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Trade, demand spillovers, and industrialization: The emerging global middle class in perspective

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ABSTRACT

In this paper, we investigate international demand spillovers brought about by a global middle class and their impact on trade patterns and industrialization. We propose a multi-industry and two-country trade model featuring demand complementarities propagating increasing returns across industries and national boundaries. We show how the international extent of demand spillovers depends upon asymmetries in domestic income distribution, labor efficiency, and labor force size; that is, on the global distribution of real income.

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1. Introduction

Brazil, Russia, India and China (BRIC) form the core of an emerging global middle class. In this paper, we investigate how a global middle class may influence trade flows of goods and services and the pattern of global production. We focus on international demand spillovers which contribute to expand production and achieve increasing returns to scale. Much as technical externalities propagate increasing returns across industries and national borders, global demand spillovers may also generate such effects. There are potential benefits to the world economy from the emergence of a large number of consumers whose tastes will change as their living standards catch-up with those in advanced nations. According to the World Bank, the emergence of a global middle class will cause a major change in the demand for goods, creating huge markets[1]. A new age of mass consumption is likely to accompany the next wave of globalization.

Conversely, the emergence of BRIC countries on the international economic scene poses a challenge to both advanced nations and smaller emerging countries. If China's economic performance is in line with the Japanese integration experience, the size of the former will have a particularly important impact on the modernization or decline of industrial activities across regions of the globe (see Winters and Yusuf, 2007). Competition spans increasingly diversified activities. The sheer size of these newcomers means that these spillover effects may dwarf the comparison with either Japan or South Korea.

On the one hand, trade theory traditionally concentrates on the supply side. One standard assumption is that preferences are identical across trade partners and homothetic, i.e., as income increases, consumption of each good increases proportionately. As a result, demand-side effects are neutralized as a determinant of the composition of trade. This is in contradiction to the stylized facts. In reality, differences in purchasing power lead different goods to be consumed (see, among others, Francois and Kaplan, 1996; Dalgin et al., 2004).

On the other hand, there is a long tradition in development economics, going back to the parable of the shoe factory by Rosenstein-Rodan (1943), that emphasizes how a positive sectoral shock may stimulate the development of other sectors through market-size externalities linked to increasing returns to scale. However, it was not until the end of the Eighties that Rosentein–Rodan's arguments describing economic development as a virtuous circle driven by external economies, were formalized by Murphy et al. in two companion papers (1989a,b). In the first paper, they model the so-called 'big push' which

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[1] Their last projections are eloquent (see Global Economic Prospects, 2007, Chapter 3, p. 69): "In 2030, 16.1 percent of the world population will belong to what can be called a 'global middle class' up from 7.6 percent in 2000. That is, in 2030 more than a billion people in developing countries will buy cars, engage in international tourism, demand world-class products… Compare that with only 400 million people in developing countries who had access to these kinds of living standards in 2005… This large middle class will create rapidly growing markets for international products and services…"

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produces industrial modernization as the outcome of coordinated investments which propagate increasing returns across industries. In the second paper (henceforth MSV), pecuniary externalities work via the buying power of the middle class to eventually determine the extent of horizontal complementarity across all industries of the economy. In the words of Matsuyama (1995, p. 703):

> "... Suppose the [middle class] increases its demand for monopolistically competitive goods... Because prices exceed marginal costs, such a shift in demand would increase the level of monopoly profits in the economy and thus national income. This increased income would generate additional demand for monopolistically competitive goods, which further raises profits and income and so on..."

This kind of argument which captures how 'one thing leads to another', does not generalize directly to an integrated world economy. Our contribution focuses on such a form of complementarity and allows domestic demand to potentially spill over to any rival foreign industry, giving rise to a global profit-multiplier process. In MSV, such a multiplier is limited to the home market and determined only by the size of the domestic middle class. We extend their closed-economy general equilibrium model to a two-country framework, where goods produced in both countries are substitutes and differentiated by their country of origin. According to the relative size of the domestic markets and the competitiveness of home and foreign rival firms, each product may be produced domestically under internal increasing returns by a monopolist or by a competitive fringe under constant returns to scale. Eventually, the magnitude and direction of international demand spillovers determine the strength of increasing returns and as a result, the importance of the cumulative processes in each country[2].

The market size for each good depends on the number of agents that can purchase it, which itself depends on the distribution of purchasing power both across and within trade partners. Under free trade, the domestic middle class is a relative notion which is not internationally comparable. A middle class household in its own country may be rich enough to belong to the upper class of the world income distribution. Conversely, a household may be rich by national standards but belong to the global middle class. In a closed economy, all profits and wages distributed to the domestic middle class return as demand addressed to the home industries. By opening to trade, they become a component of demand for either the home good or the substitute produced abroad, depending on the level of international competitiveness. This, in turn, affects real national incomes and welfare. Thus international trade leads the global middle class purchasing power to interact with increasing returns making them stronger or weaker depending upon asymmetries in domestic income distribution, labor efficiency, and labor force size.

First, we show that export-competing industries in the unequal country can take advantage of the larger middle class in the more egalitarian trade partner, so that trade integration tends to equalize average income of trade partners who differ only in their income distribution.

Secondly, when trade partners differ only in their labor efficiency, free trade exacerbates international disparities in real average income and makes increasing returns weaker in the technically backward country which might be tempted to revert to autarky. This dampens the local market-size externalities' argument by MSV and revives the argument for protection. The intuition behind this pattern is easy to grasp. First, terms of trade must adjust to reflect labor efficiency differences, penalizing the ability of firms in the lagging country to compete in the global market. Secondly, the top-middle class of the lagging country becomes the bottom-middle class in the global context. A large proportion of its consumers become a source of increasing returns in the advanced country, boosting production in the area of goods with lower income elasticities of demand. In the lagging country, the higher advanced country's middle class purchasing power benefits sectors producing goods with relatively higher income elasticities of demand and mostly subject to constant returns to scale. Examples we have in mind concern the toy industry in China and tourism.

Thirdly, we explore how worldwide demand complementarities influence trade patterns and industrialization between countries differing only in the size of their labor force. We show that trade integration favors the small economy because international demand spillovers lead the large country's middle class buying power to strengthen increasing returns in the small trade partner's industries.

Finally, we investigate the consequences of a technically backward trade partner narrowing its technological gap under the free trade regime, as well as trade between a large emerging country and a smaller industrialized country. Technological catch-up yields a decline in export prices in the emerging country's firms which become relatively more competitive. A larger variety of goods is produced under increasing returns because of the increased buying power of the emerging global middle class, brought about by lower prices. Eventually, demand complementarities propagate increasing returns across national boundaries, so that the rise in average productivity in the emerging country spills over to those industries in the advanced country which produce goods with high income elasticities of demand.

To our knowledge, the papers most closely related to our study are those by Matsuyama (2000) and Mitra and Trindade (2005). Matsuyama incorporates international demand complementarities in a Ricardian model à la Dornbusch et al. (1977), i.e., with a continuum of industries. The assumed pattern of comparative advantage leads the technological leader to completely specialize in goods with higher income elasticities of demand, whereas the developing country exports more basic goods. Matsuyama then discusses the impact of market size and technology differences on trade flows. However, by adopting a Ricardian framework, he considers neither international competition nor demand complementarities as a source of increasing returns. The same limitation applies to Mitra and Trindade's contribution. They adopt a 2×2 Heckscher–Ohlin framework where trade partners are identical in every respect except for their income distribution. With homothetic preferences, this means that a move from autarky to free trade has no consequence on either trade partners. With non-homothetic preferences though, the more unequal (equal) country has a higher demand for labor- (capital-) intensive good which, by assumption, is characterized by a lower (higher) income elasticity of demand. This yields 'specialization in consumption, not production'.

One implication of increasing returns to scale for international trade is the possibility of losses from trade for one country therefore justifying protection. This argument was introduced into the trade literature by Graham (1923), and formalized by Ethier (1982) in a two-country (alike in every respect except for size), two-sector model in which one is subject to increasing returns and the other to constant returns to scale. Our paper is also related to that strand of the literature which deals with increasing returns and gains from trade as covered by Helpman (1984) and Helpman and Krugman (1985). It examines the impact of demand for the goods produced under increasing returns on gains from trade, by combining internal increasing returns and trade in differentiated goods. Note first that this rules out perfect competition and thus differs from Ethier's setting which considers trade in homogeneous goods and external increasing returns to scale. Secondly, in contrast to the trade literature dealing with differentiated goods under monopolistic competition and the home market effect of Krugman (1980), there will be no trade-off between increasing returns and the number of varieties produced by the domestic industry. Our variable of interest is

[2] Incidentally, MSV acknowledge that (p. 560): "This question gains particular significance in the open economy, where foreign competition might reduce [industrial modernization]... We have only focused on the income distribution as the determinant of market size. One can also consider other important determinants of market size, such as population size and average income, and ask various questions about industrialization in small versus large countries, as well as in poor versus rich countries."

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