
Model	FE IV	FE IV	FE IV	FE IV	FE IV

Source: Authors' calculations.
[1] Dependent variable is the log of poverty headcount below the $2 line. Robust standard errors in brackets.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

where it is significantly less than the impact of an equivalent reduction in the Gini coefficient. For China, the impact is as strong as in the baseline economies, suggesting that growth has been highly pro-poor.

HOW INCLUSIVE IS CHINA'S GROWTH?

As a second step, the analysis follows Dollar and Kraay (2002) and looks at the relationship between per capita income and the income of a broader definition of "the poor"—the income of the bottom quintile of the income distribution. If the
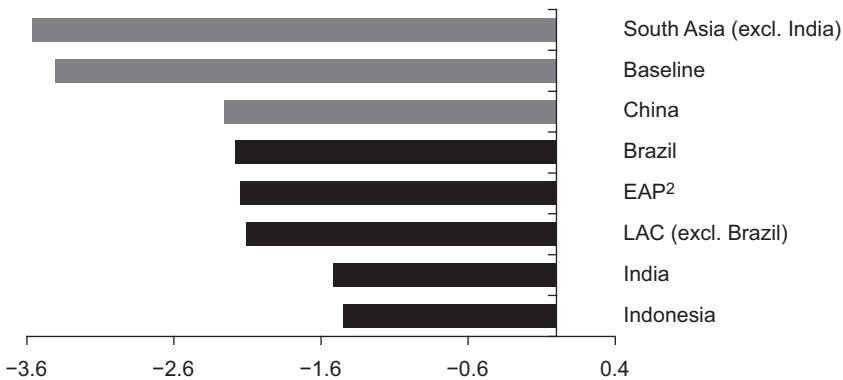
Figure 10.7 Income Elasticity of Poverty Reduction[1] (*impact on poverty headcount, in percent, of 1 percent increase in per-capita income*)

Source: World Bank, PovcalNet, Penn World Tables; and staff calculations.

[1] The black bars represent countries for which the estimated income elasticity of poverty reduction is significantly different to that of the baseline countries.

[2] EAP includes Cambodia, Malaysia, Philippines, Thailand, and Vietnam.

income of the poor tends to rise in the same proportion as average incomes—that is, income growth is not associated with a decrease in the income share of the bottom quintile—then growth would be considered *inclusive*. Specifically, the following panel regression is estimated:

$$\ln yp1_{i,t} = \theta_i + \lambda_{i,d}\ln y_{i,t} + \eta_d + \varepsilon_{i,t}, \tag{10.2}$$

in which $yp1_{i,t}$ is the per capita income of the bottom quintile of the income distribution in country i at time t, θ_i is a country dummy, $y_{i,t}$ is per capita income in country i at time t, and η_d is a set of decade dummies. The term λ—which is allowed to vary across country and decade—is the elasticity of growth in income of the bottom quintile with respect to growth in average income. This equation can be rewritten as follows:

$$\ln Q1_{i,t} = \theta_i + (\lambda_{i,d} - 1)\ln y_{i,t} + \eta_d + \varepsilon_{i,t}, \tag{10.3}$$

in which $Q1_{i,t}$ is the bottom quintile share of the income distribution in country i at time t. As equation (10.3) shows, if λ is less than 1, income growth is associated with a decrease in the income share of the bottom quintile: that is, growth is *not* inclusive. Equation 10.3 is the model we estimate. Given that much of the ongoing debate on inclusiveness has not just focused on the poorest fifth of society being left behind, but the richest fifth doing particularly well, the analysis also estimates a similar relationship for income in the top quintile. As with the pro-poor regressions, we use an instrumental variables approach to take account of endogeniety bias and potential measurement error in the income variable.

TABLE 10.3

Inclusive Growth Regressions[1]						
Variables	**(1)** InQ1	**(2)** InQ1	**(3)** InQ1	**(4)** InQ5	**(5)** InQ5	**(6)** InQ5
Log of mean household income (y)	−0.025	−0.142**	−0.097	0.040*	0.119***	0.060
	(0.043)	(0.061)	(0.126)	(0.023)	(0.034)	(0.061)
EAP × y			0.126			−0.142
			(0.180)			(0.101)
NIEs × y			−0.430***			0.098
			(0.126)			(0.062)
LAC × y			0.133			−0.068
			(0.186)			(0.080)
South Asia × y			−0.480***			0.390**
			(0.178)			(0.185)
China × y			−0.204			0.138**
			(0.128)			(0.062)
Brazil × y			0.469***			−0.260***
			(0.126)			(0.063)
India × y			0.320			−0.224
			(0.305)			(0.146)
Indonesia × y			0.049			−0.030
			(0.133)			(0.069)
Observations	661	633	633	661	633	633
R-squared	0.001	−0.027	0.017	0.021	−0.019	0.064
Model	FE	FE IV	FE IV	FE	FE IV	FE IV
Number of clusters	107	105	105	107	105	105

Source: Authors' calculations.

[1] Dependent variable is the log share of the income distribution of the bottom/top quintile. Robust standard errors in brackets.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The results are shown in Table 10.3. If all observations are simply pooled, the familiar Dollar-Kraay result is obtained—that average incomes of the poorest fifth of society rise proportionally with per capita income (column 1), something which also holds for the richest fifth (column 4). However, once the analysis instruments for the income variable (columns 2 and 5), then the income of the bottom quintile rises significantly *less* than proportionately with average income, and the income of the top quintile rises significantly *more* than proportionately with average income.

Moreover, these elasticities vary significantly across regions and countries (columns 3 and 6). For the bottom quintile, the elasticity is significantly less than 1 for China, as well as for the NIEs and South Asia (excluding India), whereas for Brazil, it is significantly greater than 1 (Figure 10.8).[4] Turning to the top quintile, the results are the mirror image of those for the bottom quintile, except for the NIEs (Figure 10.9). The elasticity is significantly greater than 1 for China, the

_____

[4] Although the elasticity for China is not significantly different from that of the baseline at the 10 percent level (column 3 of Table 10.3), further χ^2 tests show that it is significantly different from 1 at the 1 percent level.
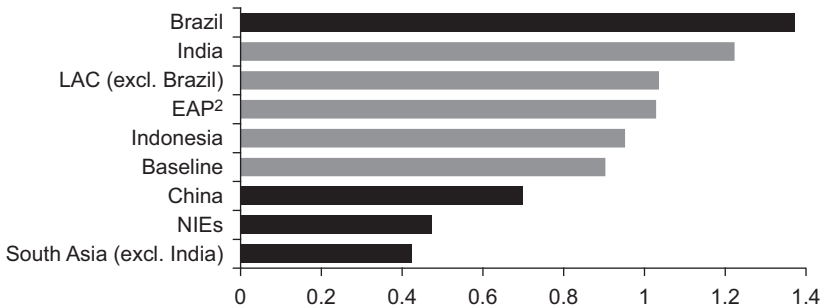
Figure 10.8 Degree of Inclusiveness of Growth[1] (*impact on income of the bottom quintile, in percent, of a 1 percent increase in per-capita income*)

Source: World Bank Development Indicators; and IMF staff estimates.
[1] The black bars represent countries for which the estimated degree of inclusiveness is significantly different from one.
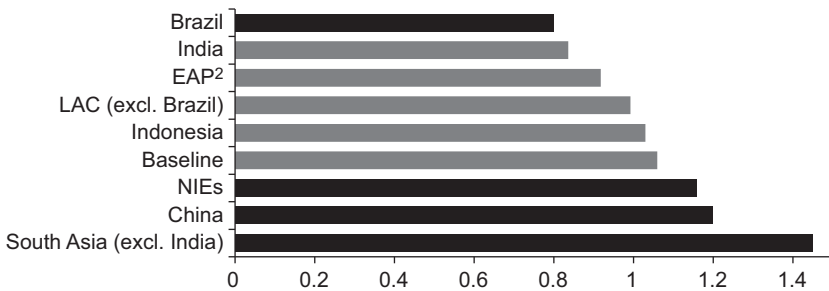[2] EAP includes Cambodia, Malaysia, Philippines, Thailand, and Vietnam.

Figure 10.9 Degree of Inclusiveness of Growth[1] (*impact on income of the top quintile, in percent, of a 1 percent increase in per-capita income*)

Source: World Bank Development Indicators; and IMF staff estimates.
[1] The black bars represent countries for which the estimated degree of inclusiveness is significantly different from one.
[2] EAP includes Cambodia, Malaysia, Philippines, Thailand, and Vietnam.

NIEs, and South Asia (excluding India), and significantly less than 1 for Brazil (column 6). In sum, the results suggest that growth has generally not been inclusive in China, nor in the NIEs and South Asia (excluding India), whereas it has been inclusive in Brazil.[5]

Finally, using the regression estimates, Table 10.4 investigates the importance of growth to the welfare of the poor. It constructs measures of pro-poor and inclusive growth for Brazil, China, India, Indonesia, Mexico, and the Russian Federation for recent decades. The table shows that although the income elasticities of poverty and income of the bottom quintile vary significantly across economies, per capita income growth remains a key driver of

---

[5] One important caveat is that Brazil entered the 1990s with a relatively higher level of inequality.

TABLE 10.4

	[1] Elasticity of Poverty w.r.t. Income Growth[1]	[2] Degree of Inclusiveness[1]	[3] Income Growth[2]	[4] Change in Gini	[5]=[1] × [3] + 2 × [4] Predicted Change in Poverty (%)	[6] = [2] × [3] Predicted Change in Bottom Fifth Income (%)
China 1980s	−3.4	0.7	84	54	−177	59
China 1990s	−3.4	0.7	88	36	−227	61
China 2000s	−3.4	0.7	123	22	−377	86
Brazil 1980s	−2.2	1.4	24	5	−43	33
Brazil 1990s	−2.2	1.4	5	−3	−18	7
Brazil 2000s	−2.2	1.4	34	−9	−92	47
India 1990s	−1.5	1.0	10	−1	−17	10
India 2000s	−1.5	1.0	26	9	−21	26
Indonesia 1990s	−1.4	1.0	15	−5	−31	15
Indonesia 2000s	−14	1.0	90	23	−84	90
Mexico 1990s	−2.1	1.0	−17	−3	31	−17
Mexico 2000s	−2.1	1.0	41	−4	−94	41
Russia 1990s	−3.4	1.0	−47	−26	110	−47
Russia 2000s	−3.4	1.0	92	12	−289	92

Source: World Bank, PovcalNet; Penn World Tables; and IMF staff calculations.
[1] Set equal to the value for the baseline countries when the null of a significant difference cannot be rejected.
[2] As proxied by 100 times the change in the log over the corresponding period.

income of the poorest fifth of society. Some of the more specific results include the following:

- Inequality has widened in China, in contrast with Brazil and Mexico. Still, China has experienced greater poverty reduction because of its larger growth in average income.
- The importance of average income growth is reinforced when looking at trends in Indonesia and Russia. For both economies in the first decade of the 2000s relative to the 1990s, poverty reduction was much greater despite worsening inequality, because growth was much higher.
- A similar story emerges when looking at measures of inclusive growth. For example, although growth has been only half as inclusive in China as compared with Brazil, the income of the poorest fifth of society has increased by relatively more in China because average income growth has been much stronger.

TOWARD MORE INCLUSIVE GROWTH IN CHINA: SOME LESSONS FROM INTERNATIONAL EXPERIENCE

This section discusses policies that could reduce inequality and increase inclusiveness, based on the regression results and international experience.[6] It is by no means exhaustive and the multiple factors behind rising inequality suggest that a

---

[6] In the Asian context, evidence indicates that the labor share of income, public education spending, years of schooling, industry employment, and financial reform significantly increase the degree of inclusiveness (Balakrishnan, Steinberg, and Syed, 2013).

set of mutually reinforcing policies will likely be needed, and that the necessary mix will vary from country to country.

In China, boosting household incomes would appear to be a key priority for addressing inequality. Higher incomes could be achieved, for instance, by decreasing existing subsidies to capital in the form of artificially low input costs, promoting services and agriculture that tend to be more labor intensive, continuing to raise minimum wages, and raising the returns to household savings through interest rate reform and financial development.

Fiscal Policy

Increasing government spending on education and health. The relatively low amount of public spending on education and health as a share of GDP in China points to an important potential role for fiscal policy in strengthening inclusiveness (Figure 10.10). Increased spending is particularly important in the face of rising skill premiums and increasing returns to human capital. Between 1988 and 2003, wage returns to one additional year of schooling increased in China to 11 percent from 4 percent (Zhang and others, 2005) and disparities in educational attainment beyond primary school have also emerged.

Tax and spending effort. In addition, adjusting the level and structure of taxes and spending may have a part to play. In Organization for Economic Cooperation and Development (OECD) countries, taxes and transfer policies have also been estimated to reduce inequality by about a quarter (OECD, 2012). In sharp contrast, the redistributive impact of fiscal policy in developing economies is severely restricted by lower overall levels of both taxes and transfers—whereas average tax ratios for advanced economies exceed 30 percent of GDP, ratios in Asia and the Pacific are only about half that level and among the lowest in developing regions (Bastagli, Coady, and Gupta, 2012). At about 20 percent of GDP, China's tax ratio is on the low side. Partly as a result, social spending is also substantially lower in developing economies, at about 8 percent of GDP compared with 15 percent of GDP in advanced economies, with lower transfers and health spending explaining most of the difference. Again, China is an even greater outlier on the low side. Public expenditures on health, pensions, and other forms of social protection only amount to 5.7 percent of GDP in China. On average, economies at similar levels of development spend more than twice as much.

Tax and spending structure. Greater reliance on less progressive tax and spending instruments adds to the problem. In Asia and the Pacific, indirect taxes account for half of tax revenue, compared with less than one-third in advanced economies. In China, the situation is even more extreme, with taxes on incomes and profits making up only about one-quarter of total tax revenue. Broadening the tax base and improving the progressivity of some taxes could also be considered in China.[7] Meanwhile, participation in social insurance schemes remains

---

[7]The Asian Development Bank notes that only 11 types of personal income are subject to taxation. Moreover, while some of these are taxed at progressive rates (wages and salaries), others are taxed at a flat rate (such as income from personal services, royalties, and rental and lease income).
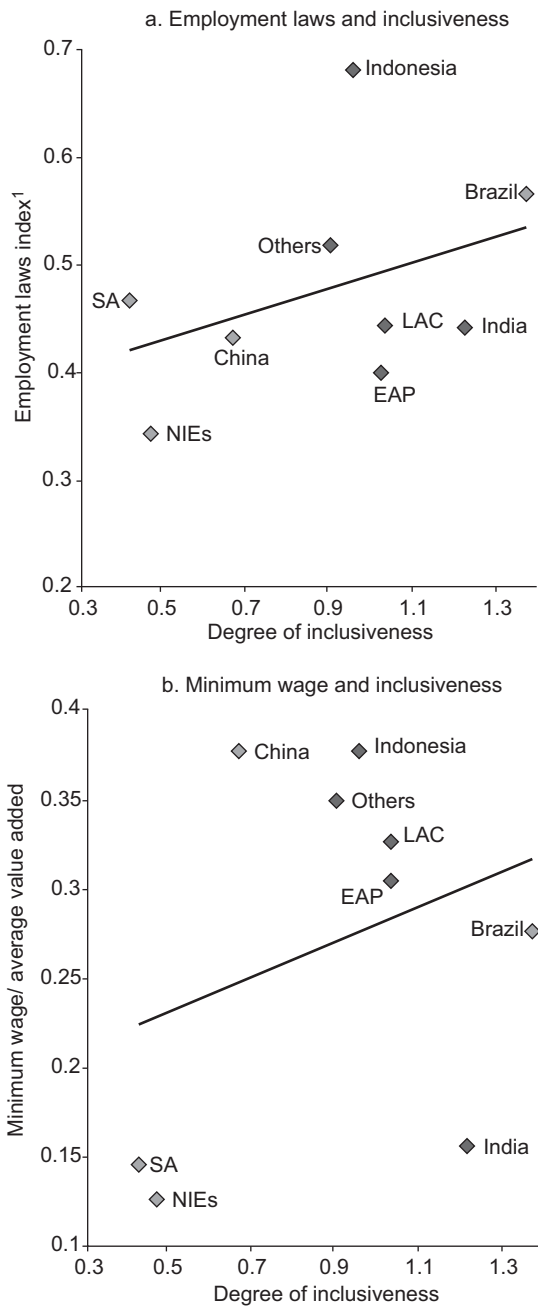
a. Employment laws and inclusiveness

b. Minimum wage and inclusiveness

Figure 10.10   Labor Market Institutions and Inclusiveness

Source: Botero and others, 2004; World Bank, *Doing Business*; and IMF staff estimates.

Note: EAP = East Asia and Pacific; LAC = Latin America and the Caribbean; NIEs = newly industrialized economies; SA = South Asia. The light gray diamonds represent countries for which the estimated degree of inclusiveness is significantly different from one.

[1]Measures the protection of labor and employment laws as the average of alternative employment contracts, the cost of increasing hours worked, the cost of firing workers, and dismissal procedures.

limited in many developing countries like China (particularly in rural areas), and expenditure on social assistance programs is often low and poorly targeted. According to the Asian Development Bank (ADB), about one-third of the poor population in China do not have access to any social programs. Thus, reliance on targeted social expenditures aimed at vulnerable households, including for health and education, could be increased. Conditional cash transfer programs are being increasingly used in low-income emerging economies. Brazil and Mexico have two of the largest schemes (in the former, Bolsa Familia covers about 25 percent of the population) with transfers contingent on requirements such as children's school attendance or vaccination records. Both are considered to have been successful, with the Mexican program being associated with a 10 percent reduction in poverty within two years of its introduction. In Asia, the Philippines introduced a conditional cash transfer program in 2008 (the 4Ps) to help redirect resources toward socially desirable programs in a well-targeted way. By 2012, it was budgeted to reach 60 percent of the poor. In India, the recently launched unique identity scheme holds significant promise in ensuring better targeting of social schemes and allowing the vulnerable to access the welfare system.

Intergovernmental fiscal arrangements. In China, the existing system of intergovernmental fiscal relations may be compounding the problem. Fiscal decentralization is much higher in China than in OECD and middle-income countries, particularly on the spending side. More than half of all expenditure, including social spending, takes place at the subprovincial level. The result has been that poor villages cannot afford to provide good services, and poor households cannot afford the high private costs of basic public services. With regard to public spending on education, large differences in per capita allocations are found across provinces. Overall public spending per capita in the richest province is almost 50 times that in the poorest (ADB, 2012), although the go-west policy in place since 2000 has helped to narrow some of these gaps.

Other social safety nets. In China, the World Bank estimates that only about 30 percent of the labor force contributed to a pension scheme in 2008, with participation especially limited among migrants. This proportion compares to an average coverage rate of 60 percent in OECD countries (OECD, 2009). As well as increasing inclusiveness, enhancing such safety nets would also reduce precautionary motives to save, thereby increasing consumption and facilitating the needed rebalancing of China's economy. Ensuring the sustainability of these welfare programs will be important, however, given China's aging population. A key question about such policies is their fiscal cost. The Bolsa Familia program in Brazil only costs 0.4 percent of GDP, and recent IMF work on China (Barnett and Brooks, 2010) argues that a minimum social safety net can be provided at low cost, with more comprehensive nets funded by broadening the tax base and increasing some taxes, along with reallocating existing spending. In addition, some policies may have no fiscal cost, such as unemployment insurance schemes in which employees and employers contribute to individual accounts. Regarding education, in many cases the challenge is to improve quality. Expanding pension

provision could entail costs, but not necessarily if benefits are provided on a defined contribution basis and contribution rates are increased.

Labor Market Policies

Labor share of income. Across most of the OECD as well as Asia, the past two decades have seen a decline in the income share of labor and a rise in that of capital—in China, the labor share fell from an estimated 50 percent during the early 1990s to about 40 percent by the middle of the first decade of the 2000s. This disproportion contributes to inequality, because capital income tends to be less evenly distributed than income from basic wage labor. It is partly the result of technological change that the return to capital has risen and the employment elasticity of growth has declined; according to the ADB, between 1991 and 2011, the employment elasticity of growth fell from 0.44 to 0.28 in China. In the case of China, this has been exacerbated by an artificially low cost of capital. The historically large pool of surplus labor in rural areas has also reduced the bargaining power of workers, contributing to holding wages low relative to productivity.

Bargaining power of workers. Academic work also links rising inequality to the weaker bargaining power of workers (Levy and Temin, 2007). Indeed, addressing labor market duality and the use of minimum wages are being increasingly advocated across the world to support the income of low-earning workers. In this vein, China's February 2013 announcement of a 35-point plan to tackle income inequality includes a provision to raise minimum wages to at least 40 percent of average salaries by 2015 across most regions. These effects seem to matter empirically. Inclusive growth is positively associated with the degree of employment protection and minimum wage levels (Figure 10.10). Although recent increases have made minimum wage rates in China relatively favorable compared with other emerging regions, employment protection appears weak, possibly reflecting the predicament of migrant workers.

Labor market impediments. In China, additional labor market interventions could be considered. In particular, restrictions on rural-urban migration under the *hukou* system—whereby workers without urban registrations have difficulty accessing housing, social services, and social security—have limited opportunities for the relatively poor rural population. Anecdotal evidence suggests that practical difficulties continue to complicate selling or mortgaging rural land, compounding the problem. In addition, worker training and skills upgrading would help make growth more employment friendly.

Financial Access

A burgeoning literature demonstrates that financial development not only promotes economic growth but also helps apportion it more evenly. According to some estimates, for the lowest quintile, the benefits of financial development are split roughly equally between those associated with faster growth and those from

greater income equality (Beck, Demirgüç-Kunt, and Levine, 2007). Financial market imperfections—such as asymmetric information and costs associated with transactions and contract enforcement—hit poor and small-scale entrepreneurs hardest because they typically lack collateral, credit histories, and connections. These deficiencies prevent capital from flowing to poor individuals, even if they have projects with high prospective returns, thereby reducing the efficiency of capital allocation and aggravating inequality. By addressing these imperfections and creating enabling conditions for financial markets and instruments to develop—such as insurance products that facilitate adjustment to shocks—governments can not only spur growth but also help ensure that it is distributed more evenly.

How does China currently fare on financial development compared with its peers? There is appreciable disparity across Asia (Figure 10.11). Financial deepening—a measure of the level of financial services, typically proxied by broad-money-to-GDP—is positively associated with per capita income, and is elevated in China, reflecting high domestic saving and strong external inflows.

However, deepening by itself may not translate into financial services being broadly available across firms and households, making "access to finance" equally important as financial deepening. Across the globe, high-income countries tend, on average, to have almost 12 times more bank branches and 30 times more automated teller machines for every 100,000 adults than do low-income
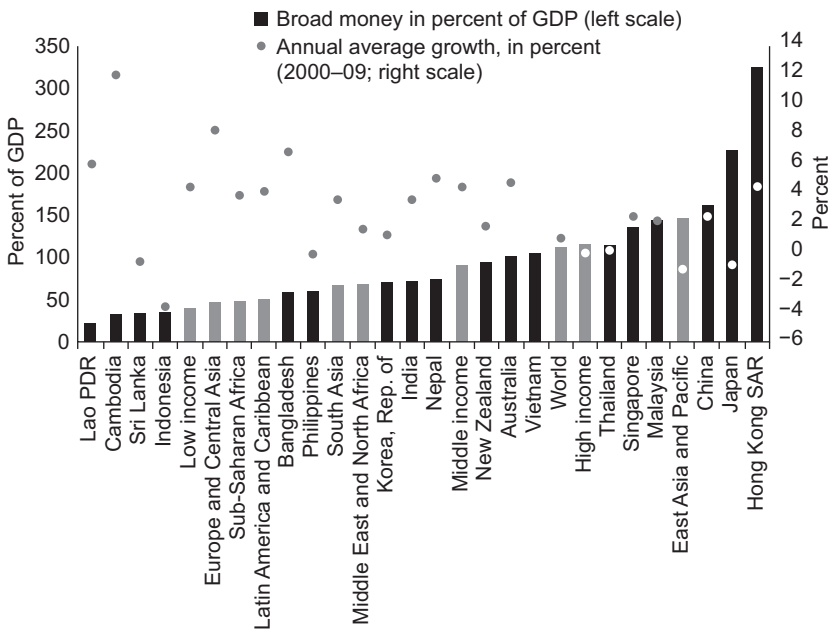
Figure 10.11 Financial Deepening, Latest Year Available

Source: World Bank Development Indicators; and IMF staff estimates.

countries. Indeed, lack of access to finance is a major impediment in many parts of Asia, including in China, where more than half the population and a significant proportion of small and medium enterprises lack access to the formal financial system (IFC, 2010).

Moreover, there is evidence that access to finance is positively correlated with relative success in reducing poverty incidence and ensuring equity across Asian economies (Beck, Demirgüç-Kunt, and Levine, 2007). For China, several empirical studies suggest that uneven access to financial services has contributed to inequality. Zhang and others (2003) find that after controlling for other factors—such as provincial infrastructure, institutional transition in rural areas, and degree of international integration—differential financial development and urban biases in lending have contributed significantly to the rise in China's urban-rural income disparity since the late 1980s. Financial development—measured as total rural loans to rural GDP—has been found to contribute significantly to reducing rural inequality in China (Liang, 2008). Tellingly, three of the poorest provinces in China—Tibet, Yunnan, and Sichuan—have more than 50 unbanked counties.

How might the Chinese government address the twin goals of supporting growth and reducing inequality? International experience provides some direction. First is ensuring macroeconomic stability as financial systems are liberalized, and particularly as they are opened up to the rest of the world, because financial shocks typically hit the poor hardest (see Chapter 13 for a discussion of a road map designed for China). Second is identifying and removing impediments to financial access without directing particular outcomes. Expanding credit availability by promoting rural finance, extending micro-credit, promoting credit information sharing, and developing venture capital markets should significantly expand credit availability (Beck and Demirgüç-Kunt, 2006). Third, because poverty is often relatively higher in rural areas, is ensuring that regulations—such as loan classification criteria and capital requirements—do not discriminate against the provision of finance to the rural poor, including the agricultural sector. Fourth is bolstering the legal environment and financial market infrastructure, including property rights and contract enforceability. For instance, well-defined processes for securing collateral in the event of default can encourage banks to lend more to small and medium enterprises, and developing capital markets can help broaden the channels for financial access. Fifth is promoting regulatory policies that foster transparency and competition among financial institutions (Levine, 2011), rather than those that channel credit to politically favored ends (see, e.g., Barth and others, 2009).

In addition to arresting the rising tide of inequality in China, many of the policies discussed in this chapter have the potential to rationalize savings and boost household incomes, reducing the bias toward capital and large corporates, and unleashing consumption. In this way, these measures would have the positive side effect of facilitating the needed rebalancing of China's growth model toward households, workers, and consumption.

REFERENCES

Asian Development Bank (ADB), 2012, "Confronting Rising Inequality in China," in *Asian Development Outlook 2012* (Manila).

Balakrishnan, R., C. Steinberg, and M. Syed, 2013, "The Elusive Quest for Inclusive Growth: Growth, Poverty and Inequality in Asia," IMF Working Paper 13/152 (Washington: International Monetary Fund).

Barnett, S,. and S. Brooks, 2010, "China: Does Government Health and Education Spending Boost Consumption?" IMF Working Paper 10/16 (Washington: International Monetary Fund).

Barth, J.R., C. Lin, P. Lin, and F.M. Song, 2009, "Corruption in Bank Lending to Firms: Cross-Country Evidence on the Beneficial Role of Competition and Information Sharing," *Journal of Financial Economics*, Vol. 91, pp. 361–88.

Bastagli, F., D. Coady and S. Gupta, 2012, "Income Inequality and Fiscal Policy," IMF Staff Discussion Note 12/8R (Washington: International Monetary Fund).

Beck, T.H.L., and A. Demirgüç-Kunt, 2006, "Small and Medium-Size Enterprises: Access to Finance as a Growth Constraint," *Journal of Banking and Finance*, Vol. 30, No. 11, pp. 2931–43.

———, and M. Martinez Peria, 2008, "Banking Services for Everyone? Barriers to Bank Access and Use around the World," *World Bank Economic Review*, Vol. 22, No. 3, pp. 397–430.

———, and R. Levine, 2007, "Finance, Inequality and the Poor," *Journal of Economic Growth*, Vol. 12, No. 1, pp. 27–49.

Berg, A., and Ostry, J., 2011, "Inequality and Unsustainable Growth: Two Sides of the Same Coin?" IMF Staff Discussion Note 11/08 (Washington: International Monetary Fund).

Botero, Juan C., Simeon Djankov, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, 2004, "The Regulation of Labor," *Quarterly Journal of Economics*, Vol. 119, No. 4, pp. 1339–82.

Dollar, D., and A. Kraay, 2002, "Growth is Good for the Poor," *Journal of Economic Growth*, Vol. 7, No. 3, pp. 195–225.

Duflo, Esther, 2011, "Balancing Growth with Equity: The View from Development," paper prepared for the Federal Reserve Bank of Kansas City's Economic Policy Symposium, Jackson Hole, Wyoming, August 25–27.

Eastwood, R., and M. Lipton, 2004, "Rural and Urban Income Inequality and Poverty: Does Convergence between Sectors Offset Divergence within Them?" in *Inequality, Growth, and Poverty in an Era of Liberalization and Globalization*, ed. by G.A. Cornia (Oxford, United Kingdom: Oxford University Press).

Fan, S., R. Kanbur, and X. Zhang, 2009, "Regional Inequality in China: An Overview," in *Regional Inequality in China: Trends, Explanations and Policy Responses*, ed. by S. Fan, R. Kanbur, and X. Zhang (New York, New York: Routledge).

International Finance Corporation, 2010, "Access to Finance: Annual Review Report" (Washington: World Bank).

International Monetary Fund (IMF), 2006, "Rising Inequality and Polarization in Asia," in *Asia Pacific Regional Economic Outlook*, October (Washington).

Jaumotte, F., S. Lall, and C. Papageorgiou, 2008, "Rising Income Inequality: Technology, or Trade and Financial Globalization?" IMF Working Paper 08/185 (Washington: International Monetary Fund).

Levine, R., 2011, "Finance, Regulation and Inclusive Growth," paper presented at OECD and World Bank Conference on "Challenges and Policies for Inclusive Growth," Paris, March 24–25.

Liang, Z., 2008, "Financial Development and Income Inequality in Rural China: 1991–2000," in *Understanding Inequality and Poverty in China: Methods and Applications*, ed. by Guanghua Wan (New York, New York: Palgrave Macmillan) pp. 72–88.

Levy, F.S., and P. Temin, 2007, "Inequality and Institutions in 20th Century America," Working Paper No. 07-17 (Cambridge, Massachusetts: MIT Department of Economics).

Organization for Economic Cooperation and Development (OECD), 2009, "Pensions at a Glance: Asia/Pacific," 2009 ed. (Paris).

———, 2012, "Income Inequality and Growth: The Role of Taxes and Transfers," OECD Economics Department Policy Note No. 9 (Paris).

Rauniyar, G. and R. Kanbur, 2010, "Inclusive Development: Two Papers on Conceptualization, Application, and the ADB Perspective, " (Manila: Asian Development Bank).

Ravallion, M., and S. Chen, 2003, "Measuring Pro-Poor Growth," World Bank Policy Research Working Paper No. 2666 (Washington: World Bank).

Zhang, J., Y. Zhao, A. Park, and X. Song, 2005, "Economic Returns to Schooling in Urban China," *Journal of Comparative Economics,* Vol. 33, pp. 730–53.

Zhang, Q., M. Liu, R. Tao, and V. Chen, 2003, "Development of Financial Intermediaries and Urban-Rural Income Inequality in China" (in Chinese), Working paper, Peking University.

De-Monopolization toward Long-Term Prosperity in China

Ashvin Ahuja

During the past decade, the average Chinese worker earned roughly nine times less and was 10 times less productive than the average American at purchasing power parity. Current consensus attributes large differences in output per worker to differences in total factor productivity (TFP). Evidence suggests that most of the United States–China TFP differences lie in the inefficiency of China's domestic-oriented service and agricultural sectors. This chapter focuses on (1) the evidence of monopoly rights and their influence on work practices improvement at China's firms and plants and (2) the evidence that policy arrangements have encouraged more competition in merchandise manufacturing and heavy industries while barriers to market access remain high against new firms in the domestic market (especially in services). The empirical analysis suggests that China can enhance long-term income per capita by a factor of 10, largely through TFP gains, by implementing reforms to weaken protection of monopolies and encourage entry in all industries.

INTRODUCTION

Between 2000 and 2009, the average Chinese worker earned approximately nine times less than the average American, and the typical Chinese worker was less productive than his or her American counterpart by a factor of roughly 10 when measured at purchasing power parity (PPP).[1]

What accounts for such large differences in income per capita between China and the United States? Current consensus in growth and development accounting mainly attributes large differences in output per worker between rich and poor countries to differences in TFP while assigning a significantly lesser role to gaps in physical and human capital stocks.[2] Conclusions based on cross-country micro-data approaches to productivity measurement and comparison also confirm these results (see Baily and Solow, 2001). With regard to the difference between China and the United States, Hall and Jones (1999) estimate that

---

[1] Based on 2000–09 real GDP per capita at purchasing power parity (PPP), chain method, and real GDP per worker at PPP from the Penn World Table version 7.0.

[2] See, for example, Klenow and Rodriguez-Clare (1997); Hall and Jones (1999); Jasso, Rosenzweig, and Smith (2000); Easterly and Levine (2001); Hendricks (2002); Caselli (2005); and Hsieh and Klenow (2010).

Chinese output per worker would be about half that of U.S. output per worker without the large difference in TFP alone.[3]

A stream of research papers has focused on what accounts for such large TFP differences across countries. Systematic resource misallocation is a key theme. Restuccia and Rogerson (2008) and Hsieh and Klenow (2009), for example, find that misallocation of resources across firms can have important effects on aggregate TFP. Focusing on China, India, and the United States, Hsieh and Klenow (2009) quantify large manufacturing TFP losses from resource misallocation in the periods before China joined the World Trade Organization (WTO). Viewed from a static, standard monopolistic competition model, they show that moving to "U.S. efficiency" would increase China's manufacturing TFP by about 30–50 percent based on 1997–98 data. The literature offers other specific mechanisms by which resource misallocation could lower aggregate TFP, such as labor market regulations (e.g., Hopenhayn and Rogerson, 1994; and Lagos, 2006), deficiency in capital allocation vis-à-vis managerial talent (e.g., Caselli and Gennaioli, 2003; and Buera and Shin, 2013), and vested interests' ability to block firms from introducing better work practices (Parente and Prescott, 1997, 1999).

Lewis (2004a, 2004b) offers evidence from 13 emerging and advanced economies linking institutions and policy arrangements to subpar performance of industry- and economy-wide TFP. The overarching lesson from these studies is that the time path of aggregate productivity levels is highly correlated with the economic policy arrangements countries choose (specifically regarding the ability and incentives of organized forces in each society to resist the adoption of superior technology and persist in inefficient usage of currently operating ones). The main obstacles to productivity growth and economic progress in poor countries are the many policies that limit market competition.

In the case of the United States and China, the aggregate TFP gap is approximately 13 times in favor of the United States (Figure 11.1).[4] Differences between the United States' and China's manufacturing TFP levels appear much smaller at about 1.3–1.5 times (Hsieh and Klenow, 2009). Thus, even accounting for measurement errors, most of the differences in aggregate productivity, and therefore living standards, between China and the United States have to be rooted in the inefficiency in the nonmanufacturing sectors—mostly domestic-oriented services and agriculture. In line with this observation, He and others (2012) report that China's nontradable TFP growth has been about 2.2–2.5 percent per year lower than manufacturing-heavy tradable TFP growth during 2001–10.

This chapter documents the links between TFP outcomes and "monopoly rights" in the domestic market (especially in services) and subpar work practice in China, as well as the links between TFP and policy reform to encourage more

---

[3] Measured with labor quality–adjusted TFP gap and assuming fixed aggregate capital and human capital stock.

[4] The TFP gap size is based on 2005–07 data, after adjusting capital stock to PPP, but not adjusted for labor quality. Measured productivity levels for China could be distorted by various subsidized factor prices (capital, land, and energy, as well as intellectual property).
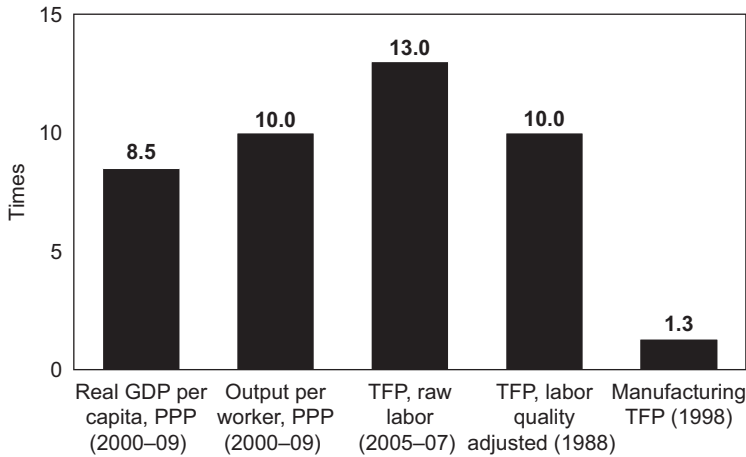
Figure 11.1   U.S. Income and Productivity Relative to China

Sources: Hall and Jones, 1999; Hsieh and Klenow, 2009; Penn World table 7.0; and author's calculations.

Note: PPP = Purchasing-power parity; TFP = total factor productivity.

competition via external trade in merchandise manufacturing and heavy indus-
tries. It finds that resistance to better work practices, which surfaces to access large
opportunities for rent seeking and is more prevalent in some domestic-oriented
(nontradable) industries, is likely to be a significant impediment to China's long-
term economic prospects.

The chapter also explores the extent to which reforming the monopoly-rights
policy arrangement that China currently employs can enhance long-term income
per capita, using a general equilibrium model with a strategic game developed by
Parente and Prescott (1999). The defining feature of the model is the existence of
state protection of vested interest groups and industry insiders that can undertake
strategic actions against "high-technology" firms attempting to enter.

The model, once calibrated to China and U.S. growth facts, can capture dis-
crepancies in PPP-adjusted GDP per capita between the two economies reason-
ably well. The discrepancy in GDP per capita is mainly accounted for by differ-
ences in TFP, consistent with cross-country work in growth and development
accounting. Specifically, the model predicts that China's long-term GDP per
capita could be higher by as much as a factor of 10 under the "free enterprise"
arrangement than under the protected monopoly-rights arrangement that well
approximates the economy today. The increase in per capita income is driven by
the 3.5-fold increase in China's TFP (with reproducible capital share remaining at
about 0.45). Over time, physical capital accumulation, as well as education and
skill acquisition, will follow as their rates of return rise with higher TFP.

The model also predicts that the unit price of the goods and services produced
in the sectors with barriers to entry relative to that of goods and services produced
in the competitive sector is about 3¼ times higher in China under monopoly
rights than in the United States with free enterprise. This is roughly the ratio of

the price of investment goods to the price of consumption goods across rich and poor countries in the Aten, Summers, and Heston data (three to four times).

The principal insight from the stylized model is that these long-term gains are made through improvements in TFP rather than factor accumulation (e.g., through high fixed asset investment growth); and the gains are made by shifting away from monopoly rights to the free enterprise policy arrangement. The result should facilitate a policy discussion about the direction of ongoing corporate and financial reforms in China. Specifically, ongoing reform efforts should target productivity improvement rather than factor accumulation. Drawing lessons from the extraordinary success in Chinese manufacturing exports, China should persist with reform to weaken protection and encourage entry in all industries. Competitive pressure from multinationals and new domestic firms will help transform work practices across Chinese firms.[5] More products and services will be produced at more affordable prices. Wages will rise and converge across sectors. More firms operating in China will innovate and export best practices to the world. Chinese workers and households will be made better off as rent-seeking activities fade away. As a result, the large income gap between China and leading industrial countries will eventually be eliminated.

The rest of the chapter proceeds as follows: The next section presents salient evidence of protected monopoly rights and discusses work practices at Chinese firms. It is followed by sections that give the intuition behind the model and that outline the model's calibration and report findings.

EVIDENCE OF MONOPOLY RIGHTS AND WORK PRACTICES AT CHINESE PLANTS

Published empirical findings on industry- and firm-level productivity in China are rare and centered on the manufacturing sector. Existing industry-level accounts of productivity in China's nonmanufacturing sectors are largely based on case studies done by the McKinsey Global Institute (MGI). China's manufacturing sector enjoyed exceptionally fast productivity growth in the decades before and after China's entry into the WTO.[6] This manufacturing productivity boom follows the gradual application of *zhengqi fenkai* policy, which formally separates government functions from business operations. The government first applied the policy to the consumer goods industry and then to high technology and heavy manufacturing in preparation for global competition (Woetzel, 2008). After entry into the WTO, favoritism reserved for large state-owned firms began fading, and private domestic firms moved to the forefront of the rapidly changing business

---

[5]The reform efforts may need to be properly sequenced to manage resistance from vested interest groups, but sequencing is beyond the scope of this chapter.

[6]He and others (2012) estimate annual tradable (mostly manufacturing) TFP growth at between 4.6 and 5.4 percent between 2002 and 2007. Guo and N'Diaye (2009) estimate manufacturing TFP growth at 6½ percent per year on average between 2002 and 2007. Bosworth and Collins' (2007) industry TFP growth during 1993–2004 averages 6.2 percent per year.

landscape. State-owned manufacturing plants, which used to run at 40 percent less TFP than private domestic plants, started to exit, their numbers falling from 29 percent of total firms in 1998 to only 8 percent in 2005 (Hsieh and Klenow, 2009). Regardless of ownership type, exit means survivors now run plants at a much higher average TFP. Furthermore, the rise in market competition is largely reflected in the exits of SOEs, mostly small and medium-sized, and the rapid growth of private firms (Conway and others, 2010). With improved SOE governance, SOEs are becoming more efficient and behaving more like private firms.

Successful industries have benefited from government policies, notably access to factors of production at subsidized prices, market access barriers, and policies that encourage domestic purchasing of goods and services (to guarantee revenue pools). Nevertheless, it would be a mistake to attribute the strides made in manufacturing productivity simply to government support. Not only have many government-backed projects not been successful, but there are many examples of successful firms that face competitive pressure from the global market. To cite a few, the Chinese communications equipment industry has improved its quality and gained market acceptance in advanced economies. China's solar and wind power industries are using new manufacturing techniques to create more efficient solar panels and are already supplying sophisticated, vital components for the industry worldwide (Orr and Roth, 2012).

Indeed, the success stories in Chinese manufacturing productivity growth performance seem to fit well with other cross-country case studies. Evidence from case studies from 13 emerging and advanced economies reveals that policy arrangements that limit competition can potentially result in subpar performance of industry- and economy-wide aggregate TFP[7] (Lewis, 2004a, 2004b). The success of China's manufacturing sector confirms a clear link between pressure from global competition and powerful incentives and the ability to adopt better technology and improve work practices.

Despite this progress, influential partners, protection from competition, and extensive pricing power continue to characterize China's business sector (World Bank, 2011; Conway and others, 2010).[8] China's services (nontradables) sectors clearly lack pressure from competition. He and others (2012) offer insights into the large discrepancy between tradables (dominated by manufacturing) and nontradables TFP growth in China since 2000.

Overall, China's economy is still dominated by state and state-partner monopolies, which are shielded from meaningful competition in the domestic market by

---

[7]The countries covered are Australia, Brazil, France, Germany, India, Japan, the Netherlands, Poland, the Russian Federation, the Republic of Korea, Sweden, the United Kingdom, and the United States. Each study analyzes 6 to 13 industries and compares their performance with that of the same industries in a subset of other countries. These are detailed studies of individual businesses spanning "state-of-the-art auto plants to black-market street vendors."

[8]Conway and others (2010) attribute this fast-paced improvement to reforms in the new company law and the new bankruptcy law, which help reduce the time needed to register or close a business, increase the recovery rate from bankruptcy, and reduce the minimum amount of capital needed to start a firm.

state support, regulations,[9] licensing, and technology-sharing rules (Figure 11.2). These firms tend to be large, capital-intensive, and well-connected; concentrated in "strategic" and "pillar" sectors; and benefit from subsidies as well as preferential access to finance, land, and other resources. They are not confined to electricity generation and distribution, natural gas, and water, but are also outside of the industrial sector, such as banking, telecommunications, and the media.[10] Subsidies to these firms can work effectively to promote employment growth, deter entry, and discourage more productive work practices. Finally, murky ownership rights and unsystematically kept titles, financial records, collateral, and pledges increase due diligence costs and work as barriers against potential entrants, especially those that are smaller or not homegrown (Figures 11.3).[11]

Even in the externally competitive manufacturing sector, evidence indicates that policy arrangements could obstruct improvements in work practices and productivity. Significant waste occurs even at high-productivity plants run by multinational industry leaders, which reduces profits by 20–40 percent at some plants (Aminpour and Woetzel, 2006). The inefficiency arises not from a weak profit motive on the part of the plant managers, but can be partly attributed to the way foreign firms tend to gain market access, that is, via partnership with large SOEs or through business acquisitions. Although this process secured "the right locations, the right government relationships, the right joint ventures, [which] shut out other [players] from this market" for years if not a decade, multinationals have inherited "hard to change legacy work processes, employee mind-sets [as well as] manufacturing approaches" (Hexter and Woetzel, 2007, pp. 1, 2). In some cases, introducing a procurement process practiced in these multinationals' established home markets—an "innovation" in China—could generate substantial savings for their operations in China. Nevertheless, many multinationals have been able to run plants less efficiently than in Europe and the United States and still "come out way ahead" with the advantage of relatively low costs of labor and intermediate inputs sourced locally. In this way, high profit margins and business growth can undercut the incentive to change work practices and improve operational efficiency.

To adapt best practices to local market conditions and execute superlative operating performance, a business would require reliable markets and customer data, quality suppliers, and efficient distribution networks, which are not readily

---

[9] For instance, services, such as legal and accounting, maritime and air transport, and the postal sector could benefit from foreign providers through higher foreign direct investment (FDI) if restrictions on form of ownership, maximum equity stake, and geographic scope, and line of business restrictions as well as minimum capital requirement (not equally imposed on domestic competitors) were to be removed (OECD, 2009). Currently, much of the services sector FDI goes into real estate and banking, which is gradually opening up.

[10] Despite the stated intention to open up these sectors to private investment, they are still dominated by public enterprises.

[11] World Bank (2011) ranks China 79th out of 183 economies for overall "ease of doing business," and rates China unfavorably on obstacles to "starting a business" (rank 151th out of 183 economies), "dealing with construction permits" (rank 181st) and "investor protection" (rank 93rd).
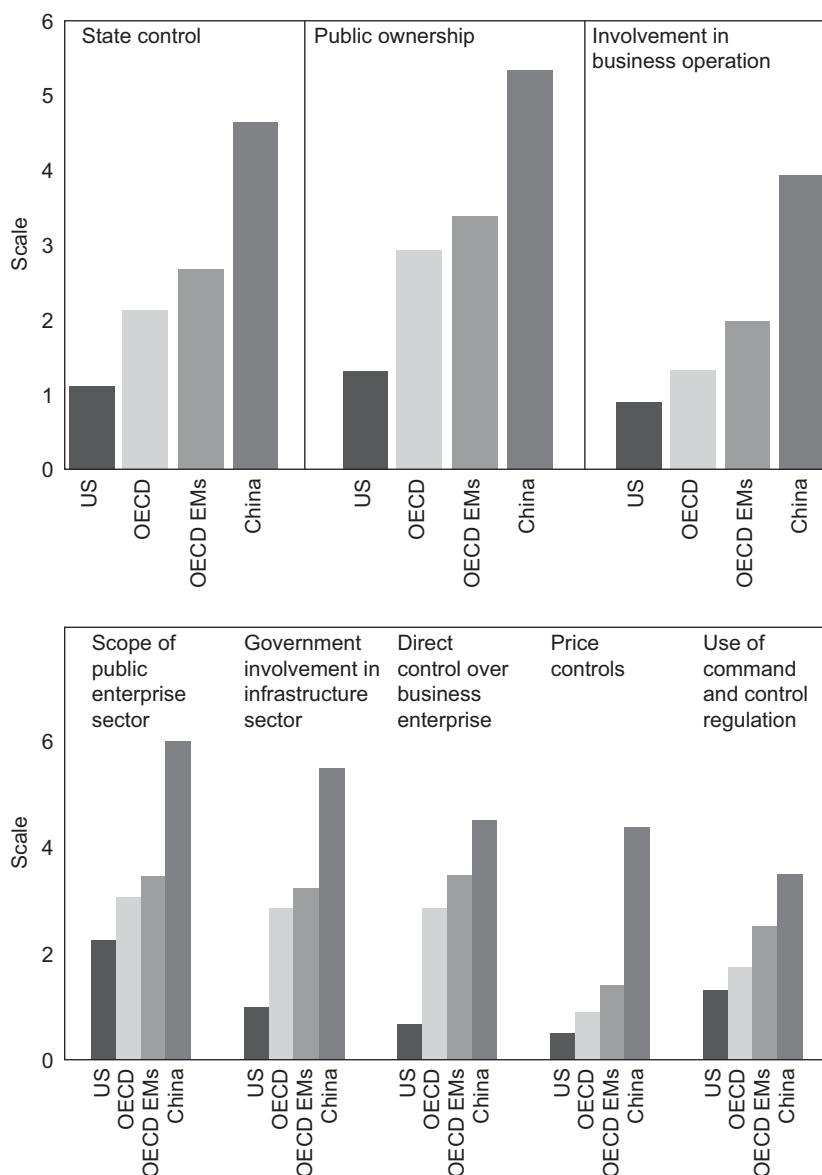
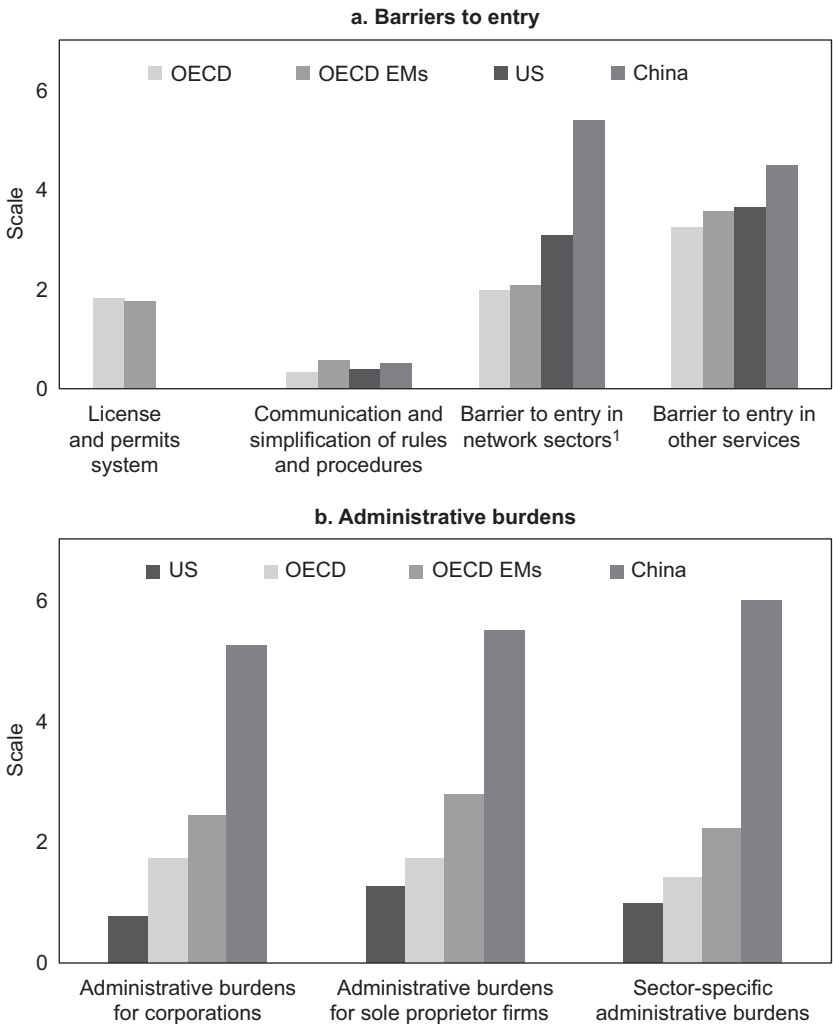**Figure 11.2** State Control Indicators, 2008 *(minimum to maximum on a scale of 1 to 6)*

Source: OECD, 2011.

Note: EM = Emerging market; OECD = Organization for Economic Cooperation and Development; US = United States.

available in China. These impediments clearly indicate relatively poor service sector productivity, including financial services (MGI, 2006). Manufacturing productivity, already high and close to the U.S. level, is likely to improve further, provided quality and cost of service inputs improve.

a. Barriers to entry

b. Administrative burdens

Figure 11.3 Barriers to Entrepreneurship Indicators 2008 *(minimum to maximum on a scale of 1 to 6)*

Source: OECD, 2011.

Note: EM = Emerging market; OECD = Organization for Economic Cooperation and Development; US = United States.

[1] Network sectors include, among others, electricity generation and distribution, natural gas, water, telecommunications, banking, and the media.

These studies help shed light on the underlying cause for TFP differences across countries. They are consistent with the idea that incentives and the ability of existing firms to dictate industry work practices can be an important mechanism by which resources are misallocated. State protection makes cost of entry by other foreign and domestic firms prohibitive, in turn generating immense value to these monopoly rights. Their lessons seem to be consistent with the theory proposed by Parente and Prescott (1999), which holds that state actions to

prohibit or distort firms' incentives to change work practices tend to be irrelevant unless the state also protects the industry from outside competition.

THE MODEL'S ENVIRONMENT AND EQUILIBRIA: SOME INTUITION[12]

To measure potential gains from de-monopolization, this chapter relies on the framework and model of Parente and Prescott (1999). This relatively simple, closed-economy model has a strategic mechanism that allows vested interests to impede economic progress. The vested interest groups have valuable monopoly rights that are tied to existing production technology. In every period, no take-up of better technology or work practices as well as inefficient use of existing ones is a possible outcome of a strategic game between two players: the protected coalition of factor suppliers and a potential entrant who has to pay to overcome entry resistance.

The model has two production sectors using constant-returns-to-scale technologies with no fixed costs. Industries are competitive, though they need not be private. There are economic rents in the model.

Under the monopoly-rights arrangement, coalition members can set up firms with protected rights to operate existing technology. Because of these rights, every firm in the industry employing that technology must hire coalition members. The coalition's objective is to maximize per member income by setting membership size, compensation, and work practices levels (or productivity). In the model, coalition size acts as a deterrent to entry.

Because these protected rights have value, potential entrants must pay to overcome the coalition's resistance to their market entry. If entry occurs, then the entrant uses a superior technology. In the game, the return to entry depends on the strength of state protection as well as coalition size. When protection is weak, entry occurs because the minimum coalition size necessary to deter entry is too large to provide adequate compensation to recruit and retain members. As a result, firms in every industry always end up adopting better work practices. At the other end of the spectrum, when protection is strong, entry cannot occur at all and every firm operates the current, inferior technology. Interestingly, when state protection is not too strong, the minimum-deterrent-coalition size is larger than the number of members required to produce competitive equilibrium output. In this case, firms not only fail to adopt better work practices, they also operate the existing inferior technology inefficiently. This is the relevant case for this analysis of China.

Under the free enterprise policy arrangement—or equivalently, a de-monopolized arrangement—there is no coalition to deter entry and all agents act in a perfectly competitive way.

The model economy consists of three sectors: household, agriculture, and industry. In any given period, a household can be one of these three: an agricultural

---

[12] The model is developed in detail in Ahuja (2012).

worker, an industrial worker, or an industrial entrepreneur who adopts a technology to produce goods and services.

A household is endowed with one unit each of labor and land services. Each household values only agricultural goods and differentiated (industrial) goods. Households do not value leisure. They want to smooth consumption over time and derive enjoyment from variety.

There are three constant-returns-to-scale production technologies in the industrial sector—low, medium, and high efficiency levels, ranked according to the required amount of labor input per unit of output. An entrepreneurial household forming an industrial firm can adopt any technology without incurring any firm-specific investment.

In the agricultural sector, there is a constant-returns-to-scale, nested, constant-elasticity-of-substitution production function in which the mix of intermediate industrial goods is treated as a substitute for the composite labor-land input.[13]

Monopoly-Rights Arrangement: The Equilibrium and Some Intuition

In the model, monopoly rights are only relevant to the industrial sector. The agricultural sector (which may also be thought to include some services) is perfectly competitive.[14] In each industry, any individual can use the low technology, and entry and exit are free for those operating with the medium technology. Entry obstruction applies only to the high-technology firms.

Workers and entrepreneurs in the industrial sector can form coalitions. Protected monopoly rights are extended *only* to existing firms employing the medium technology. These rights are protected throughout the life of the coalition, the length of which depends on the ability to provide surplus rents to its members.

The coalition in any industry that uses the medium technology has the right to limit its membership size, set the compensation (or wage) rate, and dictate work practices. The coalition dictates work practices by determining the productivity level, that is, up to the medium technology level, but which could be inefficiently used. A potential entrant employing the high technology has to pay an entry cost to overcome the resistance associated with the protection of the valuable monopoly rights. The entry cost, measured in units of labor services, depends on the strength of state protection and the coalition size (which, in this case, varies with its production capacity).[15] The larger the residual market left over from the monopolists, the more a new firm should be willing to pay to enter.

---

[13] See Ahuja (2012) for details.

[14] Examples of these included services are home or market production of goods and services such as bicycle repair shops, hair salons, restaurants, and the like in developing countries.

[15] The assumption that entry costs increase in proportion to population size (which is also the size of the coalition) also ensures that all results are population-size invariant.

The Monopoly-Rights Equilibrium

Next, the entry game for an industry, defined as the symmetric *no-entry steady-state* equilibrium, is described. There is an equilibrium for this strategic game. An equilibrium can be either that of "no-entry" or with entry in every industry in steady state. An equilibrium is characterized by utility maximization in the household sector, profit maximization in the agricultural sector, market clearing, and a subgame perfect equilibrium to the game in each industry. In this game, the two players take as given the demand for industry output and the wage in the competitive agricultural sector. These givens ensure that the equilibrium solution obtained through agents' utility and firms' profit maximization is consistent with players' strategic behavior and that noncredible (e.g., entry) threats are not exercised in equilibrium.

In this game, conditional on entry, Bertrand price competition is in effect, which means that the entrant has a marginal cost that is tied to the agricultural wage and can produce any quantity demanded by consumers. The coalition has zero marginal cost up to the capacity constraint because its members are committed to working in that industry for the period.

In equilibrium, (real) factor input prices are equal to their respective marginal products; the ratio of differentiated goods prices to agricultural goods prices is equal to the ratio of the respective marginal utilities of their consumption; households exhaust their budgets; and quantity supplied must equal quantity demanded in every market. Moreover, the entrant will pick an output price such that the investment it has to make to overcome resistance and enter the market will be exactly the maximum profit generated from residual demand; hence, the minimal-deterrent entry condition. Confronted by an entering firm with better technology, the coalition maximizes per member income by choosing supply output as efficiently as it can to *minimize* the entrant's profit, given the entry price set by the entrant. The coalition members would set work practices at the maximum level whenever entry threat prospects are credible.[16] Finally, equilibrium profit is zero at every medium-technology firm because total revenue equals total cost, which is to say that wages paid to coalition members equal their marginal revenue product.

The Competitive Equilibrium

In this particular economy, a unique competitive equilibrium exists, characterized as follows: The price of industry output equals the marginal cost tied to high technology, because this is what a competitive firm uses. In addition, wages are equalized across sectors.

---

[16]The coalition will also set work practices and the wage rate so that equilibrium price equals marginal cost at every competing low-technology firm. The combined choice of work practices and wage rate set by the coalition must be consistent with an equilibrium condition that the nominal wage paid to a worker at a low-technology firm has to equal that worker's marginal revenue product.

©International Monetary Fund. Not for Redistribution

Calibration and Findings

Once the empirical counterparts of each sector are specified, preference, industrial sector technology, and farm sector parameters can be calibrated to replicate the key "stylized" relationships among model aggregates. The calibrated model can then measure the potential gains from eliminating monopoly rights in China.

The numerical results from the calibrated model are as follows: Under free enterprise, agricultural and small services firms use much fewer labor inputs, but much more differentiated intermediate goods relative to total output. Under monopoly rights, agricultural households (or equivalently, the no-barrier-to-entry and labor-intensive sector) are poorer than industrial households and consume less on a per capita basis.

Wages tend to equalize across sectors under free enterprise because there are no economic rents to be derived and protected. Prices are different across arrangements (monopoly rights vs. free enterprise). "Industrial" goods that are produced by protected firms are more expensive under monopoly rights than they would be under free enterprise. As a result, firms use less of the intermediate goods and services in the monopoly-rights economy.

In a free-enterprise economy, "agricultural" households face budget constraints similar to those faced by "industrial" households. They consume a roughly equal amount. In addition, the "agricultural" households will get to consume relatively more of the "industrial" goods and services in the free-enterprise economy (because the relative price of "industrial" goods is now much lower).

The long-term results also appear to be quantitatively sensible.[17] The "industrial" sector generates the lion's share of the total value added and wage income under free enterprise; however, "agriculture's" shares of the total value added and wage income shrink by as much as four times. Furthermore, the unit price of "industrial" goods relative to "agricultural" goods is about 3¼ times higher in the poor country with monopoly rights than in the rich country with free enterprise. This is roughly the ratio of the prices of investment goods to consumption goods across rich and poor countries in international data.

In the long term, the effect on output from eliminating monopoly rights is substantial. GDP in PPP terms in the model increases by as much as 3½ times in steady state. Because there is no capital in the model, and labor and land services are assumed to be similar across arrangements, this number is equivalent to the difference in TFP between the two arrangements. Without a TFP difference of this magnitude (and assuming fixed aggregate capital and human capital stock for the sake of comparison), Chinese output per worker under monopoly rights would be about 45 percent of its output per worker under free enterprise, which is close to the number (50 percent of U.S. output per worker) calculated by Hall

---

[17]To allow for direct comparison across economies, a common set of "international prices" is calculated and used to compute real GDP at PPP and their values are compared, based on the Geary-Khamis method (Kravis, Heston, and Summers, 1982).

and Jones (1999).[18] Inefficient operation of inferior technology in a large swath of industry and services accounts for lower aggregate TFP in China vis-à-vis the United States (which, in the model, stands for China under "free enterprise") in the long term. In this calibration, the "industrial" sector achieves only about half of its potential productivity.

In a richer model with capital accumulation, the effect on output from increases in TFP would be amplified because capital would accumulate endogenously in response to increasing TFP to keep the long-term rate of return constant. The difference in GDP per capita (at PPP) between the two arrangements would then be equal to the factor difference in TFP (here, 3½) raised to the power of 1/(1 minus reproducible capital share). Given China's reproducible capital share of approximately 0.45, the adjusted difference in GDP per capita at PPP would be about 10 times, roughly similar to the measured difference between U.S. and China output per capita and output per worker at PPP between 2000 and 2009 (8.5 and 10 times, respectively).

CONCLUSION

A large number of research papers have stressed that misallocation of resources across firms can adversely affect aggregate TFP in an economy. This chapter uses an abstract model that incorporates the strategic behavior of vested interest groups to block adoption of better work practices to measure potential gains from eliminating protected monopoly rights in China. Confronted with entering firms—domestic or foreign—armed with better technology, rational vested interest groups that are not protected will have no choice but to set their own work practices at the best standard available to compete. The same outcome would materialize whenever entry threat prospects are credible.

The numerical results in this chapter require a few caveats. The simple abstract model used could be an inaccurate approximation of China and the United States. There could well be large measurement error in the data, as well as lack of data, both of which lead to inaccuracies in the calibration exercise. Therefore, this calculation is very much a first pass. Nevertheless, the results underscore the strategic importance of competition in improving total factor productivity.

The long-term results reported here appear to be quantitatively sensible based on a comparison with long-term experience in the United States. The large gaps in TFP and GDP per capita between China and the United States today could be narrowed significantly if China transforms its inefficient monopoly-rights arrangement in the domestic market (especially in the services sector) into one that minimizes vested interest groups' ability and incentives to discourage better technology and work practices. Should China de-monopolize its domestic market, Chinese GDP per capita could be 10 times higher than otherwise in the long

---

[18]This calculation uses capital shares of 0.5 and 0.36 for China and the United States, respectively.

term. More important, most of that increase will have originated from TFP gains. And the room for reallocation gains should come mainly from the services sector.

As China continues with reform, it can apply the same fundamental insights that have made manufacturing exports a phenomenal success to achieve world-class services and agricultural sector TFP. The reform efforts should therefore focus on productivity improvement in financial services, construction (which is by far the most labor intensive), transportation, education, health, telecommunications, and utilities. By persisting with reform to weaken protection and encourage entry, competitive pressure will help transform work practices across Chinese firms.

With these reform efforts, business strategies based on creating and sustaining privileged access will be increasingly outdated. More services will be produced at more affordable prices. Wages will rise and converge across sectors. Over time, physical capital accumulation, as well as education and skill acquisition, will necessarily follow to normalize the rates of return, which will have risen from higher TFP. More Chinese firms will innovate and export best practices to the world. Chinese workers and households will be made considerably better off than otherwise as the dead weight is removed. And the large income gap between China and today's leading industrial countries will be eliminated.

REFERENCES

Ahuja, A., 2012, "De-monopolization Toward Long-Term Prosperity in China," Working Paper 12/75 (Washington: International Monetary Fund).

Aminpour, S.. and J.R. Woetzel, 2006, "Applying Lean Manufacturing in China," *The McKinsey Quarterly*, 2006 special edition: Serving the New Chinese Consumer, pp. 106–15.

Baily, M.N., and R.M. Solow, 2001, "International Productivity Comparisons Built from the Firm Level," *Journal of Economic Perspectives,* Vol. 15, No. 3, pp. 151–72.

Bosworth, B., and S.M. Collins, 2007, "Accounting for Growth: Comparing China and India," NBER Working Paper No. 12943 (Cambridge, Massachusetts: National Bureau of Economic Research).

Buera, F., and Y. Shin, 2013, "Financial Frictions and the Persistence of History: A Quantitative Exploration," *Journal of Political Economy*, Vol. 121, No. 2, pp. 221–72.

Caselli, F., 2005, "Accounting for Income Differences across Countries," in *Handbook of Economic Growth*, Vol. 1A., ed. by P. Aghion and S. Durlauf (Amsterdam: Elsevier).

———, and N. Gennaioli, 2003, "Dynastic Management," NBER Working Paper No. 9442 (Cambridge, Massachusetts: National Bureau of Economic Research).

Conway, P., R. Herd, T. Chalaux, P. He, and J. Yu, 2010, "Product Market Regulation and Competition in China," OECD Economics Department Working Paper No. 823 (Paris: OECD Publishing).

Easterly, W., and R. Levine, 2001, "It's Not Factor Accumulation: Stylized Facts and Growth Models," *World Bank Economic Review*, Vol. 15, No. 2, pp. 177–219.

Guo, K., and P. N'Diaye, 2009, "Is China's Export-Oriented Growth Sustainable?" IMF Working Paper 09/172 (Washington: International Monetary Fund).

Hall, R.E., and C.I. Jones, 1999, "Why Do Some Countries Produce So Much More Output per Worker than Others?" *Quarterly Journal of Economics*, Vol. 114, No. 1, pp. 83–116.

He, D., W. Zhang, G. Han, and T. Wu, 2012, "Productivity Growth of the Non-tradable Sectors in China," Working Paper No. 082012 (Hong Kong SAR: Hong Kong Monetary Authority).

Hendricks, Lutz, 2002, "How Important is Human Capital for Development? Evidence from Immigrant Earnings," *American Economic Review*, Vol. 92, No. 1, pp. 198–219.

Heston, A., R. Summers, and B. Aten, 2011, Penn World Table Version 7.0 (Philadelphia, Pennsylvania: Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania).

Hexter, J., and J.R. Woetzel, 2007, "Bringing Best Practice to China," *The McKinsey Quarterly,* McKinsey Global Institute.

Hopenhayn, H., and R. Rogerson, 1994, "Job Turnover and Policy Evaluation: A General Equilibrium Analysis," *Journal of Political Economy*, Vol. 101, pp. 915–38.

Hsieh, C.T., and P.J. Klenow, 2009, "Misallocation and Manufacturing TFP in China and India," *Quarterly Journal of Economics*, Vol. 124, No. 4, pp. 1403–48.

———, 2010, "Development Accounting," *American Economic Journal: Macroeconomics,* Vol. 2, No. 1, pp. 207–23.

Jasso, G., M.R. Rosenzweig, and J.P. Smith, 2000, "The Earnings of US Immigrants: Skill Transferability and Selectivity" (New York, New York: Department of Economics, New York University).

Klenow, Peter J., and Andres Rodriguez-Clare, 1997, "The Neoclassical Revival in Growth Economics: Has It Gone Too Far?" NBER Macroeconomics Annual 1 (Cambridge, Massachusetts: National Bureau of Economic Research).

Kravis, I.B., A. Heston, and R. Summers, 1982, *World Product and Income: International Comparison of Real Gross Product* (Baltimore, Maryland: Johns Hopkins University Press).

Lagos, R., 2006, "A Model of TFP," *Review of Economic Studies*, Vol. 73, pp. 983–1007.

Lewis, W.W., 2004a, "The Power of Productivity: Poor Countries Should Put Their Consumers First," *The McKinsey Quarterly*, No. 2.

———, 2004b, *The Power of Productivity: Wealth, Poverty and the Threat to Global Stability*, (Chicago, Illinois: University of Chicago Press).

McKinsey Global Institute (MGI), 2006, "Putting China's Capital to Work: The Value of Financial System Reform," McKinsey and Company.

Organization for Economic Cooperation and Development (OECD), 2009, "OECD Review of Regulatory Reform—China: Defining the Boundary between the Market and the State" (Paris: OECD Publishing).

———, 2011, Product Market Regulation Database (Paris).

Orr, G., and E. Roth, 2012, "A CEO's Guide to Innovation in China," *The McKinsey Quarterly*, February.

Parente, S.L., and E.C. Prescott, 1997, "Monopoly Rights: A Barrier to Riches," Research Department *Staff Report* No. 236/JV (Minneapolis, Minnesota: Federal Reserve Bank of Minneapolis).

———, 1999, "Barriers to Riches," Third Walras-Pareto Lecture, University of Lausanne, October.

Restuccia, D., and R. Rogerson, 2008, "Policy Distortions and Aggregate Productivity with Heterogeneous Plants," *Review of Economic Dynamics*, Vol. 11, pp. 707–20.

Woetzel, J.R., 2008, "Reassessing China's State-Owned Enterprises," *The McKinsey Quarterly*, McKinsey Global Institute, July.

World Bank, 2011, "China – Doing Business 2011: Making a Difference for Entrepreneurs," (Washington).

This page intentionally left blank

Transforming China: Insights from the Japanese Experience of the 1980s

PAPA N'DIAYE

China is poised on the brink of a transition to a services-based economy. The Japanese experience of the 1980s, examined in this chapter, provides several insights about the way to manage such a transition and the downsides to avoid. In particular, Japan offers useful insights on the limits to an export-oriented growth strategy; the role of exchange rates, macroeconomic policies, and structural reforms in rebalancing the economy toward the nontradables sector; and the risks associated with financial liberalization. The similarities between the Chinese economy today and the Japanese economy of the 1980s make these insights relevant for China. With the benefit of analyzing the Japanese experience, but acknowledging the important differences between the two economies, China should be able to successfully rebalance its growth pattern while avoiding the downsides encountered by Japan.

INTRODUCTION

This chapter looks at the Japanese experience during the 1980s and asks the following question: What policies are needed for China to transition to a high-productivity, services-based economy while avoiding years of stagnation and deflation?

The Chinese economy today shares many similarities with the Japanese economy of the 1980s. Like Japan at that time, China's growth strategy is export oriented and capital intensive; the tradables sector plays a dominant role; saving rates are high; and the current account surplus is large. Like Japan in the 1980s, the Chinese economy has achieved a remarkable transformation over the span of three decades to become the world's second largest economy. This achievement reflects years of reform efforts to open up the Chinese economy and make it more market oriented.[1] However, this policy of export-led growth is becoming harder to sustain, given the economy's size and large presence in world markets (Guo and N'Diaye, 2009). Like Japan in the 1980s, China faces considerable domestic and international pressure to rebalance its export-oriented economy

---

[1] For a comprehensive review of China's reforms, see Chow (2002).

toward a more consumption-based one, with a greater share of growth coming from the nontradables sector. The prospects for China to continue export-dependent growth have become even dimmer recently because the global financial crisis has taken its toll on growth in advanced economies, particularly the United States and the euro area—China's major export markets—prompting analysts to revise downward the medium-term prospects for demand from these economies. In the face of a weaker outlook for the demand for exports, the Chinese government has put in place a range of structural measures aimed at shifting the pattern of growth away from exports and investment toward private consumption. These measures have been accompanied by supportive macroeconomic policies, which, as in Japan in the 1980s, have fueled rapid increases in asset prices (Ahuja and others, 2010).

The lessons from the Japanese experience of the 1980s that China can take to heart are the following:

- There are limits to an export-led growth strategy.
- Shifting toward greater reliance on the services sector requires a combination of real effective exchange rate appreciation, macroeconomic policies to support demand, and structural reforms to develop the nontradables sector.
- Supportive macroeconomic policies can alleviate the short-term adverse impact of exchange rate appreciation on activity and employment in the tradables sector.
- However, if maintained for too long, these same supportive macroeconomic policies can sow the seeds of future volatility, inflating bubbles in asset markets.
- Such risks are compounded if this transition is being managed at the same time that the financial system is being liberalized. Careful management of financial liberalization is warranted.

However, the comparison with Japan can take us only so far. The Chinese economy today differs in many ways from the Japanese economy of the 1980s, including in its stage of economic, demographic, and financial development, as well as in the structure of the economy, the political regime that governs it, and the global environment. Many of these differences could actually serve to help China avoid the economic stagnation Japan experienced and enable the economy to successfully rebalance its growth. However, achieving this rebalancing will require China to undertake a range of reforms and skillfully implement macroeconomic policies. The need to move ahead with reforms has become more pressing because of the demographic pressures the country will likely face in the medium term. Policies will have to balance the need to support domestic demand against the risks of fueling imbalances in asset markets. At the same time, the government will need to ensure that the financial system is well regulated and supervised to prevent risks from emerging on the balance sheets of banks, households, and corporates. Reforms will need to include leveling the playing field between the tradables and the nontradables sectors, further opening up the

economy to foreign competition, developing financial markets, and increasing government spending on health and education (Blanchard and Giavazzi, 2005; Barnett and Brooks, 2010; N'Diaye, Zhang, and Zhang, 2009).

The remainder of the chapter is organized as follows: The next two sections discuss Japan's macroeconomic policy stance and currency reform, respectively, during the 1980s. The subsequent section focuses on the financial liberalization measures Japan introduced in the run-up to the asset price bubble, and is followed by a section that presents an overview of the structural changes Japan has undergone during its development process. The final section draws key insights for China from the Japanese experience.

THE MACROECONOMIC POLICY STANCE

Japan entered the 1980s with large fiscal deficits—a result of the government's attempts to regain the growth momentum stalled by the oil shocks of the 1970s (Figure 12.1). Output growth had slowed from about 8 percent on average during the first half of the 1970s to 4 percent during the second half. Growth remained about that level in the first half of the 1980s, on the back of strong net external demand. Strong external demand helped offset weaknesses in domestic demand as fiscal consolidation proceeded apace with higher social security payments and expenditure control. Monetary policy was torn between the need to support demand and concerns that low interest rates could further weaken the yen relative to the dollar given large interest rate differentials with the United States. Although
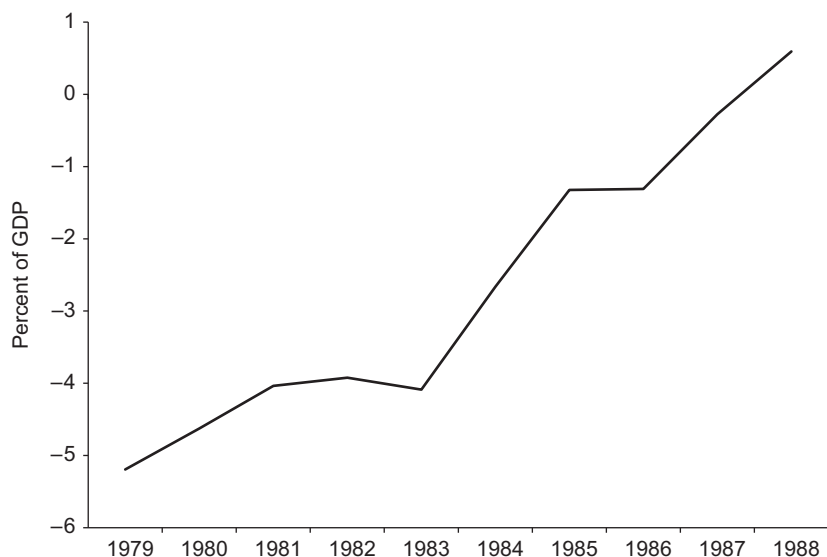
Figure 12.1   Japan: General Government Balance, 1979–88

Source: IMF staff estimates.
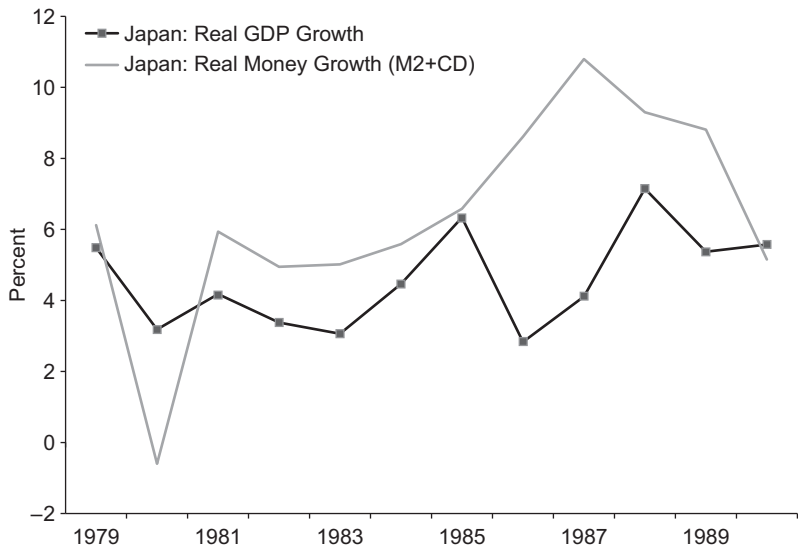
Figure 12.2   Japan: GDP and Real Money Growth, 1979–90

Source: IMF staff estimates.
Note: M2 = Broad money; CD = Certificates of deposits.

monetary conditions were not wholly supportive, the monetary policy stance shifted from a tight stance—needed to fight the inflationary consequences of the oil shocks—to a looser stance aimed at supporting activity (Figure 12.2).

CURRENCY REALIGNMENT AND ITS AFTERMATH

Slower growth momentum abroad and persistent twin deficits in the United States in the mid-1980s heightened pressures in Japan for protectionist measures.[2] Against the backdrop of increased trade tensions, G5 member countries (France, Germany, Japan, the United Kingdom, and the United States) adopted the Plaza Accord on September 22, 1985.

The Plaza meeting was prompted by a desire to achieve greater convergence in policies and performance among the G5 countries and to develop a more appropriate pattern of exchange rates, given that external imbalances among major industrial countries were expected to remain large—with a persistent current account deficit in the United States and matching external surpluses in Japan and, to a lesser extent, in Germany. The United States committed to reducing its budget deficit; Japan committed to continuing fiscal consolidation while allowing

---

[2] In January 1985, following talks between President Reagan and Prime Minister Nakasone, consultation committees comprising high-level officials from Japan and the United States were set up, and market-oriented, sector-specific consultations began in four sectors: telecommunications, forest products, pharmaceuticals and medical equipment, and electronics. Market-opening measures were then introduced in April.

local governments to invest more, providing an environment conducive to private sector development, and pursuing monetary policy in a flexible manner with due attention paid to the exchange rate. Measures to promote private sector development in Japan included privatizing public enterprises, further liberalizing financial markets, enlarging the consumer and mortgage credit markets, and providing better access to domestic markets.

Following the Plaza meeting and heavy, coordinated intervention in foreign exchange markets, the yen appreciated sharply against the U.S. dollar, by 20 percent between end-1984 and end-1985, and by about 10 percent in the week following the Plaza Accord (Figure 12.3). However, for these foreign exchange trends to continue, it was necessary to move ahead with other policy commitments. In subsequent weeks, Japanese interest rates rose sharply after a prolonged period of stability. This rise was prompted by indications from the Bank of Japan that it would not offset the appreciation of the exchange rate with a loosening of domestic monetary conditions, but would instead be encouraging interest rates to rise further. As a result, short-term interest rates jumped by some 1½ percentage points, and long-term interest rates rose by about 1 percentage point. By the third week of November 1985, short-term rates had risen by a further 25 basis points. However, subsequent weaknesses in domestic demand prompted a loosening of the monetary stance thereafter.

On the fiscal side, a stimulus package was announced on October 15, 1985 (to be implemented at the level of local governments and public enterprises, whose operations were financed by the Fiscal Investment Loan Program), and included liberalization of the conditions attached to loans provided by the
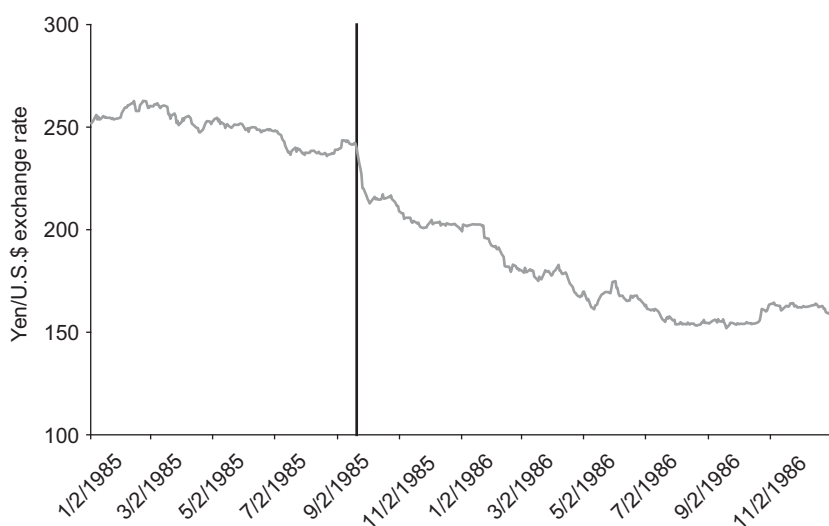
Figure 12.3   Yen to U.S. Dollar Movements around the Plaza Accord

Source: IMF staff estimates.

Housing Loan Corporation. The measure was expected to generate additional loans of about 3 percent of private residential investment. The 1986/87 budget provided new three-year tax credits for interest on housing loans of up to 1 percent for private loans. These measures helped boost private consumption and residential investment, but were insufficient to offset the declining contribution to growth from net exports and the falling off of business investment in manufacturing. As a result, growth slowed substantially, falling from 6¼ percent in 1985 to 2¾ percent in 1986. Employment in manufacturing declined moderately, and disguised unemployment rose. Manufacturing profits fell by as much as 32 percent in the first half of 1986,[3] with sharp declines in most industries, especially in steel, shipbuilding, electronics, and automobiles. Other sectors fared better, however, with a boom in construction and strong growth in services, including wholesale and retail trade. On the external front, notwithstanding a turnaround in trade volumes in the direction of external adjustment, the external current account surplus continued to widen, owing mainly to a decline in oil prices. Many analysts considered the continued widening of the current account as transitory, perhaps reflecting the "J-curve" effects of exchange rate changes (Krugman, 1991).

In the face of continued external imbalances and protectionist measures, the G6 countries (G5 plus Canada) concluded the Louvre Accord on February 22, 1987. According to the terms of this agreement, Japan committed to implementing an extensive package of economic measures geared toward supporting domestic demand and facilitating the flow of resources to developing countries.

FINANCIAL LIBERALIZATION

Before the Plaza Accord, Japan's financial system was highly regulated, and there were several barriers to foreign entry (Guttman, 1987). Interest rates were regulated using segmented markets and were shielded from external influence through capital controls. Both domestic and external factors played a part in the liberalization of Japan's financial system. Domestic factors included pressure from depositors who wanted higher returns on their savings; the increased share of self-financed investment by cash-rich corporations, which lowered the demand for bank credit; and the deteriorating fiscal position. External pressures also came from the United States, where a wave of deregulation had allowed Japanese investors to acquire significant holdings in U.S. assets, which, together with the weak yen, prompted calls for Japan to open up its financial markets and make yen-denominated assets more attractive.

The deregulation of Japan's financial system between 1980 and 1986 focused on expanding market access, liberalizing deposit interest rates, increasing the availability of financial instruments, and removing barriers between the opera-

---

[3]The government provided support to hard-hit small and medium enterprises through subsidized loans under the condition that those enterprises restructure to serve the domestic market.
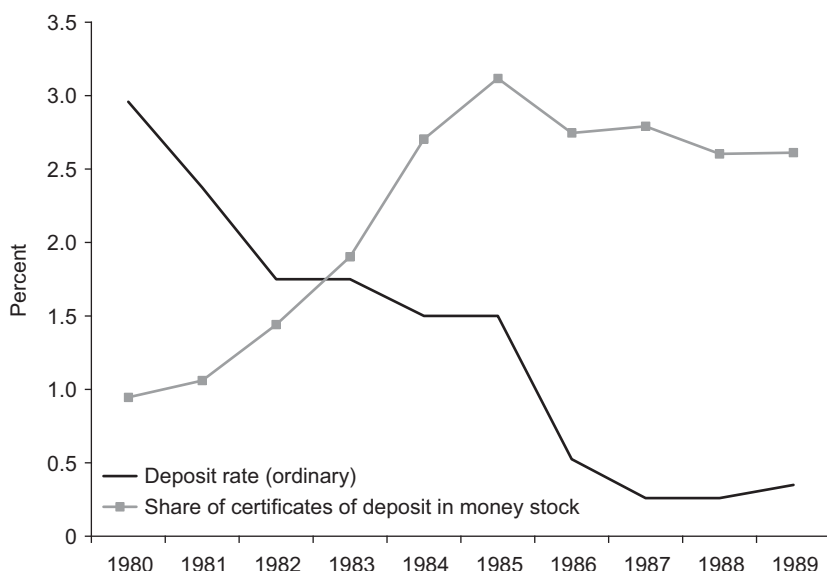
Figure 12.4 Japan: Deposit Rates and Certificates of Deposit before and after Liberalization of the Financial System

Source: IMF staff estimates.

tions of banking institutions and securities dealers. Major changes included (1) easing of the restrictions governing a variety of offshore yen transactions—including the issuance of euro-yen bonds, euro-yen lending to Japanese residents, and the issuance of euro-yen certificates of deposit (CDs); (2) easing of the restrictions on domestic banks' issuance of CDs; and (3) loosening of restrictions on some types of capital outflows (Annex 12A). Other changes included the removal of restrictions on forward foreign exchange transactions, on banks' spot conversion of foreign currencies into yen, and on the sale of foreign CDs and commercial paper in Japan. There were also various initiatives to increase the participation of foreign financial institutions in Japan's capital markets. The liberalization of capital inflows and outflows (which had started in the 1970s) and the growing internationalization of the yen resulted in substantial flows of foreign capital into Japan in the 1980s. The main channels for these inflows were the foreign acquisition of yen-denominated securities in the Japanese market and, to a lesser extent, the issuance of external bonds by Japanese firms.

Liberalization of financial markets and interest rates led the Bank of Japan to rely more heavily on indirect instruments for monetary policy rather than on direct controls on money growth.[4] Liberalization also resulted in a significant decline in deposit rates, an increase in credit (for use both in Japan and abroad), and a rapid rise in the demand for money market certificates (Figure 12.4). These

---

[4] Monetary policy's focus on money growth had followed the first oil shock and the Bank of Japan's increased emphasis on controlling inflation.

outcomes were at odds with the Japanese authorities' concerns that were expressed before the liberalization of interest rates that deposit rates would increase, lending rates would be stagnant, and bank profits would be squeezed.[5] Liberalization also heavily influenced the portfolio choices of nonfinancial corporations by providing them with a much wider range of liquid instruments that were remunerated at market rates. Financial reform and liberalization led to a large buildup of liquid assets by corporations, which, in turn, fueled broad money growth in 1985–86, mainly noticeable with the introduction of money market certificates and an increase in the availability of CDs. However, following the liberalization of interest rates on large time deposits, the growth of CDs slowed relative to that of large time deposits.

ECONOMIC OUTCOMES

GDP Convergence

The liberalization of Japan's financial system marked the culmination of years of reform and the end of the longest expansion period in Japan's history (1955–82), during which per capita income caught up with that of the United States and Europe. Japan's per capita GDP increased 17-fold between 1955 and 1982, from 25 percent of U.S. per capita GDP to more than 75 percent (Figure 12.5).

Japan's rapid catch-up was achieved through an effective use of abundant and cheap labor in the early stages of the country's development, as well as intensive use of capital and strong productivity gains. Domestic investment accounted for more than 30 percent of GDP throughout that rapid growth period, supported by capital costs that were kept low through financial sector regulations (Figure 12.6).[6] In addition, the government's industrial policies in the early stages of development spurred investment in key manufacturing sectors, such as steel, shipbuilding, and chemicals, and targeted industries benefited from subsidized loans, subsidies to exports, import restrictions, and generous allocations of foreign reserves (which, given the existing capital controls, were critical for firms carrying out their expansion plans). Japanese corporations invested about 2 percent of GDP in research and development, similar to U.S. and German firms, and acquired new technologies through joint ventures and special agreements. The sectoral composition of investment shifted over time, with changes in the structure of industry away from raw

---

[5] See IMF staff report for the 1984 Article IV consultation with Japan. Following liberalization, the authorities stressed the importance of improvements in the supervision of financial institutions and other aspects of the regulatory framework to ensure stability of the system in a liberalized environment. They undertook a review of capital-asset and liquidity ratios and other prudential parameters and prepared legislation to strengthen and broaden the deposit insurance system.

[6] See Ando and Auerbach (1988a, 1988b) for a comparison of the cost of capital in the United States and Japan.

Figure 12.5 Japan and China: Convergence of per Capita GDP Relative to the United States during Expansion

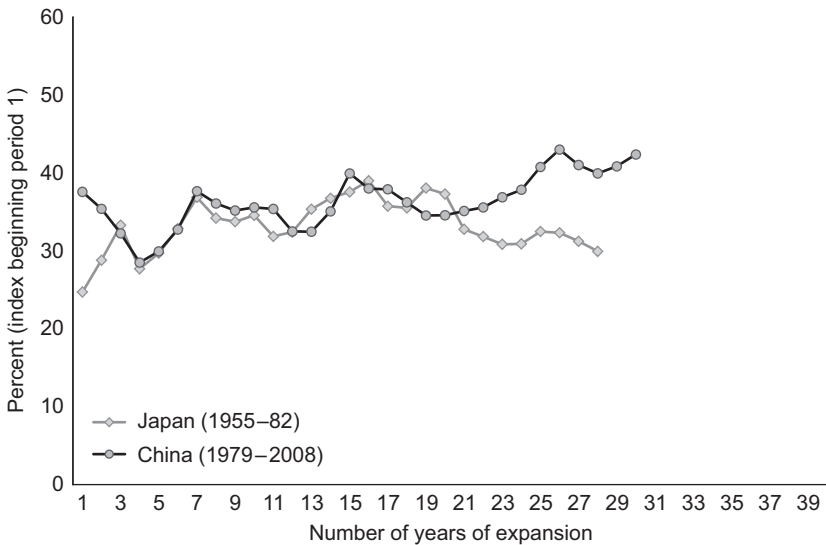Source: IMF staff estimates.
Note: In purchasing-power parity.

Figure 12.6 Japan and China: Share of Investment in GDP during Expansion

Source: IMF staff estimates.

materials processing toward high-technology fields. This structural shift was largely the result of efforts initiated following the oil price shock in the mid-1970s and was sustained by rapid technological advances toward industrial restructuring.
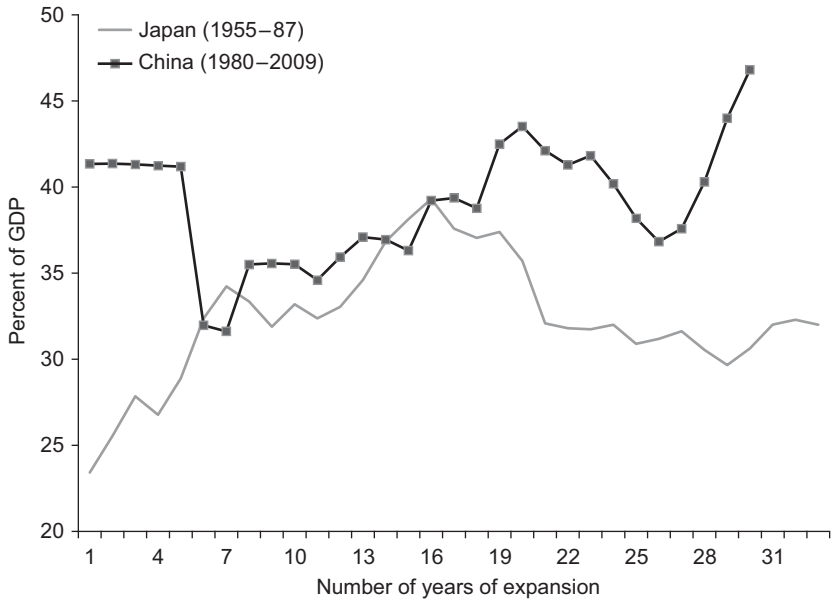
Figure 12.7   Japan and China: Gross National Saving during Expansion

Source: IMF, World Economic Outlook database.

High Saving Rates

Japan's rapid capital accumulation was financed by high domestic saving, reflecting primarily private saving, particularly household saving rates. Gross national saving rose from a little less than 22 percent of GDP in 1950 to a peak of about 40 percent in the early 1970s, before falling to about 32 percent in 1982 (Figure 12.7). Most saving was from the private sector, with household saving accounting for slightly less than half. Several explanations for Japan's high saving rates during those years have been proposed, including cultural factors (Confucianism), an underdeveloped social security system, a generous bonus system for workers, various tax incentives, substantial down payments associated with high housing and land prices, life-cycle, and bequest motives (Horioka, 1988; Ito, 1992). However empirical studies have shown that these factors alone cannot account for the high saving rate (Hayashi, 1986).

External Surplus

Japan's large savings were not exported to the rest of the world until about the early 1980s, when Japan's current account soared, reaching about 4 percent of GDP in 1986 (Figure 12.8). The rise in the current account was caused in part by the strength of the U.S. dollar against major currencies, particularly the yen. Between 1978 and 1984, the yen depreciated against the U.S. dollar by about 20 percent (from 195 ¥/$ at end-1978 to about 251 ¥/$ at end-1984). This depreciation reflected better growth prospects abroad, which encouraged Japanese
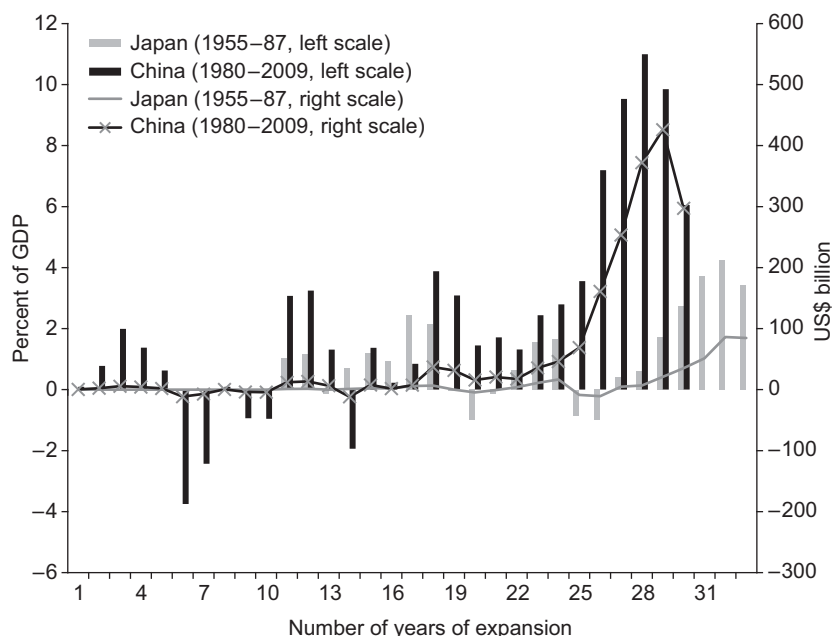
Figure 12.8 Japan and China: Current Account Balance during Expansion

Source: IMF staff estimates.

corporations to adopt a relatively more outward-looking investment strategy; the desire to increase on-site production to avoid trade frictions and protectionist actions against Japanese-manufactured exports in other industrial countries; increases in loans by Japanese parent companies to their foreign subsidiaries because of relatively higher interest rates prevailing in overseas markets; growing demand by various nations for Japan's industrial cooperation; and incentives offered by the governments of host countries, which increased the profitability of Japanese investment in production facilities abroad.

The Shift toward Services

The years of rapid growth and development in Japan were accompanied by shifts in the dominant sector of the economy, moving from agriculture to manufacturing and then from manufacturing to services. From 1955 to the early 1980s, the share of employment in agriculture fell from just less than 40 percent to less than 10 percent (Figure 12.9). Manufacturing employment peaked at slightly more than 35 percent in the mid-1970s, while employment in the services sector rose steadily, reaching slightly less than 60 percent in the 1980s. The shift toward services was accompanied by an appreciation of the yen in real effective terms (Figure 12.10). However, structural reforms were needed to support and maintain this shift toward the services sector and consolidate its gains. Accordingly, in May 1986, the government proposed measures (the Maekawa report) to promote a
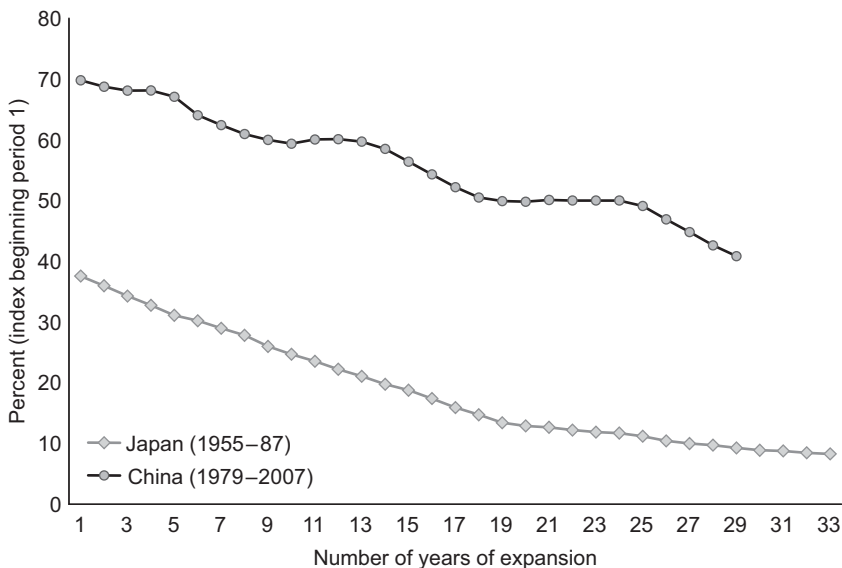
Figure 12.9 Japan and China: Share of Employment in Primary Industry during Expansion
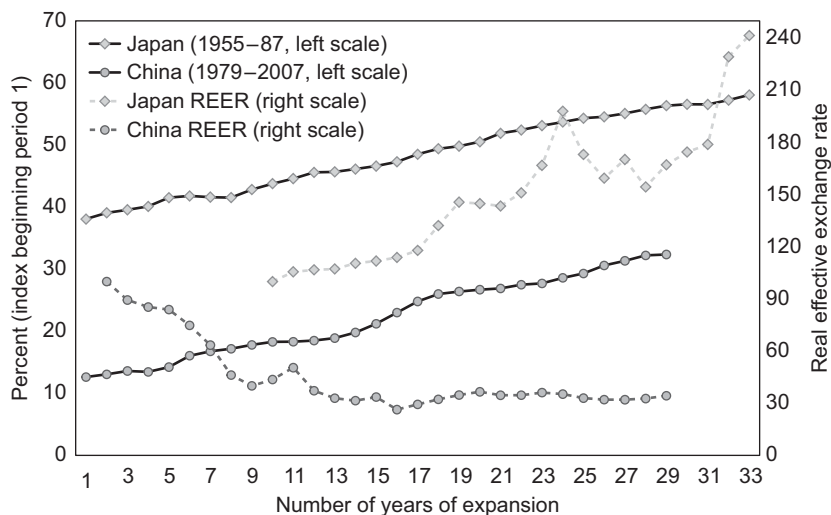Source: IMF staff estimates.

Figure 12.10 Japan and China: Share of Employment in Tertiary Industry during Expansion
Source: IMF staff estimates.

domestic demand-led growth strategy. Key measures included trade and financial liberalization, deregulation and administrative reform, reduced restrictions on land use, increased consumer spending supported by cuts in the income tax, and early implementation of a five-day work week. However, implementation of
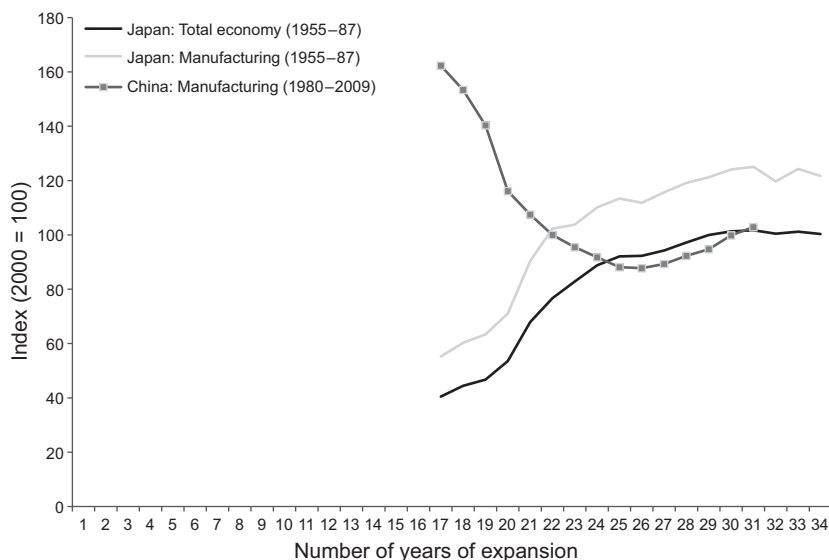
Figure 12.11   Japan and China: Unit Labor Cost during Expansion

Source: IMF staff estimates.

many of the recommendations from the Maekawa report was delayed, in part owing to stiff opposition from Japan's corporate sector.

Changes in the Industrial Cost Structure

As the Japanese economy transitioned toward a services-based economy, income rose, and by the early 1980s, Japan was no longer a cheap labor economy (Figure 12.11). Rising labor costs across all sectors, together with an appreciating yen, prompted less-competitive manufacturing firms to relocate abroad. The yen appreciated in real effective terms by about 140 percent from the first quarter of 1964 to the fourth quarter of 1987 (about 3¾ percent a year), of which 40 percentage points occurred during 1985–87, when the Plaza and Louvre Accords were signed. Inflation differentials played an important role in the real effective appreciation of the yen during Japan's years of structural change, particularly the inflation that followed the two oil shocks of the 1970s. Inflation rose to about 25 percent in 1974, remaining relatively high during the second half of the 1970s, and spiked again in 1980 from the effects of the second oil shock (Figure 12.12). Subsequently, the Bank of Japan's tight policy stance and improved productivity in the manufacturing sector helped keep inflation under control.

Urbanization and Demographics

Changes to Japan's occupational and industrial structures were reflected in the urbanization of the Japanese economy (Figure 12.13). Demographic changes may also have driven the urbanization process because the demand for services
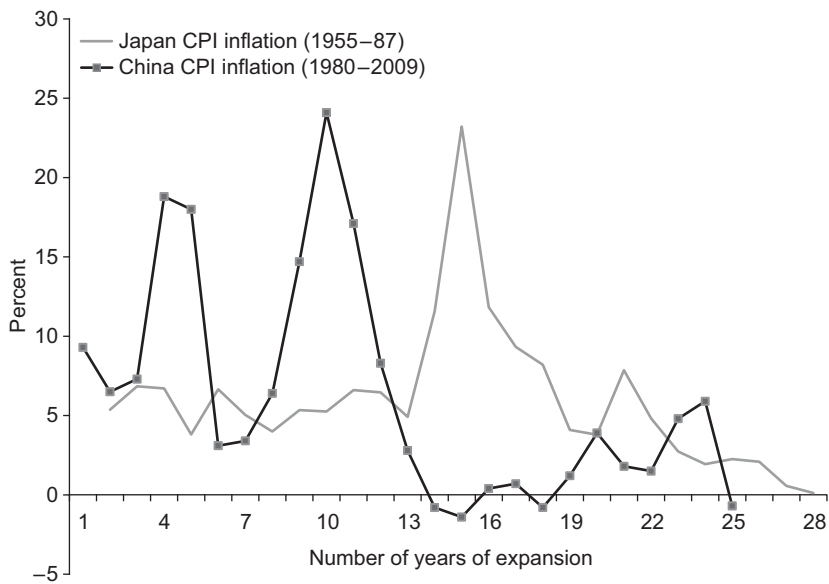
Figure 12.12 Japan and China: Consumer Price Index Inflation during Expansion
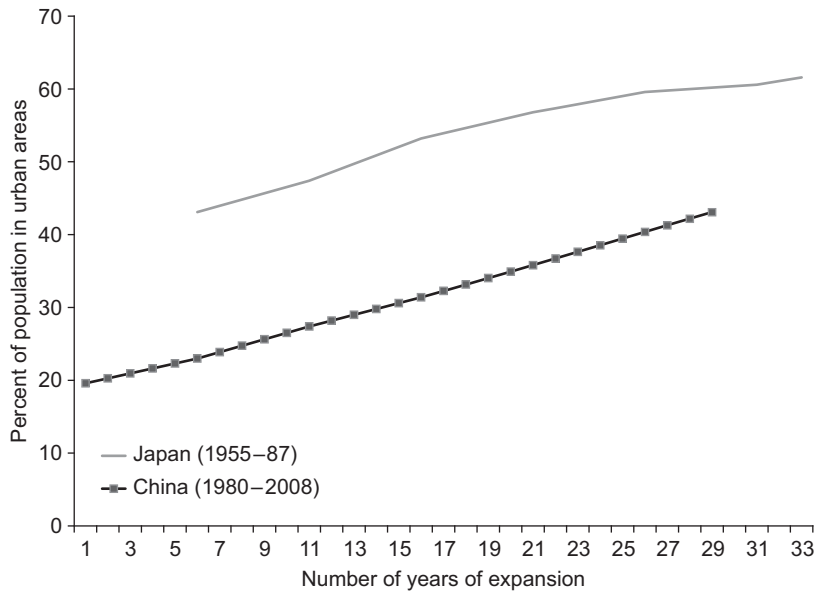
Source: IMF staff estimates.
Note: CPI = cunsumer price index

Figure 12.13 Japan and China: Urbanization Rate during Expansion

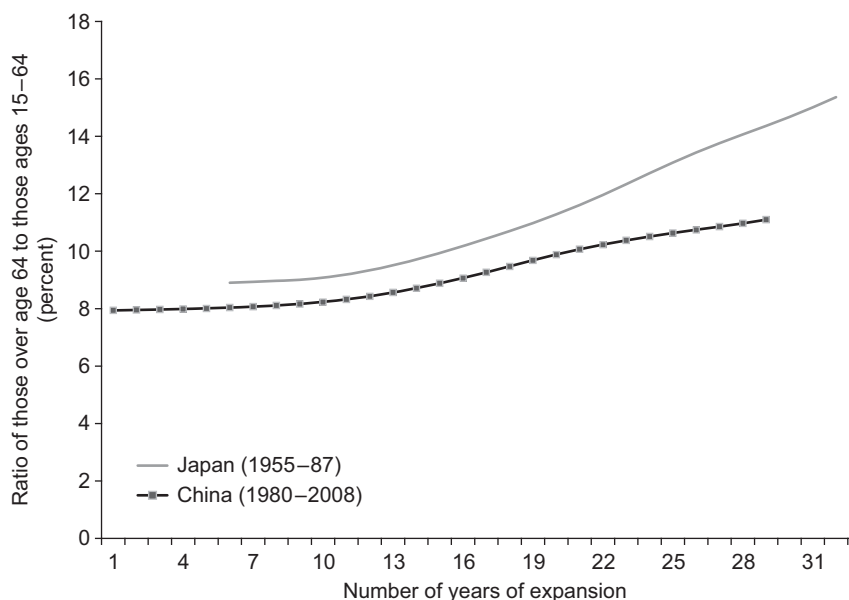Source: United Nations, World Urbanization Prospects database.

Figure 12.14 Japan and China: Old-Age Dependency Ratio

Source: World Bank, World Development Indicators database.

typically increases with an aging population. These demographic pressures are less acute in China today, but they are on the horizon (Figure 12.14). United Nations population projections show a doubling of China's elderly dependency rate by 2025 (Figure 12.15). This trend will likely have a negative effect on growth and could complicate the reallocation of labor from the tradables to the nontradables sector (see Chapter 9).

The differences between the occupational structure of the Japanese economy in the 1980s and the Chinese economy today reflect the stage of urbanization of the two economies. In the early 1980s, Japan's urbanization was at a far more advanced stage than that of China today. In fact, urbanization in China today is at Japan's level in 1955, the onset of its longest expansion period. Disparities between rural and urban areas are more pronounced in China than they were in Japan in the 1980s. For China, the Gini coefficient expanded from 30 percent in 1980 to close to 50 percent in 2008 and has since declined slightly (but remains above 47 percent); in Japan, however, it stayed within the range of 35 to 40 percent from 1960 to the mid-1980s.

INSIGHTS FROM THE JAPANESE EXPERIENCE

The development processes of Japan and of China show many similarities, particularly in saving and investment patterns. During the first 20 years of the convergence process, the level of China's investment, most of which is
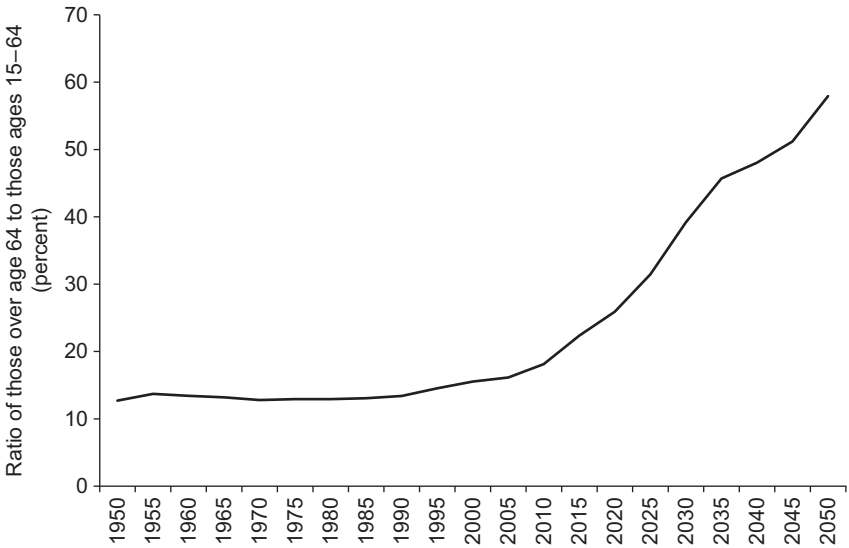
Figure 12.15 China: Past and Projected Old-Age Dependency Ratio
Source: IMF staff estimates.

concentrated in the manufacturing sector, has been comparable to that of Japan in the 1970s. However, China's investment has surpassed that of Japan since about 2008, supported by various cost advantages, including a low cost of capital and of utilities, pollution, energy, and land, as well as tax incentives, an undervalued currency, and a large pool of savings.[7] China today has an even higher national saving rate than Japan did in the 1980s, with most savings stemming from the private sector. The reasons for this high saving rate are believed to be similar to the ones mentioned above for Japan, especially those relating to lack of social safety nets and low levels of public spending on education (Barnett and Brooks, 2010). China's saving exceeded investment earlier in its development process than did Japan's saving, occurring in an external environment marked by a great appetite for foreign financing, with the United States running unprecedentedly high and persistent deficits, and by an undervalued renminbi.

The industrial transformations of the two economies are also similar. China's transfer of labor to the services sector is akin to the trend that occurred in Japan, but with far more challenging initial conditions. From 1979 to 2007, the share of employment in the primary sector fell from 70 percent to 40 percent, while that of the services sector rose from 10 percent to about 30 percent. Unlike in Japan, however, the shift of labor to the services sector was accompanied by a real effective depreciation of the renminbi and declining unit labor

---

[7] Studies estimate the total value of China's factor market distortions could be almost 10 percent of GDP (Huang and Tao, 2010).

costs until the mid-2000s—a trend that has been reversed since then. The fall in unit labor costs before the mid-2000s may have been related to the reform of state-owned enterprises in the late 1990s, which led to layoffs for more than 40 million workers.

Like Japan, China's development outcomes have been remarkable. China's economy grew at an average of 10 percent annually, with per capita GDP more than 26 times higher in 2009 than it was in 1980, about the time that China began its reforms. So far, 500 million people have been lifted out of poverty, and an estimated 380 million jobs have been created since 1978. However, although China has now become the second largest economy in the world behind the United States, it is still a developing economy with per capita GDP less than one-tenth that of the United States' and much smaller than that of Japan in the 1980s. Thus, China has considerable room to grow, provided that the right policies are put in place to enable a timely and orderly transition to a domestic-demand-led economy. However, China's presence in global markets today is now equivalent to what Japan's was at its peak (Figure 12.16), which is fueling protectionist pressure from several trading partners.

The pressure on China to appreciate the renminbi and rebalance its economy away from exports and investment toward private consumption resembles Japan's situation in the mid-1980s, although external imbalances are much larger and more persistent than they were then. Since 2006, multilateral and bilateral discussions between large current account surplus and deficit countries (China, Japan, the United States, the euro area, and Saudi Arabia) have led to commitments to reduce global imbalances through a shared strategy that includes structural
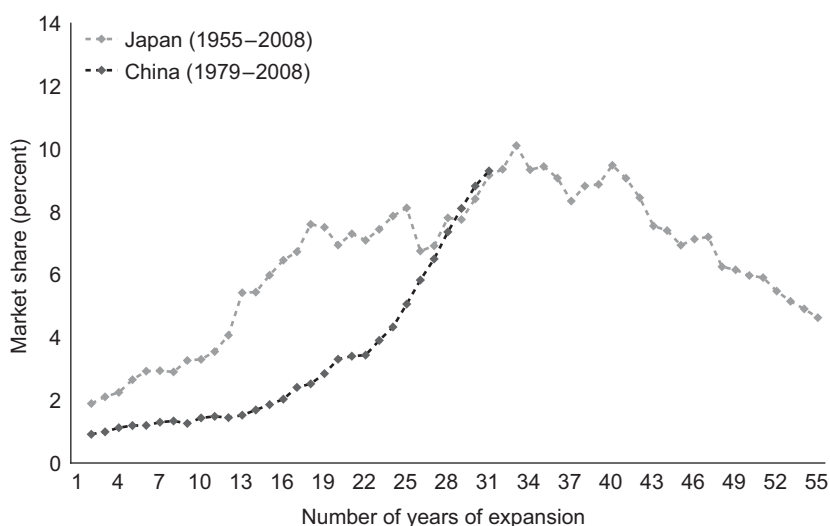
Figure 12.16 Japan and China: Market Share during Expansion

Source: IMF staff estimates.

reforms to increase domestic demand, exchange rate flexibility, and fiscal consolidation depending on countries' external positions.[8] Notwithstanding these commitments, little progress was made until the global financial crisis highlighted the urgency of resolving global imbalances. China, for its part, has introduced a set of measures since 2006 to reform its pension and health care system that go some way toward reducing households' precautionary savings and boosting demand, although not to the extent required to bring private consumption to a position consistent with that of other countries at a comparable level of development. The government has committed to pursuing its efforts to rebalance the economy, but the undervalued renminbi continues to generate headwinds against such efforts.

Japan's experience of the 1980s provides useful insights about the limits to export-oriented growth and the importance of a timely transition to domestic-demand-led growth, including the package of reforms to the exchange rate, financial liberalization, and structural reforms needed to get there. Japan's case also highlights the dangers of asset price inflation and the potential headwinds that could arise from changing demographics in China.

Role of the Exchange Rate in the Shift toward Services

Japan's experience shows that shifting toward greater reliance on the services sector requires a combination of real appreciation of the exchange rate, supportive macroeconomic policies, and structural reforms to develop the nontradables sector.[9] Although some analysts have attributed Japan's economic stagnation of the 1990s to the yen appreciation following the Plaza meeting, there is no evidence to that effect. In fact, analysis of the aftermath of the Plaza meeting shows that the growth and employment impact of exchange rate appreciation can be alleviated with supportive macroeconomic policies. By 1988, even as the current account had declined to about 2½ percent of GDP, real GDP growth had rebounded to more than 7 percent and the unemployment rate had already started to fall (Figures 12.17 and 12.18).

The Chinese government recognizes the role the exchange rate plays in rebalancing growth toward private consumption and increasing the importance of services and has vowed to reform its exchange rate system in a gradual manner. From 2005 to mid-2008, the renminbi was allowed to appreciate against the U.S. dollar and in effective terms. The outbreak of the global financial crisis, however, put this policy on hold until mid-2010, but it has since resumed. A gradual appreciation of the renminbi could facilitate the rebalancing of China's economy.[10] Some have argued, however, that an appreciation of its exchange rate would open up the risk of the economy's falling into deflation and a liquidity trap (McKinnon,

---

[8] See, for example, the summary on multilateral consultation discussion in IMF (2007).

[9] For a broad perspective on lessons from episodes of current account reversals, see IMF (2010).

[10] The issue of the required pace of appreciation of the renminbi to support rebalancing is beyond the scope of this chapter.
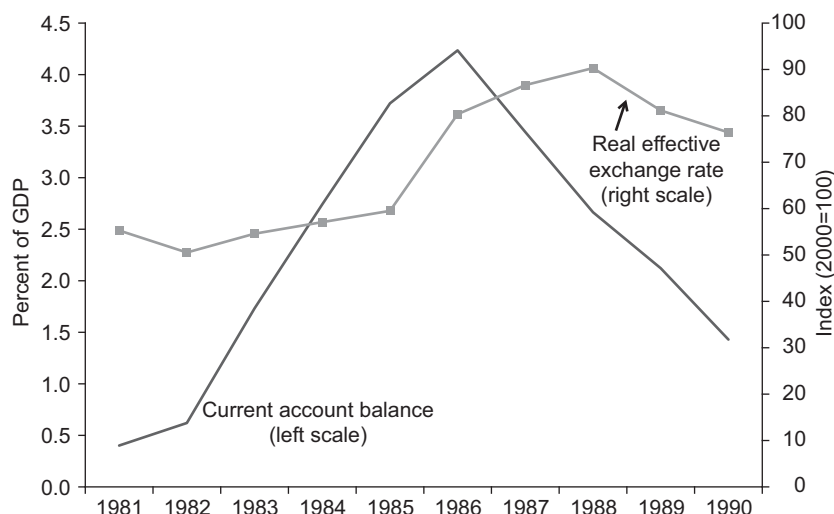
Figure 12.17 Japan: Current Account Balance and Real Effective Exchange Rate, 1981–90
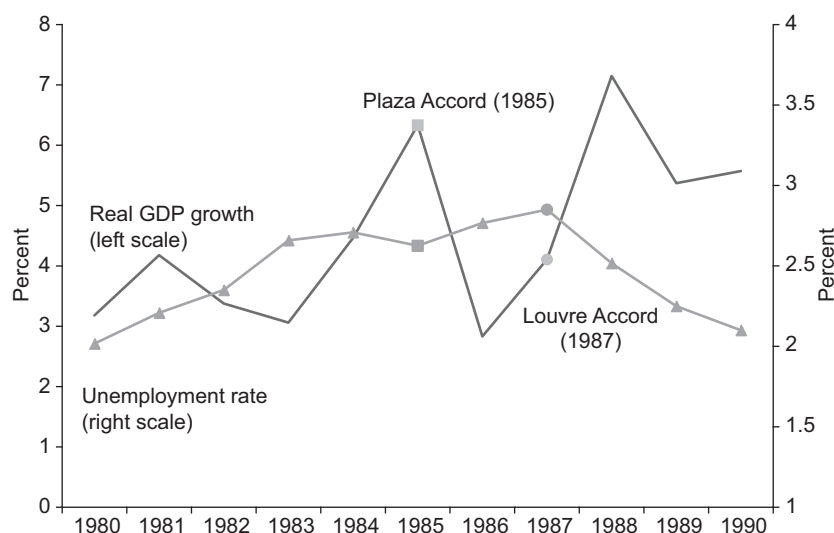Source: IMF staff estimates.

Figure 12.18 Japan: Real GDP Growth and Unemployment Rate
Source: IMF staff estimates.

2006). The uncertainty about future renminbi appreciation, according to this argument, would create a negative risk premium that would drive Chinese interest rates below world interest rates, bringing them closer to zero and leaving China unable to respond to the deflationary pressure. This argument rests on a theoreti-

cal world with perfect capital mobility and perfect substitutability of assets, while assuming significant uncertainty would surround a future appreciation. However, judging from the gradual and predictable appreciation path of 2005–08, such negative risk premiums from uncertainty around appreciation would likely be negligible. Moreover, the idea that China could experience deflation as a result of appreciation assumes the renminbi would appreciate above its equilibrium value and ignores potential inflationary pressures that could stem from stronger domestic demand as rebalancing is supported by structural reforms that increase households' real income. In Japan's case, several sources of deflation were in play at the time the currency was appreciating, including weak demand that followed the bursting of the asset bubble, the broken monetary transmission mechanism, and ineffective monetary policy. These factors are not at work in China now.

Financial Liberalization

Japan's experience with interest rate liberalization suggests that liberalizing interest rates in the context of a banking system with excess liquidity, if not properly managed with appropriate monetary policy, could cause deposit rates to fall and lead to an unintended injection of significant monetary stimulus to the economy (Figure 12.19). In contrast to Japan in the 1980s, China's financial system remains highly regulated, notwithstanding some progress on liberalizing interest rates. Interest rate liberalization began in the mid-1990s and included the
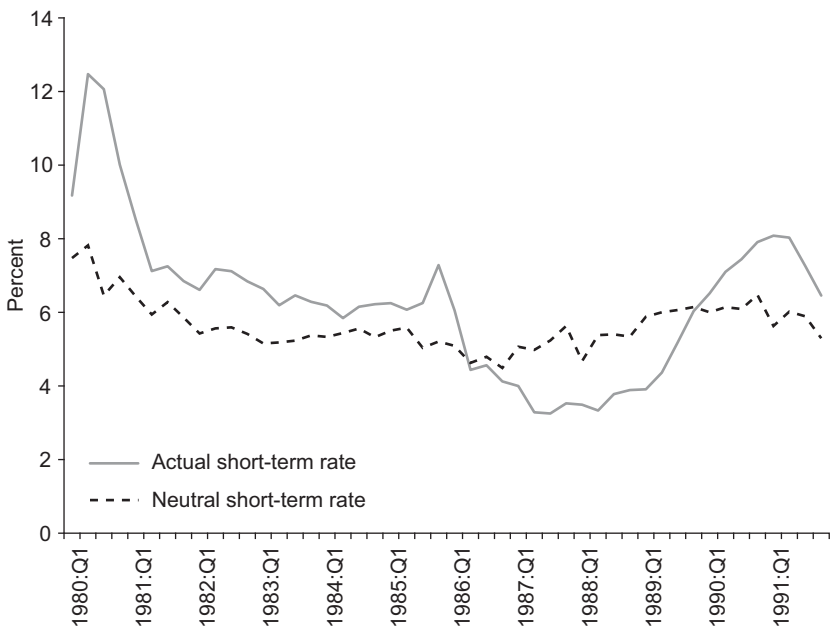

Figure 12.19 China: Short-Term Interest Rates, 1980–91

Source: Unsal, 2010.

removal of the upper limit on interbank lending rates and the liberalization of repo rates and foreign currency lending as well as of deposit rates over certain amounts. However, restrictions remain, in particular, a ceiling on deposit rates. Model simulations by Feyzioglu and others (2009) suggest that liberalizing interest rates in China, given the properties of the banking system, would likely lead to higher interest rates with the extent of the rise also depending on the management of monetary policy. Higher interest rates would help reduce investment in less productive sectors (see Chapter 3), reduce risks of overcapacity, make investment in services more attractive, and improve households' income.

Asset Price Bubbles

Japan's experience suggests that supportive macroeconomic policies, if maintained for too long, can inflate asset bubbles. Japan's move to a loose monetary policy following the Louvre Accord, together with financial deregulation and incentives to boost consumer and mortgage credit, led to a rapid rise in Japanese equity and land prices (Figure 12.20). The Nikkei rose by an annual average of 30 percent, while land prices in metropolitan areas rose by an annual average of 25 percent, with particularly strong growth in commercial building prices. Nationwide increases in land prices were much more subdued, however, rising only about 7 percent on average a year. Nevertheless, banks' exposure to property increased markedly, with the share of property-related loans in total loans reaching about 17 percent in 1987 from about 12½ percent in 1980 (Figure 12.21).
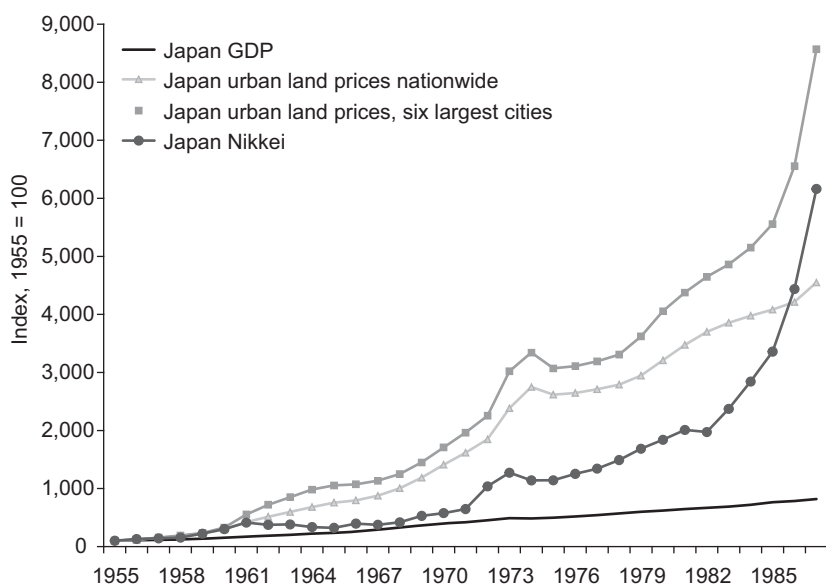
Figures 12.20 Japan: Property Price Increases, 1955–89

Source: IMF staff estimates.

Figure 12.21 Japan: Construction and Real Estate Loans in Total Loans
Source: IMF staff estimates.

The subsequent protracted adjustment in goods and asset markets and the needed deleveraging in household, bank, and nonfinancial corporate balance sheets contributed to Japan's "lost decade" of deflation, public debt accumulation, and stagnation.

In China, the government's countercyclical response to the global financial crisis, which included several measures to increase infrastructure spending and household consumption and rapid credit growth, has fueled strong increases in asset prices. On the face of it, the situation in China is similar to that in Japan in the 1980s, with rapid credit growth, investment, and increases in asset prices (Figure 12.22). However, there are fundamental differences between the two economies in the strength of the balance sheets of households, corporations, and the government; the fundamentals that drive asset prices; and in the policy response to asset price developments.

- *Leverage.* Chinese households' debt is one-fifth that of Japanese households in the 1980s; Chinese corporate debt is about half the size of Japanese corporate debt; and government debt stands at about 20 percent of GDP in China, compared with about 67 percent in Japan at the peak of the property bubble.

- *Fundamentals.* Differences in fundamentals include the stage of urbanization, the structure of the population, and the stage of development with potential output growth in China of about 8–10 percent, compared with 4 percent in Japan in the 1980s. These data for China would imply rapid increases in asset prices, although not as strong as were observed in 2009–10.

- *Policies.* In Japan, monetary conditions were kept too loose for too long, and leverage was allowed to build up. In China, the authorities have already
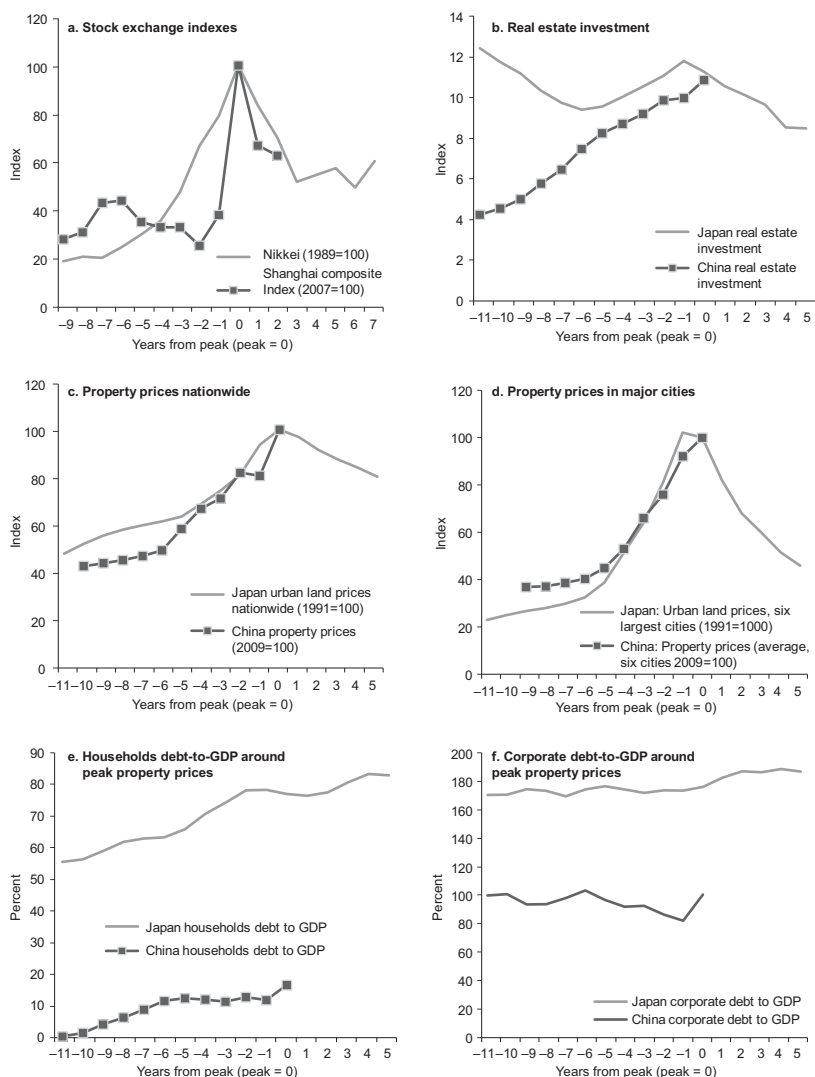
a. Stock exchange indexes

Nikkei (1989=100)
Shanghai composite
Index (2007=100)

Years from peak (peak = 0)

b. Real estate investment

Japan real estate
investment
China real estate
investment

Years from peak (peak = 0)

c. Property prices nationwide

Japan urban land prices
nationwide (1991=100)
China property prices
(2009=100)

Years from peak (peak = 0)

d. Property prices in major cities

Japan: Urban land prices, six
largest cities (1991=1000)
China: Property prices (average,
six cities 2009=100)

Years from peak (peak = 0)

**e. Households debt-to-GDP around
peak property prices**

Japan households debt to GDP
China households debt to GDP

Years from peak (peak = 0)

**f. Corporate debt-to-GDP around
peak property prices**

Japan corporate debt to GDP
China corporate debt to GDP

Years from peak (peak = 0)

Figure 12.22 Japan and China: Asset Prices and Balance Sheets around Peaks.

Source: CEIC database.

taken measures to stem the run-up in property prices, such as increases in
reserve requirements, tighter underwriting and prudential standards, and
slower credit growth.

Another key fundamental difference is in the stage of development of the
countries' respective financial sectors: Japan's was largely liberalized, whereas
China's financial sector remains heavily controlled. Although the propensity
nonetheless exists for a run-up in asset prices, policies can play a role. The right
calibration of policies—including prudent monetary policy and an increase in

real interest rates—should allow China to avoid the boom-bust asset cycle that Japan experienced.

Overall, the Japanese experience of the 1980s provides useful insights about the way China could manage a successful rebalancing to a domestic-demand-led economy and the downsides to avoid. In particular, Japan offers useful insights on (1) the limits to an export-oriented growth strategy; (2) the role of exchange rates, macroeconomic policies, and structural reforms in rebalancing the economy toward the nontradables sector; and (3) the risks associated with financial liberalization. These insights provide optimism that the ongoing rebalancing process in the Chinese economy can be managed.

ANNEX 12A. FINANCIAL LIBERALIZATION MEASURES IN JAPAN AND CHINA

Japan	
1980	Introduction of national bond fund with minimum holding period of six months
1981	Minimum holding period
1982	Liberalized rules on issuance of yen-denominated securities by nonresidents
1983	Removal of some restrictions on zero-coupon bonds
1984	Minimum size of certificates of deposit reduced from ¥500 million to ¥300 million
1984	Ceiling on foreign-government-guaranteed bonds increased by 50 percent
1984	Credit rating required for yen borrowing lowered to AA, down from AAA
1984	Easing restrictions on issuance of euro-yen bonds
1984	Removal of restrictions on foreign lending
1984	Removal of exchange swaps controls
1984	Nonresidents exempted from withholding tax on foreign currency government bonds
1984	Liberalization of short-term euro-yen loans to residents and issuance of euro-yen certificates
1984	Easing of restrictions on secondary market activities for banks
1985	Collateralized loans for securities houses and brokerage licenses for bond future trading allowed
1985	Minimum size of certifcates of deposit reduced to ¥100 million and maturity to one month
1985	Removal of withholding tax on euro-yen bonds for Japanese residents
1985	Pension funds and trust banking management by foreign banks allowed
1985	Foreign firms trading on Tokyo Stock Exchange
1985	Liberalization of interest rates on time deposits of more than ¥1 billion
1986	Credit rating required for yen borrowing lowered to A, down from AA
1986	Liberalization of interest rates on time deposits of more than ¥300 million
1987	Liberalization of interest rates on time deposits of more than ¥100 million
China: Liberalization of Interest Rates	
1996	Abolished the upper limit on interbank lending rates
1997	Liberalized repo rates
1998–2004	Gradually increased the upper limit on lending rates
1999	Began to gradually allow different institutions to negotiate rates on deposits of more than Y30 million with greater than five-year maturity
2000	Liberalized foreign currency lending rates
2000	Liberalized foreign currency deposit rates for deposits over $3 million
2003	Removed floor on foreign currency deposit rates
2003	Liberalized deposit rates on pounds, francs, Swiss francs, and Canadian dollars
2004	Liberalized all foreign currency deposit rates with maturity greater than one year
2004	Removed ceiling on all lending rates (except for urban and rural credit cooperatives, which have a cap of 130 percent over reference rates)
2004	Removed floor on all deposit rates
2013	Removed floor on lending rates

Sources: Guttman, 1987; and Feyzioglu, Porter, and Takats, 2009.

REFERENCES

Ahuja A., L. Cheung, H. Gaofeng, N. Porter, and W. Zhang, 2010, "Are House Prices Rising Too Fast in China?" IMF Working Paper 10/274 (Washington: International Monetary Fund).

Ando, A., and A. Auerbach, 1988a, "The Corporate Cost of Capital in Japan and the United States: A Comparison," in *Government Policy towards Industry in the United States and Japan*, ed. by J.B. Shoven (New York: Cambridge University Press).

———, 1988b, "The Cost of Capital in the United States and Japan: A Comparison," *Journal of the Japanese and International Economies,* Vol. 2, pp. 134–58.

Barnett, S., and R. Brooks, 2010, "China: Does Government Health and Education Spending Boost Consumption?" IMF Working Paper 10/16 (Washington: International Monetary Fund).

Blanchard, O., and F. Giavazzi, 2005, "Rebalancing Growth in China: A Three-Handed Approach," MIT Working Paper 05-32 (Cambridge, Massachusetts: MIT Department of Economics).

Chow, Gregory, 2002, "China's Economic Transformation" (New York: Blackwell Publishing).

Feyzioglu, T., N. Porter, and E. Takáts, 2009, "Interest Rate Liberalization in China," IMF Working Paper 09/171 (Washington: International Monetary Fund).

Guo, K., and P. N'Diaye, 2009, "Is China's Export-Oriented Growth Strategy Sustainable?" IMF Working Paper 09/172 (Washington: International Monetary Fund).

Guttman, W., 1987, "Japanese Capital Markets and Financial Liberalization," *Asian Survey*, Vol. 27, No. 12, pp. 1256–67.

Hayashi, F., 1986, "Why Is Japan's Saving Rate so Apparently High?" NBER Macroeconomics Annual 1986 (Cambridge, Massachusetts: MIT Press) pp. 147–210.

Horioka, C.Y., 1988, "Saving for Housing Purchase in Japan," *Journal of the Japanese and International Economies*, Vol. 2, No. 3 (September), pp. 351–84.

Huang, Y., and K.Y. Tao, 2010, "Causes and Remedies of China's External Imbalances," Paper prepared for the conference on "Trans-Pacific Rebalancing," jointly organized by the Asian Development Bank Institute and the Brookings Institution, Tokyo, March 3–4.

International Monetary Fund (IMF), 2007, "Staff Report on the Multilateral Consultation on Global Imbalances with China, the Euro Area, Japan, Saudi Arabia, and the United States" (Washington). http://www.imf.org/external/np/pp/2007/eng/062907.pdf.

———, 2010, *World Economic Outlook: Getting the Balance Right: Transitioning out of Sustained Current Account Surpluses* (Washington).

Ito, T., 1992, *The Japanese Economy* (Cambridge, Massachusetts: MIT Press).

Krugman, P., 1991,"Has the Adjustment Process Worked?" (Washington: Institute for International Economics).

McKinnon, R., 2006, "China's Exchange Rate Trap: Japan Redux?" *American Economic Review*, Vol. 96, No. 2, pp. 427–31.

N'Diaye, P., P. Zhang, and W. Zhang, 2009, "Structural Reform, Intra-Regional Trade, and Medium-Term Growth Prospects of East Asia and the Pacific—Perspectives from a New Multi-Region Model," *Journal of Asian Economics*, Vol. 21, No. 1, pp. 20–36.

Unsal, D. Filiz, 2010, "Box 2.1. Assessing Monetary Policy Stances in Asia," in *Regional Economic Outlook Asia and Pacific: Leading the Global Recovery, Rebalancing for the Medium Term* (Washington: International Monetary Fund).

The Next Big Bang: A Road Map for Financial Reform in China

NIGEL CHALK AND MURTAZA SYED

Managed well, financial reform will generate significant benefits—in growth, employment, and standards of living—that will help sustain China's spectacular development and accelerate the rebalancing of its growth model. Done right, it could be as significant as the state-owned enterprise reform of the 1990s. Conversely, a prolonged delay in financial liberalization or implementing it in a poorly sequenced or badly executed manner would pose substantial risks for China and spill over onto an already fragile global economy. This chapter presents the rationale for financial reform in China and outlines a road map that could be implemented over the next three to five years.

INTRODUCTION

Liquidity control has traditionally been a hallmark of prudent macroeconomic management in China, contributing significantly to the country's sustained and stable economic development. Since the mid-1990s, the authorities have relied on a wide-ranging system of controls to lock up the large amounts of structural liquidity generated by China's economic model. The financial system is flush with liquidity, both because of a high stock of savings (Figure 13.1) held domestically by China's closed capital account, and because of large external inflows associated with the country's balance of payments surpluses, as well as the corresponding foreign currency intervention historically necessary to resist appreciation of the exchange rate (Figure 13.2).

To prevent this liquidity from fueling dangerous lending booms and asset bubbles, the People's Bank of China (PBC) has historically relied on control—predominantly direct tools like quantitative limits on bank credit, regulation of deposit and loan rates, and relatively high reserve requirements.

These tools have proven effective for conducting macroeconomic management during most of China's past, given the historically bank-based nature of China's financial system. Nevertheless, a by-product of these policies has been artificially low loan and deposit rates, which have created incentives for banks to allocate much of their lending to very large, capital-intensive enterprises, and has lowered the costs of sterilizing China's foreign currency intervention.
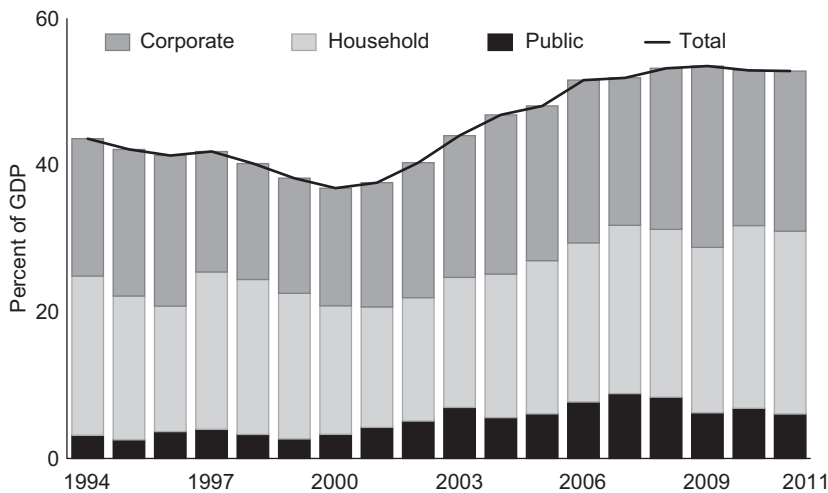
243

Figure 13.1 Decomposition of Saving, 1994–2010

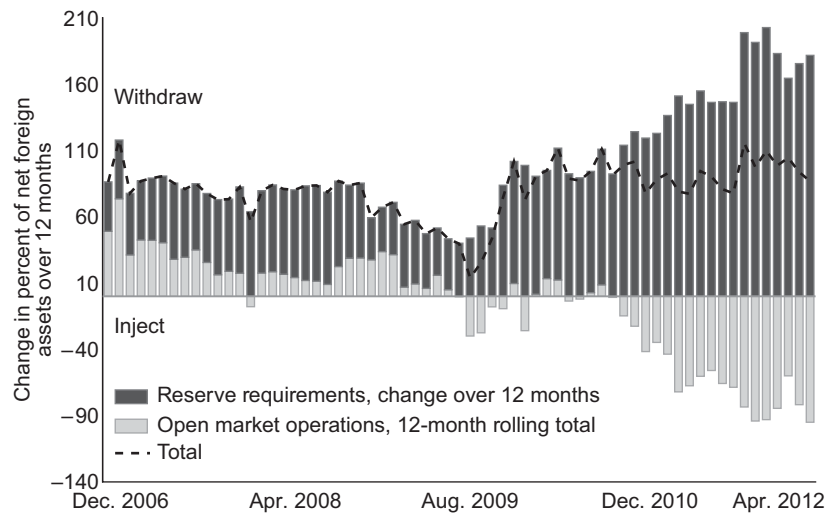Sources: CEIC Data Company Ltd.; and IMF staff estimates.

Figure 13.2 People's Bank of China's Sterilization of Foreign Exchange

Sources: CEIC Data Company Ltd.; and IMF staff estimates.

However, China's financial landscape has changed dramatically in the wake of the massive credit stimulus that was used to counter the effects of the 2008–09 global financial crisis. Credit was first unleashed through banks, placing pressure on their balance sheets and contributing to a rapid run-up in property prices. Since the crisis, more and more credit has been intermediated outside the banking

system, through channels that are harder to control and regulate under existing frameworks. In the absence of reforms, the attendant risks for macroeconomic and financial stability will continue to grow.

So what does this all mean? Because it is the world's second largest economy, a safe, stable, well-regulated, and efficient system of financial intermediation in China is in everyone's best interests. Since the onset of the global crisis, we have learned all too well of the enormous global social costs that financial instability in systemic economies can create.

Moreover, sustaining China's spectacular growth record will be impossible without a modern financial system that efficiently intermediates savings and allocates capital. Financial reform will be necessary to achieve many of the key themes identified in the 12th Five-Year Plan, including (1) *boosting household income*, by increasing the returns to savings; (2) *increasing consumption*, through prudently managed household credit as well as instruments that smooth consumption and hedge risk; (3) *reducing income disparities*, through better access to financial services, including in rural areas; (4) *increasing employment*, through a more appropriate pricing of capital and a move toward a more labor-intensive means of production (Figure 13.3); and (5) *supporting the development of new industries*, by reallocating resources on market terms and making more financing available to small and medium enterprises and start-ups, including in the services sector.

It is also worth bearing in mind that China is, in any case, outgrowing its current system of direct government influence over the allocation and pricing of credit. Certainly, this managed approach allowed for strong growth following the start of China's reform efforts, in part because sectors with high growth potential were easier to identify. However, the system was not perfect, and generated
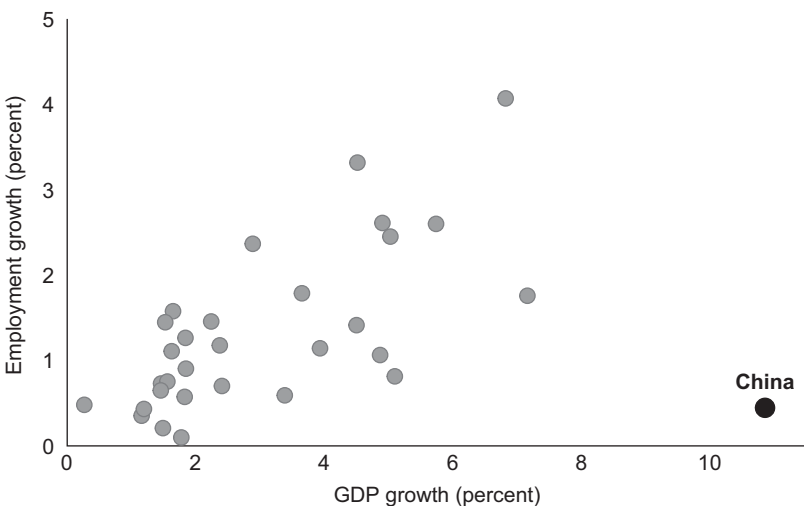
Figure 13.3 Average Employment Growth, 2004–10, Industrial Countries and Emerging Markets
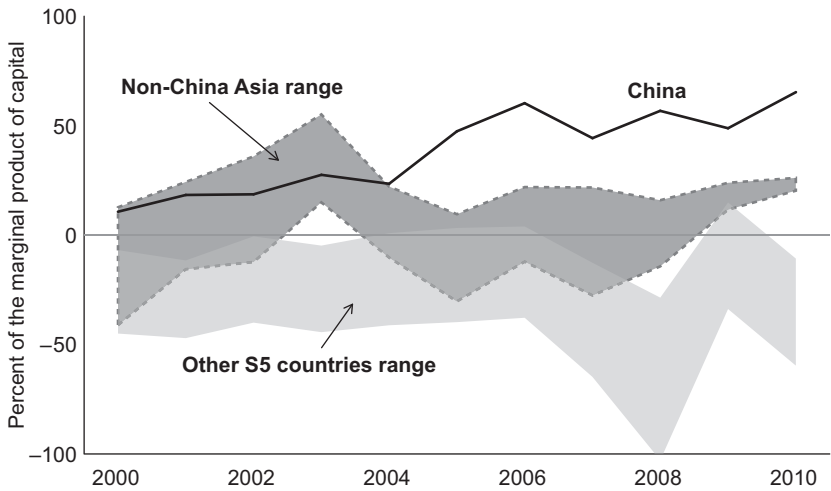
Sources: IMF (2011).

Figure 13.4 Imputed Subsidy to Capital

Source: IMF (2011).

Note: Non-China Asia = Indonesia, the Republic of Korea, Singapore, and Taiwan Province of China. Other S5 = Euro area, Japan, UK, U.S.

significant downsides in the form of overcapacity, a capital-intensive means of production (Figure 13.4), a tendency for asset bubbles (Figure 13.5), and a periodic need for public-funded bank recapitalizations. With the Chinese economy growing in size and complexity, the ability to productively steer credit directly is diminishing and the costs of misallocating resources are growing.

The rest of this chapter is organized as follows: The next two sections lay out the case for financial reform in China by highlighting the potential benefits of action and the growing risks from inaction, respectively. The subsequent section analyzes the experience of a number of China's G20 peers, with a focus on identifying lessons for the composition and sequencing of reforms that would help ensure that the full benefits of financial liberalization are realized and costs minimized. Applying these lessons to China's specific context, the penultimate section develops a broad road map for financial reform in China that could be implemented in the medium term.

THE BENEFITS OF REFORM

What could China gain from financial reform? First, a well-executed financial reform program will allow the Chinese economy to adapt steadily to the ongoing, worldwide evolution in financial intermediation and to maximize the benefits from an increasingly diverse set of financial markets and instruments. Developing credible competition for the banks—in the form of corporate bond markets, deeper and more liquid equity markets, mutual funds, exchange-traded funds, derivatives, and other financial products—will create incentives for the whole
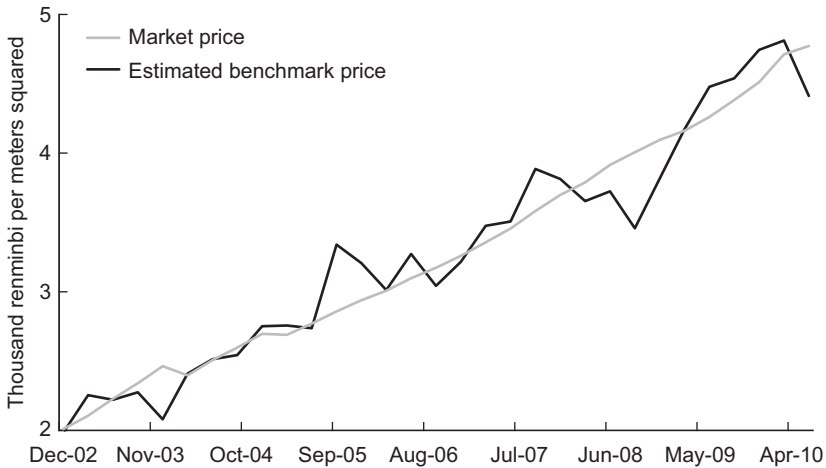
©International Monetary Fund. Not for Redistribution

Figure 13.5 China: Residential Housing Prices, 2002–09

Sources: IMF (2010).

financial system to operate in a more effective and productive manner. Capital will be allocated more efficiently, and companies—particularly smaller enterprises—that are currently denied access to bank loans will have new options for financing their operations.[1]

Second, well-designed reform, accompanied by a robust regulatory infrastructure that spans all forms of financial intermediation and guarantees seamless coordination across regulators, will help ensure that the financial system continues to develop in a robust way without excessive risk taking, lowering the possibility of future financial volatility and disruption.

Third, making a broader range of alternative investment instruments available to households will increase the return on their savings,[2] allow households and corporate savers to hold more diversified portfolios of assets, and reduce the tensions that are currently evident from having housing viewed as a preferred store of value (Figure 13.6).

And finally, financial reform will facilitate China's move toward a more modern means of macroeconomic control, one that deploys market-clearing prices to determine the availability and cost of credit rather than having both the price and quantity of loans regulated by the government. This move will strengthen the monetary transmission mechanism and give the central bank greater ability to fine-tune policy in response to changing economic conditions (Feyzioglu, Porter, and Takats, 2009).

These benefits are well known to China's policymakers and were highlighted in the 12th Five-Year Plan, which included a clear commitment to moving ahead

---

[1] See Chapter 3 in this volume and Feyzioglu (2009).
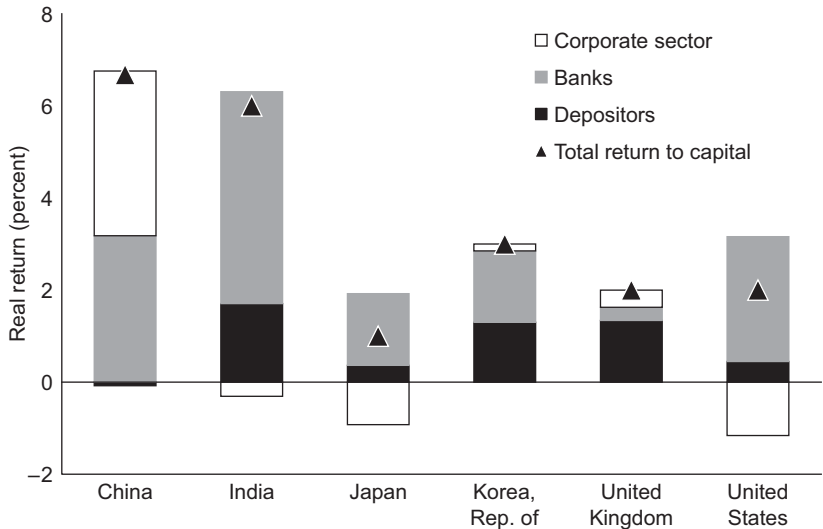
[2] See Chapter 5.

Figure 13.6 Distribution of Returns to Bank-Intermediated Capital
Source: Chapter 3 of this volume.

with the reform of China's financial system, as well as recent policy intentions announced by the incoming leadership.

THE RISKS OF INACTION

If China does not implement reforms, what could go wrong? China has long been characterized by a very deep financial system but one that has relied predominantly on banks to intermediate enormous levels of household and corporate savings. However, this bank-dominated structure is now changing. Since the global financial crisis, China has experienced an acceleration in the pace of financial innovation; an expansion of new ways to intermediate savings; and a migration of resources out of the banks and into other forms of financial intermediation, such as trusts, wealth management products, and corporate bonds (Figure 13.7).

The diversification and development of financial markets and instruments is generally good (Figure 13.8), facilitating a more efficient means of allocating China's capital, opening up financing opportunities for companies that previously were unable to get bank loans, and increasing the level of remuneration that households receive on their savings.

However, these changes also pose risks to financial and macroeconomic stability. Regulation of the nonbank system of intermediation is weaker and less well developed than that for banks. Care is also needed to ensure that banks are healthy enough to withstand a steady loss of resources implied by a growing nonbank system. Evidence is already appearing of growing liquidity pressures on

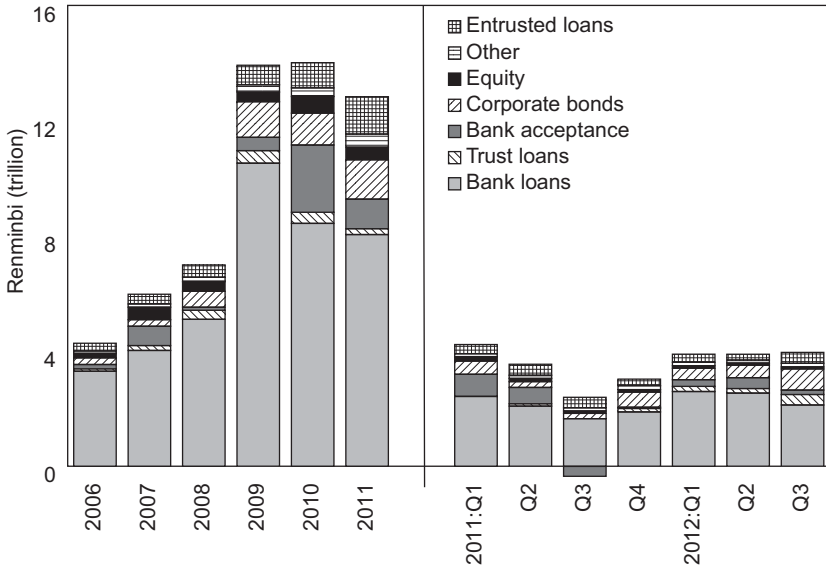**Figure 13.7** Social Financing *(broad measure of credit in China)*

Source: CEIC Data Company Ltd.; and IMF staff estimates.
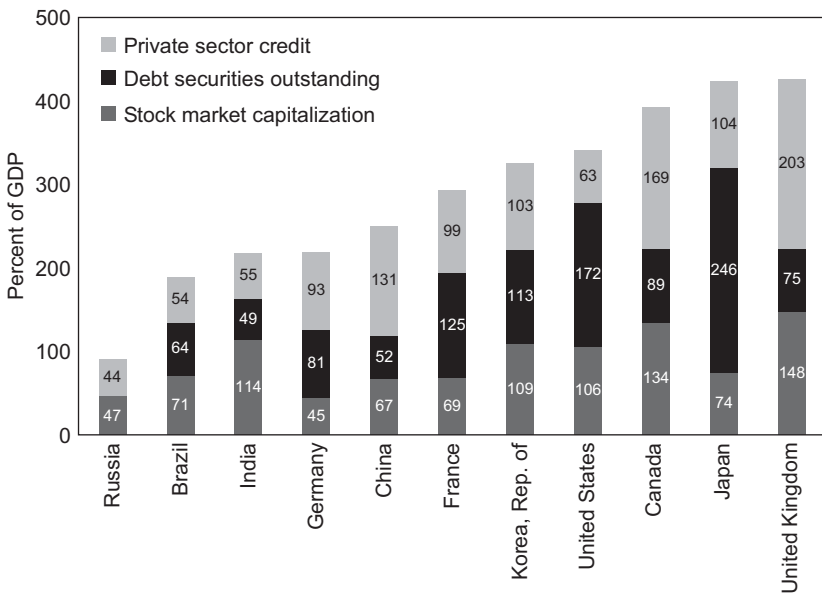

Figure 13.8 Credit Intermediation, 2010

Source: CEIC Data Company Ltd; and IMF staff estimates.

smaller banks in China. In addition, the underlying system of macroeconomic control needs to evolve with the times. In particular, the current regulation of interest rates distorts the pricing of deposits and creates huge incentives for resources to migrate out of the banks to institutions that are not subject to such controls on the rates of return they offer. Why put your money in a bank deposit that earns less than inflation when you can choose from a convenient array of more lucrative wealth management products instead? Furthermore, international experience demonstrates that the use of administrative limits on the quantity of bank lending as a means to exercise macroeconomic control is likely to become less and less effective as financial innovation takes hold and more and more intermediation takes place outside of the banks.

Therefore, financial reform is essential to sustaining the ability of China's policymakers to effectively guide the macroeconomy, ensure that the expansion of nonbank channels proceeds safely and soundly, and prevent the banking system from being undermined by a loss of deposits and funding.

REAPING THE BENEFITS AND AVOIDING THE PITFALLS: LESSONS FROM INTERNATIONAL EXPERIENCE

A number of China's G20 peers have reformed their financial sectors, and their experiences provide important lessons. As in China, their pre-reform financial sector landscapes were often characterized by a heavy bias toward bank intermediation, rigid segmentation across financial institutions by function, low levels of competition, regulated interest rates, a large public sector role (including directed lending and state guarantees of financial institutions), the conduct of monetary policy mainly through direct instruments, and capital controls. In addition, countries embarking on financial liberalization have encountered several challenges, and their reform efforts have often led to periods of financial volatility and crisis (see Annex 13A for a summary of the major steps and mistakes made by other G20 economies as they moved toward a more modern and market-based financial system). From international experience, a few broad lessons stand out:

1. *Financial sector weaknesses should be sought out and addressed before liberalization begins*, including ensuring institutions have the ability to adequately price and manage risks; recapitalizing or restructuring systemically important institutions; and enhancing corporate governance. Unaddressed weaknesses create the potential for financial institutions to take greater risks to boost returns and cover up their underlying vulnerabilities. These vulnerabilities will then grow as financial reform proceeds, potentially culminating in weaknesses in systemically important institutions.

2. *The macroeconomic policy framework should move toward market-based monetary policy at an early stage, and should be based on indirect instruments and include increased exchange rate flexibility.* Before financial reform proceeds, the monetary authority needs to have at its disposal sufficient macroeco-

nomic control tools to prevent an unintended surge in lending or creation of the conditions for large capital inflows.

3. *Implicit public guarantees of financial institutions should be explicitly withdrawn during the early stages of liberalization.* Blanket backing should be replaced with an explicit scheme for deposit insurance. Ensuring that banks face hard budget constraints would be an important prerequisite for a more commercially oriented banking system that adequately prices risk and efficiently allocates credit. Hard constraints also help mitigate moral hazard risks and prevent banks from taking undue risks as restrictions on bank activities are eased and new markets are opened.

4. *The financial, legal, and accounting framework should be revised before embarking on major reforms, in particular with regard to regulatory and supervisory frameworks.* The major prerequisites include (1) clear objectives and mandates for the responsible agencies; (2) regulatory independence, with appropriate accountability; (3) adequate resources (staff and funding); and (4) effective enforcement and resolution powers.

5. *The regulatory and supervisory perimeter needs to be sufficiently wide and well coordinated to prevent regulatory arbitrage and identify emerging vulnerabilities.* Virtually all postliberalization crises can be traced to inadequate supervision or to regulations not keeping up with changing financial landscapes. All potentially systemically important financial institutions, including nonbank financial institutions, need to be within the perimeter before restrictions on financial activities are significantly relaxed and new markets developed. The regulatory and supervisory framework should be empowered to limit concentration in bank ownership and require clear identification of beneficial owners (to mitigate the risks of connected lending). Activities in nonbank financial institutions in particular should be monitored closely; these institutions should be prohibited from taking deposits.

6. *Measures to deepen financial and capital markets should move in parallel with reform of the banking system.* Financial market development is important to improving the allocation of capital and to creating competition. However, lopsided sequencing can have significant effects on bank balance sheets by undermining banks' deposit base or by eroding their pool of corporate clients. Loss of deposits and clients, in turn, can lead banks to increase risk exposures.

7. *Many of the important objectives of financial sector reform—including greater competition and efficiency, and enhanced risk management—depend on having market-determined deposit and loan rates.* Interest rate liberalization facilitates the development of a market-based monetary policy framework that is based on indirect instruments and has an effective transmission mechanism. Interest rate liberalization provides increased scope for macroeconomic control to mitigate the risks of instability as reforms proceed. Other goals, such as enhanced competition, allocative efficiency, and

stronger risk management, all rely on allowing prices (interest rates) to provide the right market-based signals.

8. *But successful liberalization of interest rates has several preconditions.* These preconditions include a stable macroeconomic environment, an absorption of excess liquidity, an interest rate structure that is not in serious disequilibrium before liberalization, an active and well-functioning money market, and a sound payments system. Strong supervision policies and instruments and a flexible and effective monetary policy framework are also required. In particular, monetary policy needs to guard against the development of an excess supply of credit as interest rate constraints are removed. In successful cases of liberalization (such as Australia, Belgium, and Canada), credit expansion was reined in by a deliberate containment of liquidity and increases in real interest rates (Figures 13.9 and 13.10). Conversely, other countries—such as Argentina, Chile, and Mexico—lost control of monetary aggregates as they liberalized, injecting enormous amounts of credit and monetary stimulus into their economies that culminated in asset bubbles and banking crises.

9. *Opening to international portfolio flows should occur only after the bulk of financial sector reform has been achieved.* The current scale of global capital flows and the increasing sophistication and interconnectedness of the world's financial markets create large risks for those economies that open themselves up to international capital flows before the distortions
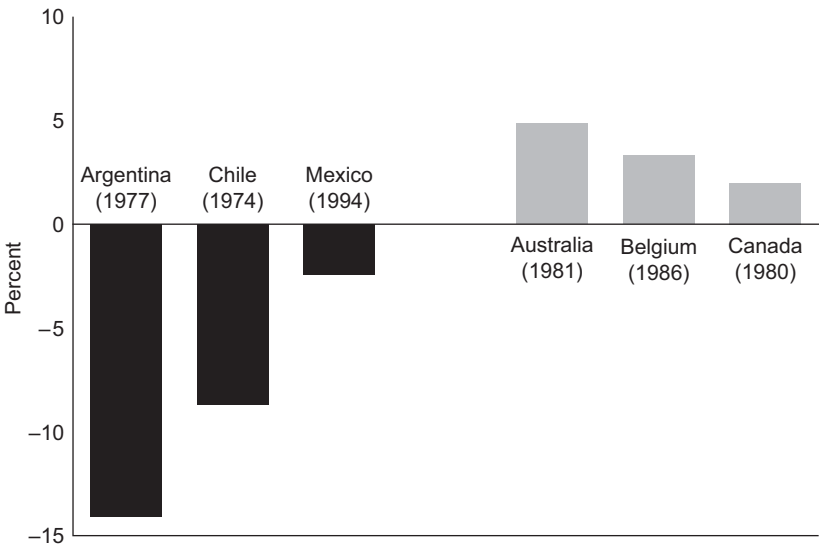
Figure 13.9 Real Interest Rates Following Interest Rate Liberalization *(three-year average)*

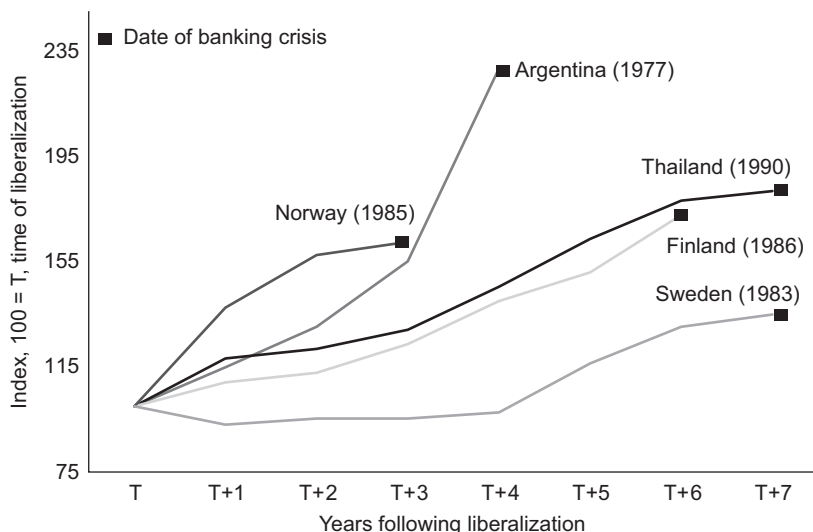Source: CEIC Data Company Ltd.; and IMF staff estimates.

Figure 13.10 Private Credit Growth Following Interest Rate Liberalization

Source: CEIC Data Company Ltd.; and IMF staff estimates.

and misalignments in their domestic financial systems are resolved. The early stages of capital account liberalization can open up to stable long-term sources of financing, such as direct investment inflows. However, full liberalization—including for short-term portfolio flows—should be put in place only after the bulk of financial sector reform has taken hold.

DESIGNING A ROAD MAP FOR CHINA

There is certainly no "one size fits all" approach to sequencing financial sector liberalization, especially in an economy as sophisticated and complex as China's. In many cases, the appropriate pace and sequencing of reforms will involve multiple trade-offs, and judgment must be exercised in a dynamic manner as the financial system evolves in potentially unpredictable ways when reforms are implemented. As the situation for many comparator countries demonstrates, the agenda for financial reform is a complex, multiyear undertaking. However, starting now will ensure that this process can be largely completed within a three-to-five-year horizon. A broad road map for reform should include adopting a new monetary policy framework; raising real interest rates; strengthening and expanding regulatory coverage of the financial system, including putting in place a broad set of tools for crisis management; developing financial markets and alternative means of intermediation; deregulating interest rates; and, eventually, opening up the capital account (Table 13.1).

TABLE 13.1

China: A Roadmap for Financial Reforms				
			SEQUENCE	
RECOMMENDATION	**IMPLEMENTATION CONSIDERATIONS**	**STAGE I**	**STAGE II**	**STAGE III**
Deepening commercialization and market orientation of financial system				
Absorb liquidity	To move to a "true" market clearing for capital and prevent excess liquidity from leading to rapid credit growth during reform process.			
Conduct open market operations, placing PBC bills at market-determined prices.		→		
Steadily increase entire structure of deposit and loan rates.		→		
Reform monetary control instruments	To increase scope for macroeconomic control to mitigate risks of instability during reform process and pave way for greater role for markets in setting interest rates and determining pace of credit growth.			
Greater exchange rate flexibility.			→	
Greater reliance on indirect instruments, focused on market rate, while narrowing corridor on interbank rates.			→	
Introduce reserve averaging to decrease interest rate volatility.		→		
Remunerate reserves at market-determined rate.		→		
Ensure open market operations are conducted in market-based way, with quantities determined by market-clearing equilibrium associated with given target for interest rates.		→		
Phase out direct government influence on pace of growth, allocation, and pricing of credit.		→		
Move monetary framework away from targets for monetary aggregate growth and toward well-specified policy objective (e.g., inflation and activity).	Need to build technical capacity for design and implementation of framework.		→	
Liberalize interest rates (for parallel construction with other recommendations)	To increase efficiency of credit allocation, while paving the way for improved competition and risk management in the banking sector and providing a benchmark for pricing other financial products and services.			
Raise (and eventually eliminate) ceiling on deposit rates.	Could commence with deposit rate deregulation to minimize risk of excessive competition for market share and damaging undercutting of interest margins. Begin with longer-term deposits and then expand to demand deposits.			→

(Continued)

TABLE 13.1 (*Continued*)

China: A Roadmap for Financial Reforms				
			SEQUENCE	
RECOMMENDATION	IMPLEMENTATION CONSIDERATIONS	STAGE I	STAGE II	STAGE III
	Preconditions: Strengthen risk management of banks. Strengthen supervision to ensure banks do not compress margins excessively and thereby erode their profitability and capital base. Ensure monetary policy is sufficiently flexible (through liquidity absorption and application of macroprudential restraints) to prevent risk of burst in credit growth.			
Developing a modern financial infrastructure				
Create an environment for promoting the commercial orientation of banks and other financial firms	To improve credit allocation and strengthen transmission of monetary policy.			
Strengthen smaller banks and commercialize large state-owned banks.		⟶		
Change governance structure at state-owned banks to delink local banks from local governments.		⟶		
Ensure free entry and level playing field in banking system, including for foreigners.		⟶		
Promote the development of financial markets	To build out alternatives to bank-based intermediation. *Preconditions:* Strengthen consumer protection and improve availability and reliability of market and financial institution data			
Corporate bond market	*Main issues:* Removing segmentation, streamlining issuance rates, rates being more market-determined.		⟶	
Equity market	*Main issues:* Increasing liquidity, making all shares tradable, allowing more domestic and foreign companies to list on Chinese and international markets, broadening shareholder base.		⟶	
Currency market and derivatives	*Main issues:* Providing nonbanks access to interbank derivatives market to increase competition in retail hedging market.		⟶	
Mutual funds and broader institutional investor base			⟶	

(*Continued*)

TABLE 13.1 (Continued)

China: A Roadmap for Financial Reforms			SEQUENCE	
RECOMMENDATION	IMPLEMENTATION CONSIDERATIONS	STAGE I	STAGE II	STAGE III
Expand range of commercially available insurance products, including life, health, and annuities and private pension plans.			→	
Expand use and availability of financial products, including lending and deposit products.	*Precondition:* Priced off benchmark RMB yield curve set by market.		→	
Consider securitization and other "trust" products.	*Precondition:* Subject to strict regulation and transparency.			
Strengthen supervisory, regulatory, and crisis management frameworks Integrating with the global financial system.	To ensure risks are contained as reforms advance.		———→	
Liberalize external account				
Ease restrictions on capital outflows.	To provide broader range of international assets to Chinese investors.		——————→	
Move existing controls from quantity- to price-based regulations.			——————→	
Expand Qualified Domestic Institutional Investor program, followed by more broad-based removal of restrictions.			——————→	
Take further steps to internationalize RMB.	Respond to market demands.		——————→	
Liberalize inflows.				→
Gradual expansion of Qualified Foreign Institutional Investor program until quotas no longer binding.	Open first to foreign direct investment, then longer-term fixed income products. Open up to inflows into most-liquid primary markets before secondary markets. Allow inflows of RMB before foreign exchange inflows. At final stage, expand to secondary markets for equities and short-term debt.			→
Promote foreign and cross-border competition Remove tax and regulatory barriers for foreign financial institutions to participate in domestic markets, and for domestic institutions to go out.	*Precondition:* Subject to appropriate supervision and risk management.		——————→	

Source: IMF staff estimates.

A New Framework for Monetary Policy

Financial reform should involve a reinvention of the current framework to move away from the current system's reliance on controls on deposit rates, the exchange rate, and the quantity of credit to one in which the central bank has

clear objectives for growth, inflation, and financial stability. In addition, the PBC should be given flexibility and control over the macroprudential and monetary tools that will be needed to achieve these goals.

As a first step, the high levels of liquidity currently residing in the financial system would need to be absorbed. Judging the extent of this liquidity absorption, however, will be complicated by the lack of reliable price signals and the fact that the "true" level of liquidity in the system is masked by the lack of fully market-determined interest rates, the presence of direct controls on credit, and administrative determination of both the price and quantity of central bank paper issued. Nevertheless, as a first step, open market operations should be deployed to absorb the liquidity overhang by placing central bank paper at market-determined rates and moving the structure of deposit and loan rates closer to the neutral real interest rate.

At the same time, the ongoing liquidity injection that is created by large-scale foreign currency intervention will need to be decreased by appreciating the exchange rate to the point at which the currency market is more balanced and there are genuine two-way flows in the balance of payments and two-way movements in the exchange rate (Figure 13.11). This would lessen the need for monetary tools—including reserve requirements and open market operations—to be so geared toward sterilizing foreign currency inflows and managing the currency. Instead, policies could be reoriented toward a more market-based and countercyclical approach focused on the domestic economy.

With liquidity absorbed and interest rates clearing the capital market, the central bank can then shift toward the use of more indirect monetary instruments to exercise macroeconomic control. The central bank can begin using short-term
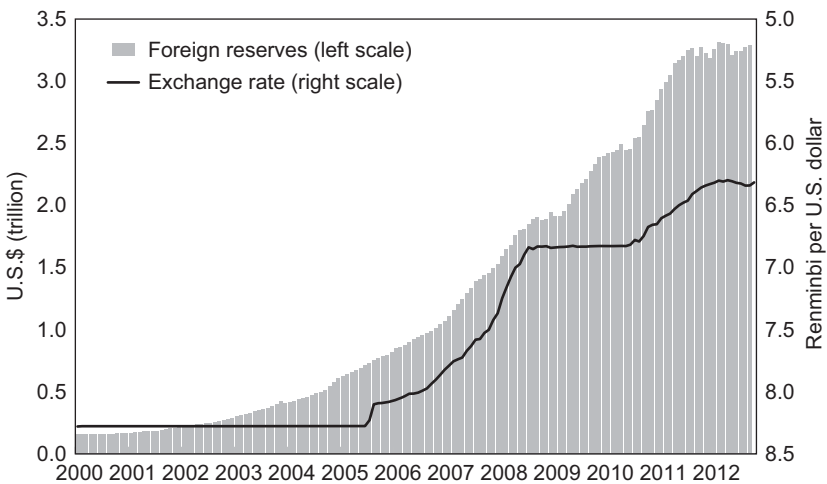

Figure 13.11 China: Exchange Rate and Foreign Reserves

Source: CEIC Data Company Ltd.; and IMF staff estimates.

rates—perhaps the seven-day repo rate—as its effective operational target for monetary policy and phase out direct influence on the growth, allocation, and pricing of credit. The PBC would be able to effectively influence short-term rates through open market operations and could conduct daily open market operations using quantities determined by achieving market-clearing at a given target level for the policy interest rate. Reserve averaging could be introduced to decrease interest rate volatility, and reserve requirements could be remunerated at a market-determined rate.

Because financial innovation and development makes money demand unstable, targeting M2 would no longer be a feasible proposition and a new framework for the conduct of monetary policy would be needed. In particular, the PBC could move toward a monetary policy regime that has objectives for growth, inflation, and financial stability that are achieved through a combination of interest rates and macroprudential tools.

Improving Regulation and Supervision

As the system evolves, the government will need to be nimble in adapting to the changing environment by increasing the commercial orientation of the banking system, bolstering its crisis management capabilities, and strengthening supervisory efforts to identify and manage macrofinancial vulnerabilities.

Further advances in the regulatory and supervisory regime will be needed to ensure it is sufficiently adaptable and dynamic to react in a new environment of tighter liquidity, indirect monetary control, and, eventually, liberalized interest rates. In a more liberalized environment, strict supervision will be needed to prevent banks or nonbank institutions from engaging in unsafe practices to boost profitability or gain market share. Particular attention will be needed to address the supervisory and regulatory gaps that will inevitably emerge in a more dynamic and liberalized setting. To this end, investments should be made to improve stress-testing capabilities; increase oversight for the largest financial institutions; overhaul the crisis management and resolution framework; build a process for the orderly exit of weak or failing financial institutions; develop clear rules on central bank emergency liquidity support; put in place a formal deposit insurance scheme; and pursue better data quality and collection. Interagency regulatory and supervisory coordination will also need to become more ongoing and systematic, identifying and resolving regulatory gaps. A key step will be to establish a permanent, high-level, interagency financial stability committee that would monitor and identify macrofinancial vulnerabilities and implement a macroprudential framework geared toward preventing the buildup of systemic risks.

Developing Broader Channels for Intermediation

Strengthening nonbank financial intermediation will be an important objective of financial reform. Nonbank institutions will compete with the banking system, offer companies alternate avenues for project financing, and provide households

with a broader range of financing and investment possibilities. Expansion of nonbank areas of intermediation will, however, need to move largely in tandem with reform of bank-based intermediation. Failure of these developments to occur on parallel tracks could create incentives for a faster migration of resources out of the banks (into bonds, equities, trusts, leasing, and wealth management products), creating accompanying supervisory and regulatory challenges and the potential for destabilizing the banking system.

The focus should be on dismantling impediments to the development of alternate markets and instruments but with corresponding clarity about the regulations and responsibilities of those new institutions. Priorities include reducing segmentation, increasing liquidity, and simplifying regulatory requirements in equity and bond markets. In addition, efforts should be made to encourage a broad institutional investor base—including pension, insurance, and mutual fund companies.

In conjunction with developing a wider range of investment products, enhanced regulation and supervision will help ensure that risks to financial stability are well managed. In addition, a comprehensive framework for disclosure and consumer protection will be needed to ensure investors are fully aware of the risks they undertake when diversifying their assets away from bank deposits. For prudential reasons, precedence should be given to gaining experience with straightforward instruments before allowing more sophisticated ones, such as securitized and trust products.

Liberalizing Loan and Deposit Rates

With a robust monetary framework in place, and with interest rates rising to clear the capital market, the next step will be for the central bank to move away from the regulation of loan and deposit rates (Figure 13.12). The preferred strategy would be to gradually lift the ceiling on deposit rates, allowing them to be determined by banks on a competitive basis. Competitive determination would facilitate an increase in the cost of funding and a move toward a corresponding increase in loan rates. The ceiling could be lifted in stages based on the term of the deposits, to allow banks time to adjust.

With interest rates liberalized, financial institutions should be held accountable for managing their risks. In particular, regulated firms that are deemed by their supervisor to be well capitalized and well managed could be granted more discretion and held accountable for conducting their operations prudently and in compliance with the regulatory framework. Similarly, customers of financial products could assume greater responsibility for their own financial decisions, complemented by adequate consumer protection, disclosure, and improved financial literacy.

It will be essential to ensure, as this transition proceeds, that it does not translate into an unintended loosening of monetary and credit conditions. Knowing when to rein in monetary and credit conditions will be complicated by the
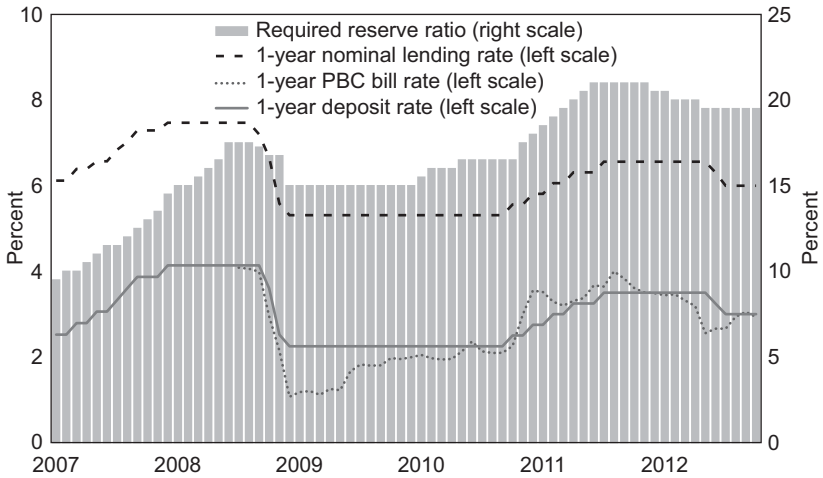
Figure 13.12 China: Short-Term Interest Rates, 2007–12

Source: IMF staff estimates.
Note: PBC = People's Bank of China.

increased difficulty, resulting from the ongoing financial reform and liberalization, of predicting the appropriate pace of monetary growth. Nevertheless, monetary policy would need to be attentive and used actively to counter the potentially unpredictable impact of interest rate liberalization on liquidity, credit growth, and monetary conditions.

The process will need to be carefully managed—through both the use of monetary policy tools to adapt liquidity conditions and the application of macroprudential restraints—to counter any surge in credit growth as interest rates become more market determined. Particular attention will need to be paid to ensuring credit does not expand at a precipitous rate either in the aggregate or to particular sectors (for example, to real estate or consumer credit). As interest rates are deregulated, regulatory and supervisory tools must be used to their fullest to ensure that the banks do not engage in overly aggressive competition or unsafe practices to attract deposits, expand lending, or compress margins to gain market share.

Greater freedom to set loan and deposit rates will create incentives for the banks to manage and price risk better and will make money market interest rates more representative of true financial conditions. At the same time, a more market-determined system of interest rates will provide valuable price signals for macroeconomic policymaking and will strengthen the transmission mechanism for monetary policy.

Opening Up the Capital Account

As the domestic financial system becomes more market based with fewer distortions in the determination of market-clearing levels of credit and interest rates,

China can then proceed to dismantle its extensive system of controls on capital flows.

The early stages of capital account liberalization should focus on removing restrictions on more stable, long-term sources of financing such as direct investment flows (as is already being done). As the reform process advances—with market-determined interest rates, a robust monetary policy and regulatory framework in place, a flexible currency, banks operating prudently, and the domestic financial system liberalized—the stage would be set to ease restrictions on short-term inflows. As restrictions are eased, the current qualified foreign institutional investor and qualified domestic institutional investor system could be effectively used to open up the account in stages and at a different pace for different forms of investments.

CONCLUSION

The motivation for financial reform in China is clear. Before the global crisis, China was on a firm trajectory toward a more modern financial system capable of addressing the challenges of a more mature and complex economy. However, when financial systems across the globe suffered severe setbacks, Chinese policymakers naturally paused. But in the medium term, China needs to regain and maintain the pace of change.

Thus, it is encouraging to note the prominent role assigned to financial reforms in the 12th Five-Year Plan and by the new Chinese leadership. Indeed, the road map laid out above can be completed over a three-to-five-year horizon. Well-executed financial liberalization is the next big wave of reform that China needs. It could be as significant as the state-owned enterprise reform of the 1990s, laying the foundations for continued strong growth in China in the coming decades.

This chapter outlines a broad road map that encompasses both the key elements and the sequencing of the required financial reform effort. Continuing to defer progress in this area heightens the risk that the financial system will evolve in an uncoordinated and disorderly fashion, outpacing supervisory capabilities and revealing regulatory gaps.

The likelihood is high that developments may already be proceeding on a timetable that is being driven not by careful, preemptive, and concerted policy planning but rather in an ad hoc way, propelled by the accelerating pace of market disintermediation and innovation. Such a trajectory is in the interests of neither China nor the rest of the world.

ANNEX 13A. FINANCIAL REFORMS: LESSONS FROM COUNTRY EXPERIENCES

Initial Conditions	Sequencing	Outcomes	Path to Crisis
INDONESIA (1982–96)			
Financial sector reforms were part of a broad effort to diversify the economy and expand the role of the private sector.	**Phase I (1982–86):** Indirect monetary policy instruments were introduced, interest rates were liberalized, and credit ceilings were phased out.	During the early stages of reform, real interest rates moved higher to market-clearing levels, and the more efficient private banks began to build market share.	As the capital account became more open, domestic imbalances in the financial system combined with a tightly managed exchange rate gave rise to a surge in speculative capital inflows. Domestic banks borrowed heavily offshore in foreign currency to fund rapid growth in local currency loans. Regulatory efforts to dissuade such carry trades were largely too little and too late.
Financial sector was dominated by five large state-owned banks, government-directed lending was prevalent, interest rates were regulated (and typically negative in real terms), and the growth in bank credit was subject to administrative ceilings.	**Phase II (1987–92):** Restrictions on the activities of banks were loosened, directed lending was reduced, and there was greater latitude in the operations of foreign banks. Reserve requirements were equalized across the banking industry, removing a source of preferential treatment for the state banks. Prudential regulation and supervision were enhanced. Capital account liberalization began in 1989, with controls on portfolio and bank capital inflows steadily eased.	Macroeconomic policies were kept restrictive, particularly with fiscal policy steadily tightening. However, vulnerabilities began to build up in the second phase of reforms during 1987–92, but these risks were left largely undiagnosed. In large part these were due to weak corporate governance, inadequate regulation and supervision, and a macroeconomic policy mix that encouraged large speculative capital inflows.	As the Asian financial crisis unfolded in 1997, the weaknesses in the Indonesian financial sector—including currency and maturity mismatches—were exposed, putting strains on corporate and bank balance sheets and, eventually, ending in a full-blown systemic banking crisis.
On the capital account, outflows had been mostly liberalized, but inflows were subject to strict controls.		Despite increasing competition, bank ownership remained highly concentrated and large private banks, which were subsidiaries of politically powerful business conglomerates, were able to use their influence to circumvent regulatory limits	

related to connected lending. Large parts of the financial sector (and their largest corporate borrowers) were perceived to be covered by implicit public guarantees, a perception that had been strengthened by a succession of opaque bailouts. There was an absence of a clear framework to resolve failing institutions and banks had few incentives to manage downside risks. Overcapacity in the financial sector grew over a number of years, spurring excessive lending to relatively unproductive sectors, including real estate.

JAPAN (1975–90)

Pre-reform financial sector landscape was dominated by banks with limited options for savers, low regulated interest rates, and strict limits on bond issuance. The financial sector was also characterized by rigid segmentation of financial institutions by function.	**The capital account was liberalized early in the process.** In the 1980 Foreign Exchange Control Act, corporate borrowers were given greatly expanded opportunities to raise funds overseas.	The lopsided pace of liberalization caused the banks to quickly lose many of their best borrowers, while savers had few choices but to remain in bank deposits. As a result, many large and medium enterprises reduced their dependence on bank financing and increased their funding from bond and equity markets, where nonbank financial institutions were large investors.	In the early 1990s, Japan's real estate bubble burst, and the resulting decline in property prices, equity prices, and economic growth exposed the underlying vulnerabilities on bank balance sheets.
Discretionary administrative guidance was the principal method of financial regulation, with "convoy regulation" aimed at ensuring financial institutions evolved at the same pace, implicitly inhibiting competition. As financial liberalization began, Japan did, however, have a largely open capital account.	**Liberalization was asymmetric.** Corporate borrowers were provided access to a broader range of funding alternatives before savers were given choices in investment instruments. A number of new markets grew, including a commercial paper and corporate bond market, but retail investors were given only limited access.	During 1980–90, the ratio of bank debt to total assets for large, publicly listed manufacturing firms dropped by almost 20 percentage points (to less than 15 percent). However, household deposits continued to rise because barriers to entry into the investment trust business remained high and banks were not permitted to market investment management services. The loss of corporate clients and banks' efforts to continue to build market share led them to expand their exposure to the property market and to smaller firms.	The deceleration of economic growth impaired the capacity of small businesses to repay, nonperforming real estate loans skyrocketed as collateral values plummeted, and the fall in equity prices shrank bank capital. The banking system became mired in a collapse from which it has yet to fully recover.

Chalk and Syed

(*Continued*)

ANNEX 13A. (*Continued*)

Initial Conditions	Sequencing	Outcomes	Path to Crisis
		JAPAN (1975–90)	
	Deposit rate liberalization proceeded slowly and at a slower pace than lending rates. Indeed, it took until 1994 for deposit rates to be fully market determined.	Lending decisions became heavily influenced by collateral values (rather than a notion of capacity to repay), credit standards weakened, and between 1980 and 1990, loans to the real estate industry doubled. Much of the remainder of the banks' loan book was devoted to small firms, with correspondingly higher credit risks.	
		KOREA (1980–96)	
Financial sector was largely state owned, highly regulated, and used as an allocation tool by the government to advance its economic development agenda. Monetary policy was conducted using interest rate and credit ceilings as well as reserve requirements.	**Early reforms included bank privatization and measures to increase financial competition,** although the banking sector emerged from the privatization process with ownership concentrated among large industrial conglomerates. Nonbank institutions developed, albeit increasingly owned and controlled by these industry groups.	In 1994, the ceiling on foreign currency lending by domestic banks was eliminated but limits on banks' medium- and long-term borrowing from international markets were retained.	Between 1994 and 1997, banks rapidly built up huge maturity mismatches on their balance sheets, and the financial sector became exposed to economically unviable projects through a complex network of cross-holdings within industrial groups and connected lending.
The government guided resources to its preferred sectors by a combination of directed credit and preferential lending rates. The capital account was largely closed.	**Progress was also made in developing money and interbank markets,** an important precursor for a move to a more indirect monetary policy, and the government somewhat scaled back its efforts to direct credit.	As a result, Korean banks began to finance their domestic long-term foreign currency lending with short-term foreign currency loans.	By 1997, banks and nonbank institutions found it increasingly difficult to roll over their external short-term funding, leading to an exhaustion of official reserves and an all-out balance of payments crisis.
	Regulatory standards for loan classification, provisioning, accounting, and large exposures saw little improvement, while supervision remained fragmented.	At the same time, there were large gaps in the prudential regulations relating to foreign exchange exposures in overseas branches and offshore funds, which accounted for a significant buildup in short-term external liabilities.	
	Restrictions on capital inflows began to be weakened in 1989, largely by allowing financial institutions to borrow offshore.		

MEXICO (1988–93)			
In the late 1980s, to combat high inflation and low growth, Mexico undertook a broad set of reforms to increase the role of markets in various aspects of the economy.	Mexico pursued a rapid pace of financial reform that was contemporaneous with a broad effort at macroeconomic stabilization and capital account liberalization.	Bank balance sheets grew rapidly both before and after privatization, as banks tried to capture market share in a newly liberalized market. In response, the authorities began to tighten prudential regulations between 1991 and 1993 by increasing minimum capital adequacy ratios to 8 percent from 6 percent; strengthening loan classification and provisioning rules; and imposing stricter limits on foreign exchange positions.	In the wake of liberalization, the newly privatized Mexican financial institutions began to increasingly fund their operations through over-the-counter structured notes that were linked to exchange rate developments.
The banking system was largely publicly held and segmented across sectors, interest rates were regulated, and supervision was generally weak.	**1989–90:** A big-bang program of sweeping reforms was introduced, including eliminating interest rate controls; replacing very high reserve requirements with liquidity ratios; removing restrictions on private sector lending; ending mandatory lending to the public sector; and removing sector segmentation (which allowed for the emergence of universal banks). **1991–92:** Eighteen domestic banks were privatized. Before the banks were sold, the government provided unlimited state-backed deposit insurance.	However, the new regulatory and supervisory framework was seriously deficient and concealed a range of increasing vulnerabilities, not least weaknesses in the Mexican accounting system. Banks were required to classify as nonperforming only that portion of the loan (or the interest payment) that was due but had not yet been repaid. Banks were also permitted to exercise significant discretion in the risk classification of their loans, which allowed them to inflate capital ratios. In addition, there was no consolidated accounting for universal banks, making it hard to judge risks at a group level. Domestic banks were able to circumvent prudential regulations designed to prevent currency mismatches while large interest rate differentials and the exchange rate peg provided strong incentives for carry trades.	Accounting rules allowed the banks to book these positions as claims that were not counted toward their net open foreign exchange position. The increasing bank exposures triggered a balance of payments and financial crisis in 1994, which was amplified by the balance sheet weaknesses that were hidden within the system.

Source: IMF (1999); and IMF staff research.

REFERENCES

Feyzioglu, T., 2009, "Does Good Financial Performance Mean Good Financial Intermediation in China?" IMF Working Paper 09/170 (Washington: International Monetary Fund).

———, Nathan Porter, and Elod Takats, 2009, "Interest Rate Liberalization in China," IMF Working Paper 09/171 (Washington: International Monetary Fund).

International Monetary Fund, 1999, *Sequencing Financial Sector Reforms: Country Experiences and Issues*" ed. by B. Johnston and V. Sundararajan (Washington: International Monetary Fund) .

———, 2010, "People's Republic of China: 2010 Article IV Consultation—Staff Report" IMF Country Report 10/238 (Washington).

———, 2011, "People's Republic of China: 2011 Article IV Consultation—Staff Report" IMF Country Report 11/192 (Washington).

Summation

MARKUS RODLAUER

The previous chapters of this book make the case for a new and decisive round of reforms in China to shift the economy toward more inclusive, services-oriented, consumer-based growth. They also lay out the key economic reforms that will secure this transition, based on new analysis in many areas as well as insights from the experiences of other economies in the region. As is evident from this analysis, there are multiple dimensions to rebalancing China's economy away from exports and state-led investment toward private consumption. To be sure, this transformation is already under way in many areas. For example, in recent years the tertiary share of employment has risen, and household consumption as a share of GDP has picked up slightly since 2010. Nonetheless, seeing this process through successfully is a challenge that has become more urgent and has rightly drawn the focused attention of the country's policymakers. To summarize, what are the key reforms to be accomplished in the years ahead?

FINANCIAL SECTOR REFORMS

The broad objective is to foster robust and inclusive economic growth, facilitate internal rebalancing, and safeguard financial stability by continuing the move to a more commercially oriented financial system and a market-based monetary policy framework. Because this transformation takes time along with some learning-by-doing, a renewed focus on early progress is critical to ensure that reform keeps pace with the rapidly evolving financial environment.

China already has a head start compared with other high-growth economies with regard to financial deepening. Bank deposits and credit as shares of GDP are higher in China than in many other economies, but financial intermediation needs to be shifted from the larger state-owned enterprises (SOEs) toward the services sector and dynamic, smaller enterprises. Put differently, the efficiency of credit allocation should be improved by curbing the incentives to advance credit to large corporations perceived to operate with a sovereign guarantee on their liabilities. The priorities are the following:

- *Interest rate liberalization.* Notable progress has already been made with interest rate liberalization, including the greater flexibility introduced in mid-2012 and the removal of the lending rate floor in mid-2013. As the next step, the upward margin on deposit rates could be raised further, which will reduce regulatory arbitrage that currently favors wealth management

products over bank deposits. Liberalization of deposit could be completed in the coming years by further widening the margin of upward flexibility.

- *Supervision and regulation*. The priority is to further strengthen regulation and supervision of nonbank and off-balance-sheet intermediation to ensure that risks are properly disclosed and accounted for, institutions hold adequate buffers against potential losses, markets operate transparently, and the pace of growth does not result in systemic risks. As financial reform progresses and interest rates are liberalized, close monitoring and effective supervision of banks, particularly smaller banks, are critical to guard against the risk of destabilizing competition.

- *Institutional setting*. Introducing deposit insurance and improving the resolution framework are key to dealing with weak or failing financial institutions in a manner that is predictable and orderly and that sets the right incentives for savers, borrowers, and intermediaries. Losses on assets backing nondeposit instruments should be borne by investors, which is a critical step to promoting risk-awareness and preventing the perception that investments are implicitly guaranteed.

- *Monetary framework*. As interest rates continue to be liberalized and quantitative limits or guidance on credit are relied upon less and less, the central bank will need to use interest rates as the primary instrument of monetary policy. This shift will require improvements in liquidity management, including moving to reserve averaging as soon as possible and making it easier to use the central bank's standing facilities, which should create a corridor for the targeted interest rate.

- *Continued strengthening and commercialization of banks*. Major progress has been made on this front since 1990, including the listing of large state banks, recapitalization, and commercial reforms of key institutions. Continuing along this path will be critical to ensuring that reformed banks will be able to compete and intermediate effectively and safely in the new, increasingly market-oriented environment.

These reforms will yield significant economic benefits by improving the allocation of financing, especially to the more dynamic private sector; supporting domestic rebalancing by boosting household capital income while discouraging investment in low-yielding projects; and facilitating progress in other areas such as capital account liberalization and reforms to the SOE sector. In the rapidly changing financial environment, SOE reform has become increasingly urgent to contain financial sector risks and, thereby, help safeguard macroeconomic stability.

Reforms in Other Areas

To achieve the overarching goals of rebalancing—boosting household consumption while reining in excessive investment and raising productivity across sectors—the incentive structure that guides household and corporate decisions will need to be reshaped with additional reforms to the services sector, social

insurance, the fiscal framework, and factor pricing. Besides financial sector reforms, the priorities are the following:

- *Services sector deregulation.* The widening of labor market opportunities and the raising of household disposable income will entail dismantling barriers to entry across various sectors, especially in services such as telecommunications, banking, and utilities. Encouraging the entry of new firms and improving contestability would substantially raise per capita income. In this context, reform of the household registration system will enable workers to relocate more easily, facilitate a more efficient matching of workers with vacancies, and provide more flexibility to generate clusters of high-skilled workers and high-value-added jobs—all of which are essential if China is to continue climbing up the value chain.

- *Social insurance.* Getting households to lower their precautionary saving will require further action on multiple fronts. The multiple national, provincial, private, and public pension programs should be simplified and made portable, with a view to ensuring greater participation in pension schemes covering all categories of workers—urban, rural, and migrant. Continued progress in broadening health care coverage and reducing out-of-pocket expenses will also help to reduce precautionary savings, especially with more comprehensive insurance coverage for catastrophic and chronic conditions.

- *Fiscal framework.* Strengthening and reordering local government finances will reduce local government reliance on land sales for revenue and curb the tendency toward excessive investment. Improving revenue sources and achieving a better assignment of revenue and expenditure responsibilities at lower levels of government are key priorities. A broad-based property tax and new revenue-sharing arrangements between the central and lower levels of government, for example, could improve local finances. Very high social contribution rates act as a significant drag on household disposable income, and lowering them would lift the share of remuneration captured by households and induce them to consume more. Such reductions could be achieved in a revenue-neutral way by offsetting them by, for example, higher energy taxes, dividend payouts from SOEs, or other revenue measures that support the desired redirection of resources from investment and large SOEs toward smaller, domestically oriented firms.

- *Factor price reform.* The relatively low cost of factor inputs has tilted the economy toward capital-intensive production. Allowing input costs to rise closer to levels in comparator economies and better aligning the cost of capital with its return would reduce the excess rents earned by firms, limit investment, and move it toward domestically oriented sectors.

- *Exchange rate policy.* The pace of international reserves accumulation moderated significantly in 2012. Going forward, the market should be allowed to play an increasingly strong role in determining the exchange rate, including by continuing to reduce intervention in the medium term. Lessening

intervention should allow the real effective exchange rate to continue appreciating in the medium term and facilitate resource reallocation toward domestically oriented sectors.

Together with the financial reforms outlined above, reforms in these areas will help accelerate the transition to more inclusive, services-oriented, consumer-based growth in China. In turn, more balanced, high-quality growth in China will contribute significantly to sustained global growth.