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Policy Brief

Growth through Innovation: An Industrial Strategy for Shanghai*

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Introduction and Overview

In broad terms, the sources of economic growth are well understood but relatively few countries have succeeded in effectively harnessing this knowledge for policy purposes so as to sustain high rates of growth over an extended period of time (Commission on Growth and Development 2008; Yusuf 2009). Among the ones that have done so, China stands out. Its GDP growth rate averaging almost 10 percent between 1978 and 2007 is unmatched. Even more remarkable is the performance of China's two leading industrial regions: the Yangtze River (Changjiang) Delta area and the Pearl River Delta. Both these regions have averaged growth rates well above 11 percent since 1985. Shanghai, the focus of this study, is the urban axis of the Yangtze River Delta's thriving economy. Its future performance and that of a handful of other urban regions will determine China's economic fortunes in the coming decades.

Can Shanghai sustain the momentum it has achieved with the help of investment in infrastructure, real estate and industry over the medium term? Are growth rates in the 8 -10 percent range feasible given the stage of urban development it is at and the likelihood that the tradable sector might be a less reliable source of future growth? Would an accelerated expansion of the services sector be a desirable step? Could a systematic effort to deepen Shanghai's innovation capacity significantly improve its growth prospects? And if so, what measures and under what circumstances are likely to yield growth promoting outcomes? These are some of the questions which are uppermost in the minds of policymakers in the Shanghai Municipality and in the central government as they come to terms with a maturing urban industrial economy and the knowledge that cost efficiency will be only one factor contributing to Shanghai's competiveness and dynamism. Success at innovating appeals to all parties because it promises to introduce more profitable new products and services, ways of enhancing productivity, and means of increasing consumer welfare by widening choices and providing better value. If innovation could be systematized and effectively harnessed by manufacturers and services providers alike, then it would complement and appreciably extend the gains from investment and from progressive improvements in the quality of the urban workforce.

An innovative urban economy is a highly attractive objective and international experience offers some clues as to how it might be achieved. But the current state of

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knowledge offers only a number of broad policy directions which collectively can contribute to making an economy innovative. There is no short cut: ideas conducive to innovation of all kinds are likely to flourish in urban environments furnished with certain kinds of institutions and amenities and which support certain types of economic activities. There are no tested recipes for creating such an environment, however, research is providing some guidance. The biggest challenge is to embed a culture of innovation which nourishes existing growth industries while providing the seeds for new activities which can emerge as the leading sectors of the future.

To sustain adequate rates of growth over the next decade and more and to make a transition to an economy which derives more impetus from innovation, Shanghai will need a strategy which builds on its strengths, and through these, develops those tradable activities with the greatest potential for innovation capable of generating attractive returns. Identifying Shanghai's strengths in this regard, examining the innovation potential of candidate activities, and indicating how Shanghai could begin to realize this potential, is the purpose of this study.

Shanghai's strengths derive from its size and industrial diversity which are a source of scale and urbanization economies; from the competitiveness of several manufacturing subsectors; from the emergence of business services; and from its expanding technological capabilities being nurtured by a deepening pool of human capital, by increasing R&D, by FDI in high-tech activities, and by the openness of the city to the rest of the world; and form a growing middle class which is likely to feed a nascent demand for innovation.

Shanghai is currently pursuing a strategy which is attempting to raise the salience of finance and business services in GDP. Shanghai is also seeking to increase the share of life sciences, advanced materials, and nano-tech based activities in manufacturing. The importance given to services and the effort to make Shanghai into a financial and logistics hub is similar to the approach adopted in the past by other global cities and has well established precedents.

This study argues, however, that a high growth strategy which puts technology upgrading and innovation at the center might warrant a different approach from the one currently favored. It derives from the experience of global cities such as New York and London and the empirical research on industrial performance and on innovation. This has yielded four significant findings: First, monosectoral services based economies grow slowly because they benefit less from increases in productivity and from innovation. Second, manufacturing industries producing complex capital goods, electronic equipment, and sophisticated components are more R&D intensive, generate many more innovations, are more export oriented, have a solid track record of rising productivity, and having achieved competitiveness, are in a better position to sustain it because the entry barriers to these industries tend to be higher. By giving rise to dense backward and forward linkages these industries can serve as the nuclei of urban clusters and maximize employment generation. Third, industrial cities create many more jobs for a middle class and tend to have a more equal distribution of income than cities which are dominated by services. Fourth, and finally, cities with a world class tertiary education and research infrastructure linked to industry, are more resilient in the face of shocks, more innovative, and better able to reinvent themselves (Glaeser 2005).

These findings and others motivate the proposal for a strategy which has four elements:

- Shanghai should aim for a balanced economic structure with manufacturing activities continuing to account for a quarter or more of GDP. While the growth of business services is a welcome development, Shanghai's objective should be to maintain the presence of key manufacturing sectors in the periphery of the core metro area, and to promote their competitiveness. The focus should be on complex capital goods and associated components whose productivity, profitability, and competitiveness are more durable. The city should encourage the life sciences, new materials, and electronics while recognizing that these are subject to long gestation lags and might not generate significant profits or employment and contribute modestly to growth in the short-run. A balanced approach is more likely to lead to sustainable growth with equity and sustain a diverse urban population. It would call for a rationalizing and recalibrating of incentive policies for industry affecting land use, cost of inputs, and tax obligations so as to avoid a narrowing of the incentives for industry relative to services or other activities.
- An innovative economy will be a function of what kind of industry flourishes in the city and the dynamism of the leading firms (many of which are currently SOEs) – because innovation is industry specific and large firms conduct the bulk of the research. There is little correlation between innovations and spending on R&D by firms, hence incentives for R&D are subject to diminishing returns. An innovative economy will also depend on the quality of the leading universities and how they contribute to the intellectual culture of the city. Aside from aiming to attract the best talent, universities must view teaching and basic research as their primary missions. This is how they can most effectively serve the local economy and enhance the demand for innovation. Downstream applied research which could have commercial applications should be – as it is in the advanced countries – a secondary and for the majority of universities, a relatively minor objective.
- Education and medical services can be the basis of two important research-cum-industrial high-tech clusters. As the experience of Boston and San Francisco has shown, tertiary education and health services, if they are world class, can be immensely profitable sectors which generate demand for other business services, can become leading exporters, and give rise to idea spillovers for manufacturing.
- Shanghai's innovativeness will depend in part on its openness to ideas, and people, and on its livability, which attracts and retains highly skilled and mobile knowledge workers. It will also be influenced by the city emerging as an intellectual leader among the global centers with its own distinctive vision and strategic initiatives. The current real estate driven development is leading to sprawl, automobility, the multiplication of residential towers with limited recreational amenities, and to gated

> communities, all of which threatens the cultural, aesthetic and environmental attributes of the city, not to mention its social capital. Other world cities have gone down this road are now having to reinvent themselves and to redefine livability and cultural capital, emphasize compactness and dynamic mixed use neighborhoods, put a premium on amenities, and to minimize their environmental footprints.

The financial crisis and the global slowdown started in 2008 have brought the world economy to a crucial juncture. There is need to interpret afresh for the purposes of policymaking, the past trends, stylized facts and lessons from the experience of the developed world, as well as the direction, pace and characteristics of urban development in China. This is a time for global economic consolidation and a rethinking of strategy for Shanghai (and China). Views - and past findings - regarding the roles of industry and services and policies to "rebalance" the economy could usefully be reconsidered. In the years ahead, the opportunities for China might be different and greater if it exercises strategic foresight in fully harnessing its economic strengths and advantages. The major economies of the world are in for an industrial shake-out. Many firms will close their doors and industrial capacity will be redistributed throughout the world. This outcome – which will be painful - represents a great opportunity for Shanghai to strengthen its economic base. No other major industrializing country has the nascent urban centers, the savings, the low indebtedness, the accumulated industrial capabilities, the elastic supply of human capital and the momentum which China (and Shanghai) does to discover growth opportunities in these challenging times.

A new medium-term development strategy should include three additional short term objectives. First, because Shanghai's current and future comparative advantage lies in complex capital goods and high tech components among others, it needs to ensure that these sectors survive and emerge stronger and better positioned to compete and to expand their shares of the global market. This requires that they have access to the resources to last out the downturn, sustain capability enhancing investments and add to their technological capacities. Certain capital goods sectors are likely to benefit from the investment in physical infrastructure which has strong policy support in China and the world. Second, this might be a time to very selectively acquire production, research, and intellectual property related assets from foreign companies which are going out of business, as well as critical tacit knowledge and brand names. Third, this is also the time to move faster with the transition out of those industrial subsectors in which Shanghai's comparative advantage is vanishing and to channel the resources from these sectors to others with better prospects, as well as to redouble the efforts to retrain and equip the human assets released by these subsectors so that they can be absorbed elsewhere in the economy, once recovery begins. Such a transfer of resources will provide a welcome boost to productivity and reduce the overhang of excess capacity in light industries.

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