Structural transformation in China and India: A note on macroeconomic policies ☆

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ABSTRACT

This paper explores macroeconomic policies that can sustain structural change in China and India. A two-sector open-economy model with endogenous productivity growth, demand driven output and income distribution as an important determinant of economic activity is calibrated to a 2000 SAM for China and a 1999/2000 SAM for India. Short-run analysis concerns temporary equilibria for output, productivity and employment growth rates in the formal sector. In the long-run, the model allows for multiple equilibria which can describe cases of (a) underdevelopment and structural heterogeneity or (b) sustained growth and development. Several simulation exercises are conducted. Specifically, we consider how changes in investment, wages, labor productivity trend and a depreciation of currency affect the macroeconomy and job creation in the formal sector.

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1. Introduction

Higher labor productivity and economic growth do not necessarily reduce poverty. If output expansion is not accompanied by a transfer of labor to more productive and better paid jobs, problems of underdevelopment remain unresolved. Ocampo et al. (2009) and Easterly (2003), for example, discuss these themes, and *growth without development* as well as *jobless growth* are two labels applied to describe the phenomenon. Lack of labor transfer is of course due to the lack of dynamic structural change, which raises several issues.

First, efforts to fight widespread poverty are destined to fail unless good jobs are created for the many under-employed and poor. Further, economic history shows that sustainable growth is associated with rising shares (a) of industry and service sector output in total output, (b) of high-productivity employment in total employment and (c) high value-added products in total production. Pieper (1999), Ocampo et al. (2009), UN (2006), and Ros (2005) are some recent studies documenting these stylized facts; Syrquin and Taylor (1984) and Chenery et al. (1987) are seminal references supporting the association between labor shifts and sustained development.

In this paper, we employ a model to illustrate such links between productivity, employment and output growth. The model highlights the fact that labor productivity growth is necessary but not sufficient to achieve sustainable development. Indeed, the share of formal sector activity in total activity must rise. In a nutshell, it is assumed that (a) output growth leads to productivity

growth through a Kaldor–Verdoorn channel and (b) productivity growth *can* lead to further demand growth, if labor transfer occurs. In such a 'high road' equilibrium, growth is accompanied by structural change, and cumulative causation sustains it. If output growth is too weak to lead to labor transfer, growth but no structural change occurs. This 'low road' equilibrium implies jobless growth, and perpetuates underemployment and poverty—it may lead to a '*vicious circle of slowdown in productivity and economic growth, decline in investment, [and] increased structural heterogeneity as surplus manpower is absorbed into low-productivity activities*' (Ocampo, 2005, page 22).

The model has previously been discussed in detail in Rada and Taylor (2006) and Rada (2007). We present it briefly in Section 3, but the focus of the paper is to examine the role of macroeconomic policies in guiding structural transformation in China and India. Since these two most populous countries and their—quite different—economic trajectories are on many an economist's mind, the comparison seems appropriate, and is further motivated in Section 2. Section 4 discusses simulations, and Section 5 concludes.

2. Recent growth experience in China and India

China and India have become economic powerhouses of the developing world. Both countries have consistently recorded impressive growth rates of output and labor productivity. While fast catching-up has been observed before—i.e., in Japan or South Korea—the sheer size of the two countries' population renders their deepening involvement in the global economy of particular importance. In fact, global poverty trends have improved when including China, and have not, when excluding China. The picture is more mixed in India.

Indeed, growth and development patterns of the two economies differ in many aspects. An extraordinarily high investment share in GDP has been a staple of China's rapid economic expansion. Relatively high public and private saving have facilitated capital accumulation in the face of a large external surplus. In India, in sharp contrast, growth (a) has not been as sustained over several decades,[1] and (b) is concentrated in regional pockets of high-skill, high-productivity activities, and often in services.[2] Despite external deficits, the investment share in GDP is significantly smaller than in China.

Let us consider a few statistics specifically relevant for this study. Table 1 summarizes average annual growth rates of macroeconomic time series for the two countries throughout 1990s.

In China, formal sector output grew annually on average at a rate of roughly twelve percent. A large chunk of

Table 1
China and India's economic performance during the 1990s.

Variable	Sector	China	India
Output	Formal	12.20	6.60
	Informal	6.82	5.06
Productivity	Formal	9.42	6.11
	Informal	6.74	3.15
Employment	Formal	2.53	0.45
	Informal	0.07	2.21
Wage growth	Formal	8.90	5.40
Investment growth	Economy	14.10	6.30
Exports growth	Economy	16.00	12.80
Formal employment	$\lambda_{1990/1991}$	36.5	8.4
share	λ_{2000}	42.3	7.2
Relative labor productivity	$(\epsilon_F/\epsilon_I)_{2000}$	2.84	8.37

See data Appendix A.
Note: Initial series for output, investment, exports and wages are in 1990 Yuan for China and 1993/1994 Rupee for India.

that was due to, on average, labor productivity growth of nine and a half percent; the remainder due to average formal sector employment growth of two and a half percent. The labor force expanded roughly at one percent per year, so that the formal sector increased its share in total employment to more than 42 percent from about 36 percent (Ghose, 2005; Rada, 2010).

However, this was not a smooth process over the course of the decade. The transfer of labor to the formal sector slowed down considerably in the second half of the 1990s, when restructuring of state-owned enterprises led to closure of many industrial facilities. As a result, the share of formal sector employment *declined* by two percentage points between 1995 and 2000. Concomitantly, both output and investment demand expanded at a slower pace compared to the first half of the decade.

In India, job creation in the formal sector was stagnant throughout the decade. To be sure, formal sector output expanded annually at an average rate of more than six percent. However, labor productivity grew only slightly slower, leaving little need for additional employment. Consequently, the share of formal sector employment declined slightly. By 2000, roughly 93 percent of India's labor force remained employed—and underemployed—in the informal sector.

The resulting, and deepening, contrast between India's new rich on the one hand and those still poor on the other has been well documented. See for example, Breman (2010) and Chandrasekhar and Ghosh (2007). Similarly, Deaton and Drze (2002) find that Southern and Western states had relatively more success in reducing poverty—which is not surprising, since many high-productivity jobs in IT and business services are concentrated in these states.

Further, productivity differentials across formal and informal activities differ significantly between the two countries. A Chinese formal sector worker is roughly three times as productive as her informal counterpart. In India, a formal sector worker produces on average *eight* times the output of an informal worker. These numbers reflect the differing degrees of structural heterogeneity. Clearly, agricultural labor productivity is much higher in China than in India. China's state-led efforts to increase rural

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[1] See Rodrik and Subramanian (2005) for a discussion of India's growth experience, roughly categorized as (1) the initial "budget-deficit" driven 1980s, (2) the liberalizing 1990s, and (3) recent (pre-crisis) years with still accelerating growth.

[2] Kochhar et al. (2006), for example, show that India—compared to other developing economies and when controlling for both size and state of development of the economy—is not specialized in labor-intensive but skill-intensive industries, and has relatively high labor productivity in labor-intensive activities.