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## Working Paper

**Must Improved Labor Standards Hurt  
Accumulation in an Open Developing Economy?  
A Structuralist Analysis of the Cambodian Case**

by

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# Must Improved Labor Standards Hurt Accumulation in an Open Developing Economy? A Structuralist Analysis of the Cambodian Case

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## Abstract

Using a modified version of the dependent economy framework, this paper analyzes a stylized small economy that is significantly open to trade and investment flows. The analysis, which is inspired by the structure of Cambodia's economy and ongoing efforts by international organizations to raise labor standards in that country, initially classifies the economy into three sectors: a manufacturing sector that produces tradable goods, a sector that produces (tourism-related) tradable services, and a rural sector that produces non-tradables. By assuming sectoral differences based on stylized facts, we attempt to analyze the consequences of various shocks in a comparative static framework. Furthermore, we evaluate the short-run effects of raising labor standards. Finally, we explore the impact of higher standards in the manufacturing sector on the near- and long-term prospects of the economy using comparative dynamic analysis to analyze changes in output, relative prices, income distribution and accumulation.

## 1 Introduction and Motivation

International economists have traditionally found it useful for analytical purposes to sub-divide economies into a tradable and a non-tradable sector. The price of the tradable good is (mainly) dictated by international market conditions while that of the non-tradable good is determined by conditions at home. In the limiting case of a small open economy, where purchasing power parity holds, the importable and exportable goods are bundled into an aggregate tradable good, and the real internal exchange rate (defined as the relative price of tradables) determines the sectoral distribution of resources and demand.

This paper analyzes a small open economy of a somewhat different nature. Ever since its recovery began in the post-Khmer Rouge period, the Cambodian economy has undergone major structural changes. To take just a few indicators,

trade has increased as a proportion of GDP from 69 percent in 1996 to 139 percent in 2006. Manufactured exports are now almost 98 percent of total merchandise exports. Moreover, of these, textiles and garments constitute almost three-fourths.<sup>1</sup> Much of the manufactured exports originate from highly import-intensive, vertically integrated international supply chains where profit margins are thin and most of the value addition takes place outside of Cambodia. At the same time, Cambodia has also seen its trade in services grow rapidly to a point where it now constitutes almost 30 percent of GDP. International tourism exports alone account for a quarter of total exports of goods and services. A significant proportion of the expansion in these tradable sectors has been driven by foreign direct investment (FDI).

These features of the economy, along with the presence of a highly dollarized urban segment existing side by side with a riel-based “traditional” sector that mainly produces agricultural products and non-tradables makes Cambodia an interesting economy to analyze in the sense that it encourages us to introduce important structural nuances into the traditional small country open economy models. More specifically, it raises questions about the adequacy of the dependent economy model when thinking about long-run growth-related issues. For example, a body of development literature has highlighted the critical importance of shifting resources from the non-tradable to the tradable sector. In the case of a small open economy with a huge tourism sector, this may not always be the best move if the scope for productivity growth is limited in this sector. Another example would be that of labor standards. Cambodia is currently part of a pioneering effort called the “Better Factories program” sponsored by the International Labor Organization (ILO) and the World Bank, under which Cambodian apparel manufacturers are provided an incentive to improve their working conditions by offering increased access to the US market in return for demonstrated improvements. What are the likely effects of such a program in the Cambodian context? The answer depends on, among other things, what happens to the rest of the economy. The resulting consequences for the services sector, for instance, may determine changes in short-run output and relative prices as well as the path of long-run growth.

This paper can broadly be seen as consisting of two inter-related bodies of analysis based on a unified framework. One looks at the short-run comparative static effects of possible policy measures and shocks in the presence of some key structural features of the Cambodian economy. The other examines the possible impact of labor standards on medium-run income distribution and the long-run accumulation trajectory. Throughout the paper we follow the structuralist tradition in making assumptions about different sectors based on stylized facts.<sup>2</sup>

Our short-run framework assumes that output and employment vary in the tradable sector (via changes in capacity utilization), while relative prices vary in the non-tradable sector to remove deviations from (general) equilibrium.<sup>3</sup>

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<sup>1</sup>Although, the garment sub-sector, which is much more labor-intensive than the textile one, heavily dominates this sector.

<sup>2</sup>See, for example, Blecker [1996] and Dutt [1990].

<sup>3</sup>As we will see below, since the vertically integrated tradable manufacturing sector does

We then analyze the impact of various exogenous shocks. Some of the more interesting results include our findings that:

- A fiscal contraction or increased private savings results in a decline in profit rates in both tradable sectors, and shifts the composition of output in favor of the services sector.
- While a shift in (domestic or international) demand towards manufactures increases the manufacturing sector profit rate at the expense of the services sector, a shift in international demand towards services lowers the profit rates in both sectors. Moreover, while the latter shock increases services output at the expense of manufacturing output, greater demand for manufactures increases output in both sectors.
- Higher labor standards in the manufacturing sector (as reflected in higher contractual wages) reduce output, employment, and the profit rate in that sector but may increase these in the services sector. Thus, higher labor standards are likely to hurt the manufacturing sector in the short-run, unless countered by an increase in global demand for home manufactures (for example, through preferred access to global markets).

Next, we explore the medium-run distributional implications of higher manufacturing labor standards in a dynamic framework. Labor standards are modeled using a conceptual wage floor. Insofar as there is a scarcity of labor that is skilled enough to work in the tradable sector, a higher floor, in the presence of strong spillover effects from the manufacturing sector labor market to the services one, could lead to a *greater* steady state profit share in the manufacturing sector along with rising wages and technological progress. Barring strong spillover effects, however, the steady state profit shares decline in both sectors.

The penultimate section considers the impact of higher labor standards (as modeled by long-run steady state profit rate differentials) on the nature and ownership of capital accumulation. Our results, once the (adjusted) profit rates equalize at the new steady state, depend upon whether the labor standards are imposed in the foreign-owned segment of the manufacturing sector or the domestically-owned one. In the former case, we find that the stock of foreign-owned capital declines over time while that of domestically-owned manufacturing capital relative to that of services capital rises. In the latter case, on the other hand, the stock of foreign capital is likely to rise, while the composition of domestically-owned capital is likely to shift away from manufacturing and toward services. Finally, when standards are applied across the entire manufacturing sector, the stock of foreign capital declines while the stock

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not use domestic intermediate inputs, this implies that the price of the tradable manufactured good is fixed as long as costs are fixed. Thus, the equilibrium value of the real internal exchange rate is determined by changes in the price of the non-tradable good, as in the dependent economy model, although for different reasons. More specifically, while in the canonical dependent economy model, international demand for the tradable good is perfectly elastic (and hence the law of one price holds), in our model it is the domestic *supply* of manufactured tradables that is perfectly elastic in the short run.

of domestically-owned manufacturing capital relative to that of services rises. Insofar as there is something *special* about the manufacturing sector, these intriguing findings, which are driven in large part by plausible assumptions about behavioral differences between domestic and international investors, have interesting implications for the long-run developmental path of the economy.

## 2 The Short-Run Framework

Some of the key structural features of our stylized economy include:

- Three sectors, including a tradable manufacturing sector (the M-sector), a tradeable services sector (the S-sector), and a non-tradable traditional sector (the N-sector). The latter consists of rural small industry, services, and agriculture.
- A dual labor market with the tradable sector having contractual nominal wages and the non-tradable sector having a fixed real (subsistence) product wage.
- To reflect Cambodia's dollarization, all prices are expressed in terms of the international currency. Moreover, the excessive degree of dollarization suggests that monetary policy-related features can be abstracted away from without much loss.
- Output adjustment in the manufacturing and services sectors and price adjustment in the traditional sector in the short run.
- Relatively price-elastic international demand for manufactures but relatively price-inelastic international demand for services. This reflects the brand product nature of Cambodia's tourism offerings, and the reluctance of tourists to change their travel destination in the short run.<sup>4</sup>
- Partial pass-through from costs into prices in the manufacturing sector but full pass-through in the services sector. This reflects the assumption that tourism providers are few enough to collude in a cartel-like manner.<sup>5</sup>
- Manufactures use imported intermediate inputs while services use domestically produced inputs. This reflects the fact that Cambodian exports are largely vertically integrated into international production networks.
- Demand for manufactures originates both from domestic sources and the international market, while demand for tradable services originates from the international market only. The government sector is assumed to consume non-tradables only.<sup>6</sup>

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<sup>4</sup>Over longer time horizons, however, this assumption is not realistic, and is relaxed.

<sup>5</sup>This could be due to the presence of high barriers to entry such as high sunk costs in infrastructure which are not present in the highly mobile garment-manufacturing sector.

<sup>6</sup>This is a simplified representation of the stylized fact that a major proportion of government spending typically falls on non-tradables such as administration, infrastructure, construction, etc. See Calvo et al. [1994], for example.

- FDI (which is the only form of foreign capital in the economy) flows into the manufacturing sector. Although Cambodia attracts FDI in the services sector, according to UNCTAD [2006] most of the identifiable FDI stock is in the secondary sector, mainly garments and wood products. We, therefore, ignore services FDI for the sake of simplification.
- For the short-run model, we assume that the profit rates do not equalize across sectors, although these do effect intra-sectoral capital flows. This assumption is relaxed in the long-run model.

In light of these features and assumptions, we can write down several quantitative and pricing identities (the latter stated in terms of the US dollar).

*Price Identities*

$$P_M = \bar{W}_M a_M + \frac{P^* r_M}{v_M} + P^* b_M \quad (1a)$$

where the subscript  $M$  represents the manufacturing sector,  $P_M =$  the (dollar) price of the manufactured good,  $P^* =$  the (dollar) price of all imported (intermediate or capital goods),  $\bar{W}_M =$  the (fixed) nominal wage in dollar terms,  $a_i =$  the unit labor coefficient for sector  $i$  (i.e., the amount of labor required to produce one unit of output),  $b_M =$  the unit intermediate input requirement for the M-sector, and  $r_i =$  the profit rate (per unit of capital stock) in sector  $i$ .  $v_M = \frac{Q_M}{K_M} \leq v_{M,\max}$  represents the degree of (short-run) capacity utilization, where  $K_i =$  the total capital stock in sector  $i$  and  $Q_i =$  the total (nominal) output of sector  $i$ .<sup>7</sup>

$$P_S = \eta \bar{W}_M a_S + \frac{r_S P^*}{v_S} + \frac{P_N}{E} b_N \quad (1b)$$

where the subscript  $S$  represents the services sector,  $0 < \eta \leq 1$ ,  $P_N$  is the price of non-tradables expressed in domestic currency, and  $E$  is the nominal exchange rate (riels per dollar). Notice that the wage in the services sector is a constant fraction of that in the manufacturing sector. Finally,

$$\frac{P_N}{E} = W_N a_N \quad (1c)$$

*Quantitative Identities*

$$Q_M = C_M + X_M \quad (2a)$$

$$Q_S = X_S \quad (2b)$$

$$\bar{Q}_N = C_N + Z_N + \frac{\bar{G}}{P_N/E} \quad (2c)$$

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<sup>7</sup>See Table 1 for summarized definition of the variables.

where  $C_j$  ( $j = M, N$ ) and  $X_k$  ( $k = M, S$ ) represent, respectively, the consumption and exports of the associated good,  $\bar{G}$  represents (fixed) nominal government expenditure, while  $Z_N$  denotes the quantity of domestic non-tradable intermediates used. In the case of non-tradables, output is considered to be fixed consistent with its being a flex price sector with surplus labor. Next, we turn to defining some behavioral characteristics of our model.

#### *Prices and Profit Rates*

Manufacturing and service sector firms are assumed to set prices by a mark-up factor  $\tau_M$  on unit (and average) variable costs.

$$P_M = (1 + \tau_M)\varepsilon_M \quad (3)$$

where  $\varepsilon_M = \bar{W}_M a_M + P^* b_M$ . Firms in the manufacturing sector have a target mark-up rate,  $\bar{\tau}_M$ , so that,

$$\tau_M = \bar{\tau}_M \left( \frac{P^*}{\varepsilon_M} \right)^{1-\lambda} ; 0 < \lambda \leq 1 \quad (3a)$$

where  $\lambda$  is a direct measure of the degree of pass-through of costs changes into prices. Thus,

$$r_M = \frac{\pi_M v_M}{q^*} \quad (4)$$

where  $\pi_M \left( = \frac{\tau_M}{1+\tau_M} \right)$  is the profit share of manufacturing output and  $q^*$  is the international price relative to that of manufactures. Note that, due to partial pass-through, the profit share varies with average variable costs.

Similarly, in the services sector,

$$P_S = (1 + \bar{\tau}_S)\varepsilon_s \quad (5)$$

where  $\varepsilon_S = \eta \bar{W}_M a_S + \frac{P_N}{E} b_N$ , and

$$r_S = \frac{\pi_S v_S q_S}{q^*} \quad (6)$$

where  $\pi_S \left( = \frac{\bar{\tau}_S}{1+\bar{\tau}_S} \right)$  is the profit share of services output and  $q_S (= P_S/P_M)$  is the per unit price of services output relative to that of manufactures (similarly.  $q_N = P_N/P_M$  and  $q^* = P^*/P_M$ ). The cartel-like ownership structure of the services sector enables capitalists in that sector to maintain their share of output following cost changes. For the non-traded sector, the presence of underemployment and surplus labor, along with equation (1c) implies that:

$$\bar{\omega}_N a_N = 1 \quad (7)$$

where  $\bar{\omega}_N \left( = \frac{W_N}{P_N/E} \right)$  is the fixed real product wage in the non-tradable sector.

*Consumption spending*

Domestic residents consume both manufactures and non-tradables, the proportions being functions of the relative price. Using  $Z$  to denote total private domestic consumption expenditure, we can express total nominal expenditures on the two goods by domestic residents as follows:

$$P_M C_M = A q_N^{1+\alpha} Z; \quad \alpha > 0 \quad (8a)$$

$$P_N C_N = (1 - A q_N^{1+\alpha}) Z \quad (8b)$$

where  $Z = \bar{W}_M(a_M K_M v_M + \eta a_S K_{dS} v_s) + \bar{w}_N a_N (P_N/E) \bar{Q}_N + (1-s)(r_M P^* K_{dM} + r_S P^* K_{dS})$ ,  $K_{di}$  is the stock of domestically owned capital in sector  $i$ , and  $s$  is the savings rate. This specification allows for relatively elastic substitution by domestic consumers between manufactured goods and non-tradables,  $1 + \alpha$  being the relative price elasticity of demand for manufactures. Also, note that  $A q_N^{1+\alpha}$  is the share of manufactures in consumption, while  $1 - A q_N^{1+\alpha}$  is that of non-tradables. For the sake of simplicity, only capitalists are assumed to save.

*Exports*

The export functions are defined in real terms as follows:

$$X_M = B (q^*)^{1+\beta} z^*; \quad 0 < \beta < 1 \quad (9a)$$

where  $z^*$  is a measure of world expenditures. Similarly,

$$X_S = D \left( \frac{q^*}{q_S} \right)^{1+\delta} z^*; \quad -1 < \delta < 0 \quad (9b)$$

*Investment*

Let  $g_{dM}$ ,  $g_{dS}$ , and  $g_{fM}$  denote accumulation by domestic manufacturing capitalists (that is  $g_i = \dot{K}_i/K_i$ ), domestic service sector capitalists, and foreign manufacturing capitalists, respectively. Foreign investment in developing countries may sometimes crowd in domestic investment in non-traditional sectors. Possible reasons include the greater international exposure of foreign firms, their access to the latest information and technologies, and their ability to match host endowments to global market needs.<sup>8</sup> This is particularly true for countries like Cambodia that do not have much of an industrial base, and rely for exporting on being a part of vertically integrated global supply chains in specific industries.<sup>9</sup> Thus, we define our investment functions as,

$$g_{dM} = \theta_0 + \theta_1 (r_M - r_S) + \theta_2 g_{fM} \quad (10a)$$

$$g_{fM} = \theta_3 + \theta_4 (r_M - r^*) \quad (10b)$$

<sup>8</sup>See, for example, Rhee and Belot [1990] for a study of the relevance of such factors in developing countries.

<sup>9</sup>Mainly garments in the case of Cambodia. An interesting historical example in this regard is the garment industry in Bangladesh. See Aitken et al. [1997].

so that,

$$g_{dM} = \Theta_0 + \frac{\Theta_1}{q^*} \pi_M v_M - \frac{(\Theta_1 - \theta_2 \theta_4)}{q^*} \pi_S q_S v_S - (\Theta_1 - \theta_1) r^* \quad (10a')$$

where  $\Theta_0 = \theta_0 + \theta_2 \theta_3$ ,  $\Theta_1 = \theta_1 + \theta_2 \theta_4$ , and  $\theta_i > 0$ . We have, for simplicity, assumed away the risk premium that international investors are likely to associate with holding Cambodian assets. In order to provide macroeconomic closure, domestic investment in the services sector is assumed to be the residual left over after investment in the manufacturing sector.

Equations (1a) - (10a') yield, after manipulation,<sup>10</sup> the following system of four excess demand equations in three variables,  $v_M$ ,  $q_N$ , and  $v_S$ .<sup>11</sup>  $EDM$  represents excess demand in the manufacturing sector while  $EDS$ ,  $EDN$  and  $ED$  represent excess demand in the services sector, the non-tradable sector, and excess macroeconomic demand (i.e., an excess of investment over national savings), respectively. For mathematical convenience, the capital stocks are normalized by  $K_{ds}$ , with  $k_i (= K_i/K_{ds})$  denoting capital stock in sector  $i$  relative to that in the services sector. We list the equations here while leaving a more intuitive explanation for later in this section.

Manufacturing sector (or M-sector)

$$Aq_N^{1+\alpha} \left\{ \frac{\bar{W}_M}{P_M} [a_M k_M v_M + \eta a_S v_s] + \bar{\omega}_N a_N \frac{\bar{Q}_N}{K_{dS}} q_N + (1-s) [\pi_M k_{dM} v_M + \pi_S v_S q_S] \right\} + B (q^*)^{1+\beta} \frac{z^*}{K_{dS}} - k_M v_M = EDM \quad (11a)$$

Services sector (or S-sector)

$$D \left( \frac{q^*}{q_S} \right)^{1+\delta} \frac{z^*}{K_{dS}} - v_s = EDS \quad (11b)$$

Non-tradable sector (or N-sector)

$$\left[ 1 - Aq_N^{1+\alpha} \right] \left\{ \frac{\bar{W}_M}{P_M q_N} [a_M k_M v_M + \eta a_S v_s] + \bar{\omega}_N a_N \frac{\bar{Q}_N}{K_{dS}} + \frac{(1-s)}{q_N} [\pi_M k_{dM} v_M + \pi_S v_S q_S] \right\} + b_N v_s + \frac{\bar{g}}{q_N K_{dS}} - \frac{\bar{Q}_N}{K_{dS}} = EDN \quad (11c)$$

where  $\bar{g}$  is simply government spending in terms of the manufactured good.

<sup>10</sup> An unpublished mathematical appendix that explains the derivation of the equations in this and the following sections in more detail is available from the author on request.

<sup>11</sup> Notice that  $q_S$  is also unknown so that we have four unknowns to be precise. However, this variable is determined directly by equation (5) once  $q_N$  is known.

Macroeconomic equilibrium (or IS, i.e., investment = savings)

$$g_{ds} + \left\{ \Theta_0 + \frac{\Theta_1}{q^*} \pi_M v_M - \frac{(\Theta_1 - \theta_2 \theta_4)}{q^*} \pi_S q_S v_S - (\Theta_1 - \theta_1) r^* \right\} k_{dM} + \frac{\bar{g}}{q^* K_{dS}} - \frac{s}{q^*} (\pi_M k_{dM} v_M + \pi_S v_S q_S) - \frac{t^*}{q^*} \pi_M k_{fM} v_M = ED \quad (11d)$$

Note the simplifying assumption that only FDI-related profits are taxed. We abstract away from taxation-related considerations as far as domestic firms are concerned in order to avoid complications arising from issues of incidence (such as between workers and capitalists). As mentioned earlier, subscripts  $d$  and  $f$  denote domestic and foreign-owned capitalist stocks, respectively, so that  $K_M = K_{dM} + K_{fM}$ . The IS equation incorporates the balance of payments equilibrium, which in the absence of official reserve transactions reduces to:

$$B(q^*)^\beta \frac{z^*}{K_{dS}} + D \left( \frac{q^*}{q_S} \right)^\delta \frac{z^*}{K_{dS}} - b_M k_M v_M - \frac{s}{q^*} [\pi_M v_M k_{dM} + \pi_S q_S v_S] - \frac{\pi_M v_M k_{fM}}{q^*} + \frac{\bar{g}}{q^* K_{dS}} = 0 \quad (12)$$

Put in words, FDI and exports finance: (i) imports of intermediate goods, (ii) imports of capital goods funded by total private and public savings, and (iii) profits repatriated by foreign firms. Substituting equation (11b) into equations (11a), (11b), and (11d) and making use of equation (7) reduces our system to three equations in two variables,  $v_M$  and  $q_N$ .

$$Aq_N^{1+\alpha} \left\{ \frac{\bar{W}_M}{P_M} \left[ a_M k_M v_M + \eta a_S D \left( \frac{q^*}{q_S} \right)^{1+\delta} \frac{z^*}{K_{dS}} \right] + \frac{\bar{Q}_N}{K_{dS}} q_N \right. \\ \left. + (1-s)q^* \left[ \frac{\pi_M k_{dM} v_M}{q^*} + \pi_S D \left( \frac{q^*}{q_S} \right)^\delta \frac{z^*}{K_{dS}} \right] \right\} + B(q^*)^{1+\beta} \frac{z^*}{K_{dS}} - k_M v_M = EDM \quad (13a)$$

$$\left[ 1 - Aq_N^{1+\alpha} \right] \left\{ \frac{\bar{W}_M}{P_M q_N} \left[ a_M k_M v_M + \eta a_S D \left( \frac{q^*}{q_S} \right)^{1+\delta} \frac{z^*}{K_{dS}} \right] + \frac{\bar{Q}_N}{K_{dS}} \right. \\ \left. + \frac{(1-s)q^*}{q_N} \left[ \pi_M k_{dM} v_M + \pi_S D \left( \frac{q^*}{q_S} \right)^\delta \frac{z^*}{K_{dS}} \right] \right\} + b_N D \left( \frac{q^*}{q_S} \right)^{1+\delta} \frac{z^*}{K_{dS}} + \frac{\bar{g}}{q_N K_{dS}} - \frac{\bar{Q}_N}{K_{dS}} = EDN \quad (13b)$$

$$\begin{aligned}
g_{ds} + \left\{ \Theta_0 + \frac{\Theta_1}{q^*} \pi_M v_M - (\Theta_1 - \theta_2 \theta_4) \pi_S D \left( \frac{q^*}{q_S} \right)^\delta \frac{z^*}{K_{dS}} - (\Theta_1 - \theta_1) r^* \right\} k_{dM} \\
- s \left[ \frac{\pi_M k_{dM} v_M}{q^*} + \pi_S D \left( \frac{q^*}{q_S} \right)^\delta \frac{z^*}{K_{dS}} \right] + \frac{\bar{g}}{q^* K_{dS}} - \frac{t^*}{q^*} \pi_M k_{fM} v_M = ED
\end{aligned} \tag{13c}$$

which for convenience can be summarized as follows:

$$M(v_M, q_N; \chi) = 0; M_{v_M} < 0, M_{q_N} > 0 \tag{20a'}$$

$$N(v_M, q_N; \chi) = 0; N_{v_M} > 0, N_{q_N} < 0 \tag{20b'}$$

$$IS(v_M, q_N; \chi) = 0; IS_{v_M} < 0, IS_{q_N} < 0 \tag{20c'}$$

where  $\chi$  denotes the vector of exogenous variables or parameters and the signs of the partial derivatives are explained more intuitively below. A brief discussion of the three equations may facilitate comprehension at this point. The terms in the curly brackets on the LHS of equation (13a) represent domestic demand for manufactures, which depends on the real internal exchange rate  $q_N$ , employment in the two sectors, and domestic capitalist spending on manufactures, which is a function of total sectoral profits. Finally, the last two terms on the LHS represent manufactured exports and total output, respectively. Turning to equation (13b), again the terms in the curly brackets on the LHS represent demand for non-tradables originating from workers and capitalists. The next two terms capture demand for non-tradable inputs and government spending, respectively, while the final term denotes total output of non-tradables. Finally, equation (13c) represents the investment-saving balance with the first three terms capturing the private side of the balance (that is, private investment minus private savings), and the last two terms capturing the public side.

It can be demonstrated that only two out of the three equations (13a) - (13c) are independent. In other words, any of these three equations can be derived from the other two. In the subsequent analysis, therefore, we use only two excess demand conditions while ignoring the third one as redundant by Walras' law. Figure 1 illustrates the system consisting of equations (13a) and (13c) graphically.<sup>12</sup> The intuition underlying the curves can be explained as follows:

The MM curve represents the zero excess demand condition for the M-sector. An increase in  $v_M$  creates excess supply in the M-sector although the excess supply is partially offset by increased demand from M-capitalists and (newly

<sup>12</sup>Note that, given the *local* nature of our analysis, we have translated the system of (non-linear) equations into linear curves in order to avoid possible complications arising from multiple equilibria.

employed) M-workers.  $q_N$  has to rise to remove this excess demand through: (i) expenditure switching towards manufactures, (ii) the income effect on N-workers, (iii) higher S-capitalist profits and consumption (due to relatively price-inelastic demand, the *value* of S-exports rises although their *volume* declines).<sup>13</sup>

The IS curve represents macroeconomic equilibrium (i.e., the saving-investment balance). An increase in  $v_M$  boosts both M-sector investment and (public and private) savings. Assuming that the latter effect dominates,<sup>14</sup>  $q_N$  has to decline to remove the excess supply thus created through a fall in S-sector profitability (and thus savings) and the consequent increase in M-sector investment.

Finally, the SS curve simply reflects the negative relationship between the relative price of non-tradable inputs and capacity utilization in the S-sector (see equation 11b). The equilibrium value of  $v_S$  is determined alongside that of  $q_N$ , the latter, of course, being determined by the general equilibrium shown in the right panel of Figure 1.

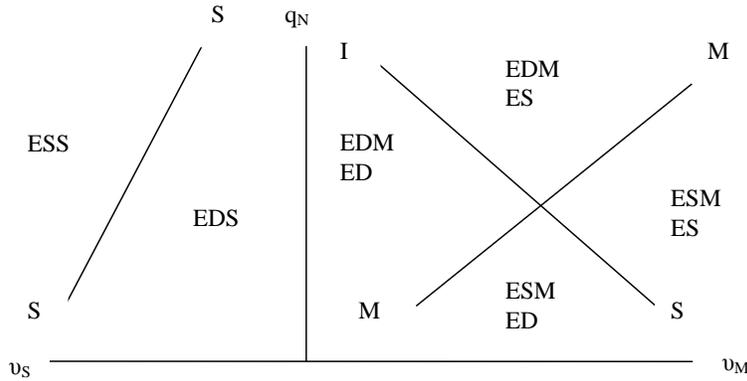


Figure 1: The system of excess demand conditions represented graphically.

### 3 Comparative Statics

This section analyzes some policy experiments. Table 2 summarizes the results.

#### 3.1 A Fiscal Contraction

Let us begin with a simple experiment. Since the government sector consumes non-tradables only, a cut in its spending has no direct effect on demand for

<sup>13</sup>The decline in S-sector employment works in the opposite direction but this effect is likely to be small, especially given that  $\delta < 0$ , and that this sector employs a relatively small proportion of the work force.

<sup>14</sup>Note that this implies that  $\Theta_1 k_{dM} < s k_{dM} + t^* k_{fM}$ , which is similar to the standard stability assumption made in one sector models with output adjustment.

manufactures. An excess macroeconomic supply is created, however, leading to a real internal depreciation, which in turn, lowers output in the M-sector as expenditure switches towards non-tradables. The real internal depreciation also results in an increase in services output, thus shifting the composition of tradable output from manufactures to services. Figure 2 illustrates our analysis.<sup>15</sup> The upshot is that while M-exports are not affected, S-exports fall in value, so that the value of total exports declines. Since the profit rate declines in both sectors,<sup>16</sup> so does the inflow of FDI.

The real internal depreciation, which is a rather standard result in dependent economy models with a tradable and a non-tradable sector, helps explain why fiscal restraint is often seen as a part and parcel of export-led growth.<sup>17</sup> However, notice that while the result is in line with conventional wisdom, the structure of our economy means that the broader outcome is not, at least if the aim is to have *manufacturing-based* export-led growth. In fact, manufacturing output *declines* in our framework, and it is the volume of exports of services that rises. Moreover, the reduction in foreign investment undermines prospects for an FDI-based export boom.

Finally, although we do not provide the detailed analysis here, Table 2 shows that a rise in the tax rate, not surprisingly, will have identical effects.

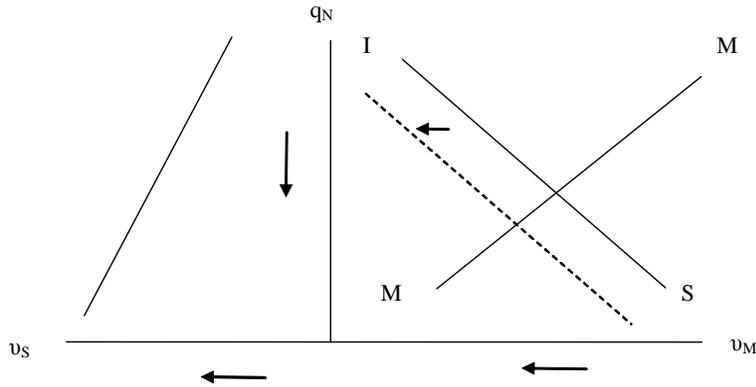


Figure 2: The consequences of a fiscal contraction

### 3.2 An increase in the private saving rate

A rise in private savings (as opposed to public savings, as in the previous section), again has the direct macroeconomic effect of creating excess supply,

<sup>15</sup>Mathematically, it can be shown that  $M_{\bar{g}} = 0$  and  $IS_{\bar{g}} > 0$ .

<sup>16</sup>In the M-sector because  $v_M$  declines and in the S-sector because  $q_S$  declines, although the rise in  $r_S$  tampers the latter decline.

<sup>17</sup>See, for example, Eichengreen [2007].

which puts downward pressure on M-sector output and the relative price of non-tradables. However, in this case, there is a direct effect on the M-sector too, namely that of reducing demand for manufactures and thus M-sector output, which puts upward pressure on the relative price of non-tradables.<sup>18</sup> While  $v_M$  unambiguously declines as a result, it can be shown that the new equilibrium level of  $q_N$  is lower as well (in graphical terms, the IS curve shifts more than the MM curve in Figure 3 below). Again, these are standard results – the former in models with output adjustment and the latter in dependent economy models. However, the resulting increase in services sector output is an interesting feature of our framework, with implications for the future evolution of the economy.

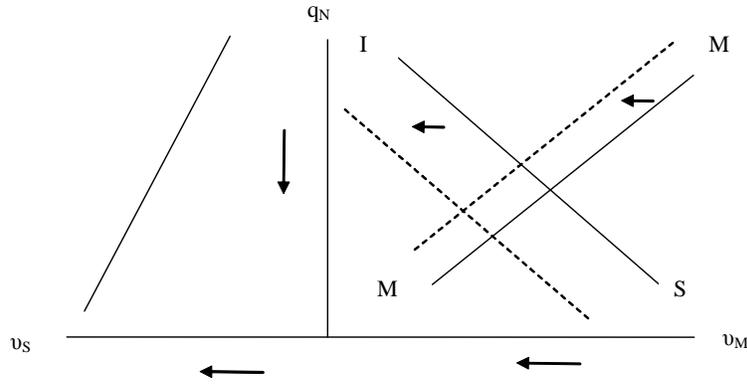


Figure 3: The impact of increased private savings

### 3.3 Shift in World Demand Towards Domestic Services Exports

An increase in global preference for domestic services (i.e., an increased inflow of tourists) that increases  $D$  has the direct effect on the M-sector of creating excess demand for Cambodia’s manufactures (thanks to greater employment and profits in the S-sector). The indirect effect of the resulting increase in manufacturing output is to create excess macroeconomic supply and thus to put downward pressure on the real internal exchange rate. The direct effect of the shift in world demand on the macroeconomic side is to create excess supply, owing to greater S-sector profitability (which causes investment diversion from the M-sector) and savings. A real internal depreciation results, the indirect effect of which on the M-sector is to put downward pressure on output through substitution effects. Thus, the real internal exchange rate is unambiguously lower at the new equilibrium while – since it can be shown that the direct effect

<sup>18</sup>Mathematically, it can be shown that  $M_S < 0$  and  $IS_S < 0$ .

on the macroeconomic sector dominates (i.e., IS shifts more in the horizontal direction than MM does in Figure 4) – manufacturing output is also lower.<sup>19</sup>

Thus, greater world liking for domestic tradable services shifts output in favor of the services sector. More interestingly, it leads to a real internal depreciation, and lowers the profit rates in both sectors.

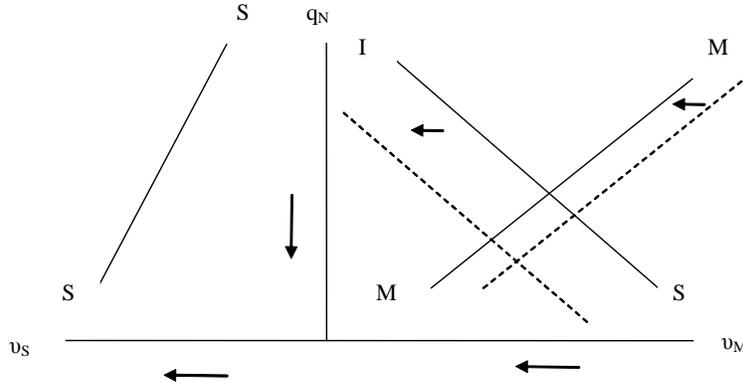


Figure 4: A Shift in Global Preferences Towards Domestic Tourism Services

### 3.4 Shift in world demand towards domestic manufactures

Suppose that global consumers develop a greater preference for domestic manufactures (i.e., there is an increase in  $B$ ). Alternatively, one could assume that Cambodian products get preferred access to world markets. The only direct effect is on the M-sector, where the excess demand created results in an increase in M-sector output, the excess savings being created then leading to a real internal depreciation. The profit rate increases in the M-sector while falling in the S-sector, creating greater foreign and domestic investment in the former. Figure 5 illustrates this policy experiment. Thus, interestingly enough, an increase in global preferences for domestic products raises services output regardless of whether the increased preference is for services or manufacturing. This result follows from the real internal depreciation caused by such a shock.<sup>20</sup>

On a related note, a shift in *domestic* demand towards tradables for reasons other than relative price changes has similar effects on relative prices, outputs, accumulation and distribution. We, therefore, skip a detailed discussion of the results, which are simply summarized in Table 2.

<sup>19</sup>Mathematically, it can be shown that  $M_D > 0$  and  $IS_D < 0$ .

<sup>20</sup>Mathematically, it can be shown that  $M_B > 0$  and  $IS_B = 0$ .

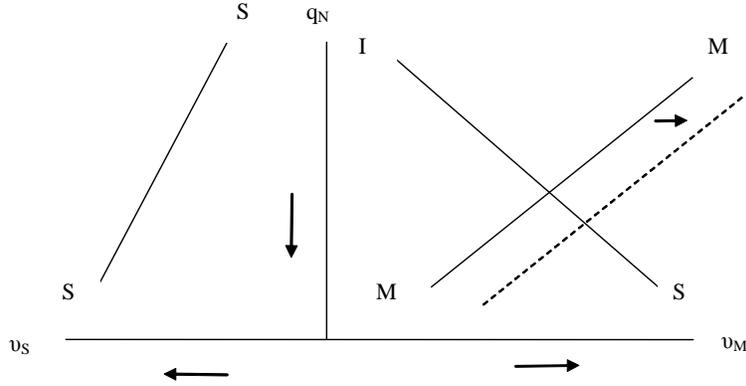


Figure 5: A shift in world demand towards domestic manufactures

### 3.5 Decline in manufacturing or service sector mark-ups

This and the next sub-section look at the effects of changes in distributional parameters on variables of interest. We begin with the consequences of a decline in the manufacturing sector target mark-up, perhaps due to multilateral trade liberalization and the resulting increased competition. Such a shock, which will translate into a lower price for manufactured goods, would increase domestic demand for manufactures on account of both income and substitution effects. Moreover, external demand will rise as well due to substitution towards domestic manufactures. The direct effect on the M-sector, therefore, is to create excess demand for manufactures, putting upward pressure on output, the indirect effect of which on the macroeconomic balance is to create excess supply and lower the relative price of non-tradables. The direct effect of the change in mark-up on the macroeconomic side is to create excess demand through lowering savings and tax revenues.<sup>21</sup> The indirect effect on the M-sector of the real internal appreciation resulting from this excess demand is to further boost output. Thus, while manufacturing output and employment are unambiguously higher at the new equilibrium, the net impact on the real internal exchange rate is ambiguous. If the direct effect on the macroeconomic side dominates, we experience a real internal appreciation, otherwise a depreciation. In terms of Figure 6, if the IS curve horizontally shifts more than the MM curve, the real internal exchange rate appreciates and vice versa. Finally, the effects on equilibrium profit rates and rates of accumulation are also ambiguous. Notice that the more sensitive manufacturing investment is to profit rate differentials, the greater the likelihood that the real internal exchange rate will depreciate, and thus the greater the probability that S-sector profitability will decline. Also, the more sensitive international demand is to the relative price of manufactures,

<sup>21</sup> Assuming, as before, that  $s > \Theta_1$ , and that the valuation effect on government spending is not too large.

the greater the likelihood that the M-sector profit rate will be higher.

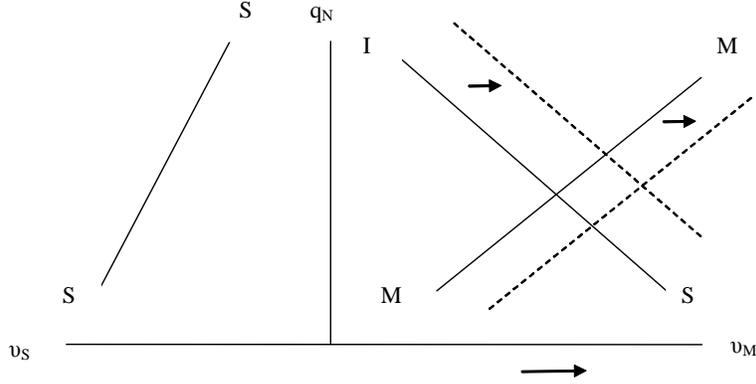


Figure 6: A decline in manufacturing sector mark-up

A decline in the S-sector mark-up has more or less similar effects, if we continue to assume that workers are the main source of domestic demand for manufactures,<sup>22</sup> except that the M-sector profit rate rises *unambiguously*.

### 3.6 Higher contractual wages in the manufacturing sector (improved labor standards)

Finally, consider a scenario where an improvement in labor standards is reflected in higher contractual wages. The target mark-up rate remains unchanged in this case, but the price of the manufactured good rises somewhat, while the actual mark-up declines (due to partial pass-through). M- and S-sector workers will now demand manufactures in greater quantities but domestic capitalists, N-sector workers, and foreign residents will demand less. Considering that the international market is the major source of demand in our setting, an excess supply of manufactures is created, the indirect effect of which via the resulting fall in manufacturing profits is to create excess demand on the macroeconomic side, thus putting upward pressure on the real internal exchange rate. The higher wage rate increases the M-sector profit rate *in terms of the capital good* (due to the positive impact on the price of manufactured output, which more than compensates for the decline in the profit share), which has the direct macroeconomic effect of creating excess supply via greater savings and tax revenues.<sup>23</sup> This puts downward pressure on the real internal exchange rate, which has the indirect effect of lowering the output of manufactures. Thus, M-sector output falls unambiguously while the real internal exchange rate may be lower or higher

<sup>22</sup>So that higher demand due to increased S-sector employment dominates the lower demand from S-sector capitalists. In this case, a decline in  $\bar{\tau}_S$  creates excess demand for manufactures.

<sup>23</sup>Assuming plausibly that the valuation effect on government spending is not too large.

at the new equilibrium (see Figure 7).<sup>24</sup> Note that the lower the degree of pass-through into costs, the greater the likelihood that a real internal appreciation will take place. In the extreme case, where pass-through is zero, say due to highly competitive international conditions, the IS curve shifts very little, and the real exchange rate unambiguously appreciates.

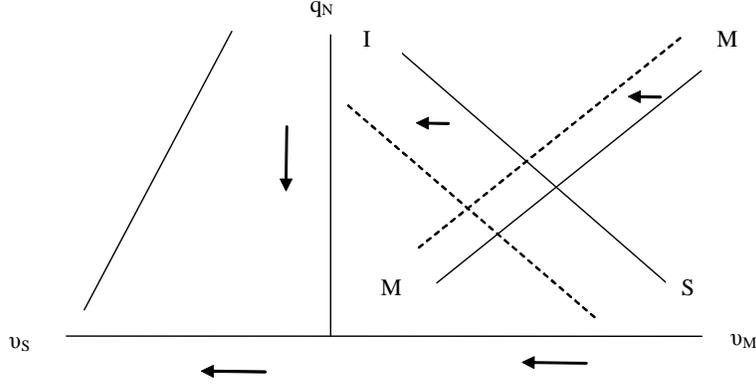


Figure 7: Improved labor standards as reflected in higher wages

## 4 Medium-Run Distributional Dynamics

In the medium-run, we relax the assumption of fixed contractual wages in the tradable sector, and consequently also that of fixed distributional shares in the two sectors, considering these as endogenously adjusting variables instead. Moreover, while labor mobility is assumed to make service sector wages sensitive to those in the manufacturing sector, the assumption of a constant differential is relaxed. In a broad sense, our framework has the properties of a conflicting claims model. Firms in the manufacturing sector are assumed to adjust prices in response to deviations from a target profit share within constraints imposed by international competition. Thus,

$$\hat{P}_M = \xi_M (\pi^* - \pi_M) + \epsilon(P^* - P_M) \quad (14)$$

where  $\xi_M$  is the degree of M-capitalist sensitivity to profit share deviation from their target while  $\epsilon$  is a measure of the constraints on pricing imposed by foreign competition. Workers in the manufacturing sector have a wage floor  $\underline{W}_M$  in the medium run, which is determined by prevailing labor standards. Alternatively,  $\underline{W}_M$  could be interpreted as the difficulty of firing workers if labor standards take the form of increased job security (or more formal job contracts). Wages rise, to a greater or lesser extent, in response to increases in productivity.

<sup>24</sup>Mathematically, it can be shown that  $M_{\underline{W}_M} < 0$  and  $IS_{\underline{W}_M} < 0$ .

$$\hat{W}_M = -\psi\hat{a}_M + \sigma W_M; \psi, \sigma > 0 \quad (15)$$

where  $\psi$  is a measure of worker bargaining power insofar as they are able to share in the benefits of productivity increases, while  $\sigma$  captures the effect of having a wage floor.<sup>25</sup> We assume that a higher wage floor provides workers with a more secure basis for negotiating wage increases, perhaps because the cost of punishment in the form of within sector demotion declines. The evolution of labor productivity in the manufacturing sector is a function of foreign investment in that sector. This reflects the expectation that foreign investment leads to technology transfer, introduction of new processes, and domestic adoption of “best practices” through institutional spillovers and labor turnover.<sup>26</sup>

$$-\hat{a}_M = \nu_0 + \nu_1 g_{fm}; \nu_i > 0 \quad (16)$$

Since,  $\pi_M = 1 - \frac{W_M a_M}{P_M} - \Omega_M$ ,  $\Omega_M$  being the output share of intermediate inputs, equations (14)-(16) yield:

$$\frac{\dot{\pi}_M}{1 - \pi_M} = \Pi_M = \left(1 - \frac{\Omega_M}{1 - \pi_M}\right) [(1 - \psi)(\nu_0 + \nu_1 g_{fm}) - \sigma W_M] + \xi_M (\pi^* - \pi_M) + \epsilon(P^* - P_M) \quad (17)$$

where  $g_{fm} = g_{fm}(\pi_M, \pi_S)$ , and  $\partial g_{fm} / \partial \pi_i < 0$  (see Table 1).<sup>27</sup> Consider next the behavior of the profit share in the services sector. Analogously to the M-sector, capitalists in the S-sector have a target profit share. However, since they face lower competition from abroad, capitalists can pass on any change in costs to the consumers in the short- to medium-run, without paying much attention to the cost of deviation from the international price. The service sector gets workers either from the M-sector or from the non-tradable sector (which we now suppress for analytical tractability). They prefer the M-sector workers (due to education, skills, work ethic, etc.). A tightening of the M-sector labor market, i.e., an increase in demand for M-sector output), therefore, creates conditions conducive to S-workers successfully asking for higher wages.

$$\hat{P}_s = \xi_s (\pi^* - \pi_S); \xi_s > 0 \quad (18)$$

$$\hat{W}_S = \zeta(W_M - W_S) + \chi a_M v_M \kappa; \zeta, \chi > 0 \quad (19)$$

where  $\zeta$  is the sensitivity of S-sector workers to the wage gap relative to the M-sector,  $\chi$  is the degree of labor market spillover from the M-sector, and  $\kappa$  is

<sup>25</sup>Wage changes can, in addition, also be specified as a function of producer (or consumer) price changes, but that does not qualitatively affect our results.

<sup>26</sup>See, for example, Caves [1996] for a comprehensive survey. See also Javorcik [2004]. See Aitken and Harrison [1999] and Barrios [2002] for studies that do not find strong evidence of such spillovers to the domestically-owned firms.

<sup>27</sup>A sufficient (but not necessary) condition for this sign to hold is that the decline in capacity utilization dominate the rise in profit share so that the profit rate in the M-sector falls. This assumption is highly plausible given the internationally competitive nature of labor-intensive products.

the (exogenously given) capital-labor ratio. Equations (18) and (19), along with the definition of  $\pi_S$  yield the following equation of motion for the profit share in the S-sector:

$$\frac{\dot{\pi}_S}{1 - \pi_S} = \Pi_S = \xi_s (\pi^* - \pi_S) - \zeta(W_M - W_S) - \chi a_M v_M \kappa \quad (20)$$

Equations (17) and (20) give us a system of two non-linear, autonomous, first order differential equations, which can be summarized as follows:

$$\dot{\pi}_M = \Pi_M(\pi_M, \pi_S) \quad (17')$$

$$\dot{\pi}_S = \Pi_S(\pi_M, \pi_S) \quad (20')$$

where  $\frac{\partial \Pi_M}{\partial \pi_M} < 0$ ,  $\frac{\partial \Pi_M}{\partial \pi_S} < 0$ ,  $\frac{\partial \Pi_S}{\partial \pi_M} > 0$ , and, finally,  $\frac{\partial \Pi_S}{\partial \pi_S} \leq 0$ . The last sign requires some clarification. An increase in the profit share in the S-sector has two opposite effects. Starting from a steady state value, one effect is to push the profit share downwards (i.e.,  $\dot{\pi}_S < 0$ ) due to its above-target value (i.e.,  $\pi^* < \pi$ ). The other effect is to reduce demand for manufactures (due to the shift of income from non-savers to savers), which loosens the M-sector labor market, placing S-workers in a weaker bargaining position, and putting upward pressure on the profit share in that sector. If the former effect dominates,  $\frac{\partial \Pi_S}{\partial \pi_S} < 0$  (Case 1), otherwise,  $\frac{\partial \Pi_S}{\partial \pi_S} > 0$  (Case 2). Figure 8 illustrates the two cases graphically. In Case 2, the existence of a *locally* stable node requires that the  $\dot{\pi}_S = 0$  isocline be steeper than the  $\dot{\pi}_M = 0$  isocline, and that  $\left| \frac{\partial \Pi_M}{\partial \pi_M} \right| > \left| \frac{\partial \Pi_M}{\partial \pi_S} \right|$ .

#### 4.1 The medium-run effects of a rise in labor standards

Suppose that standards are raised through a policy that lifts the wage floor. Figure 9 illustrates the effects. One would expect such an action to undermine the profit share in the M-sector (and, through labor market spillovers, in the S-sector). This is indeed what happens in Case 1. A rise in  $W_M$  initially leads to a fall in the M-sector profit share as workers bargain from a stronger position. As manufacturing wages rise, so do S-sector wages. The re-distribution of income towards non-savers raises manufacturing output and tightens the labor market, putting further downward pressure on the S-sector profit share. However, this spillover effect is dominated by the ability of S-sector capitalists to stay close to their distributional target, *dampening* the decline in their share. The simplest transitional dynamics involve a monotonic (non-cyclical) decline in both profit shares as these reach their new steady state values.

Case 2 presents a rather counter-intuitive (and perhaps more interesting) result. Again, initially the profit shares decline in both sectors. However, the labor market spillover effect dominates the ability of S-sector capitalists to approximate their target share so that when a distributional shift towards non-savers tightens the labor market the effect is to *exacerbate* the decline in their share. Consequently,  $\pi_S$  continues to decline even as  $\pi_M$  reaches its

steady state value. As the former falls beyond this point, foreign investment rises (due to the rise in utilization and hence the profit rate), which, through increasing manufacturing labor productivity, leads to a rising profit share in that sector (note that since  $0 < \psi < 1$ , workers get only a partial share of the productivity increase). As the decline in  $\pi_S$  and parallel increase in  $\pi_M$  continue, the redistribution towards savers in the M-sector dampens the decline in the former as the labor market develops some slack. Both sectors may see their distributional shares reaching their new steady state values without further complications. Alternatively, if the distributional shares in the S-sector reach a steady state value before that happens in the other sector, the continuing increase in M-capitalists' share leads to a rise in S-capitalists' share as the labor market continues to soften, giving the latter more bargaining power. The upshot is that higher labor standards in Case 2 see the profit share decline in the S-sector, but *rise* in the M-sector due to strong labor market spillovers. Transitional distributional shares *overshoot* their steady state values in either one or both sectors.

In brief, higher labor standards in the M-sector, under the assumptions made in Case 2, lead to a higher profit share in that sector.

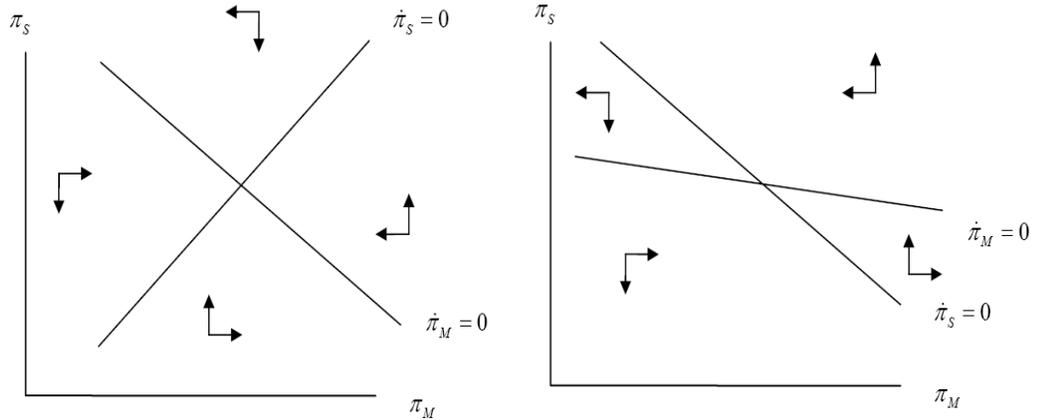


Figure 8: Two cases: Case 1 (low labor market spillover effects), and Case 2 (significant labor market spillover effects).

## 5 Long-Run Considerations: Accumulation and Sectoral Distribution of Resources

For the purposes of our analysis, we make the more realistic long-run assumption that the manufacturing sector is an international price taker (so that  $P_M =$

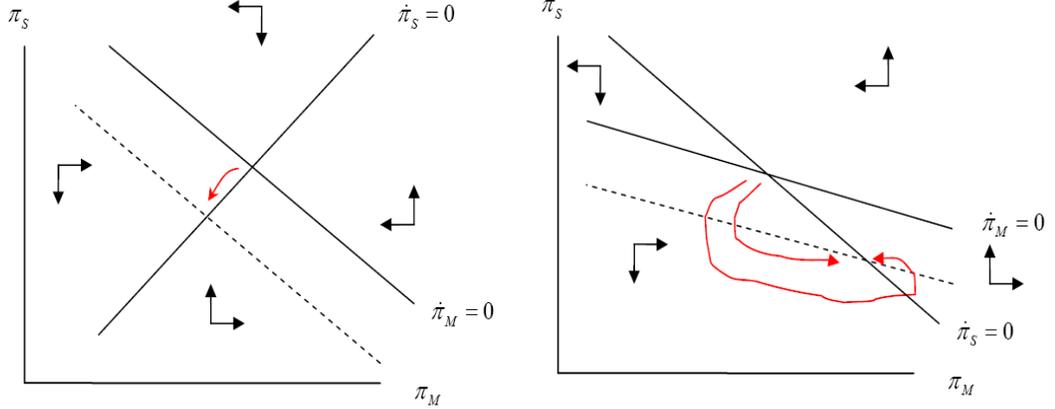


Figure 9: The effects of raising the wage floor in the two different cases

$P^*$  and  $q^* = 1$ ). Logical consistency implies full capacity utilization in the M- and S-sectors. For simplicity we continue to suppress the government and non-tradable sectors, so that all domestic consumption is of manufactures. The state variables,  $k_{dM}$  and  $K_{fM}$  are now allowed to vary during the transition to the steady state.

Long-run considerations require re-specification of the accumulation functions. Our closures are derived from the assumptions that in the long-run steady state: (i) the economy generates adequate resources to finance all its investment needs, that is, the current account is balanced, and (ii) the structure of the economy stabilizes insofar as it's composition in terms of manufacturing and services is concerned. As discussed below, these closures also imply long-run steady state profit rate equalization. Assuming that labor standards impose a burden on capitalists in the sectors that these are applied in, we specify the following sectoral accumulation functions for the manufacturing sector:

$$g_{fM} = \hat{K}_{fM} = \theta_5(\Lambda_f r_M - r^*); \quad 0 < \Lambda_f < 1 \quad (21)$$

$$g_{dM} = g_{dS} + \theta_6(\Lambda_d r_M - r_S) \quad (22)$$

$$g_d = \hat{k}_{dM} = \hat{K}_{dM} - \hat{K}_{dS} = g_{dM} - g_{dS} = \theta_6(\Lambda_d r_M - r_S); \quad 0 < \Lambda_d < 1 \quad (23)$$

where  $g_d$  is the rate of accumulation in the manufacturing sector relative to that in the services sector, and  $\Lambda_f$  and  $\Lambda_d$  reflect the extra costs imposed by labor standards on foreign and domestic manufacturing capitalists, respectively.

In other words, these parameters are inverse measures of the labor standard premium that investors demand to invest in the manufacturing sector. This specification assumes that the medium-run wage floor changes over time so that investors develop expectations regarding the costs of labor standards, and adjust their profit rate comparisons accordingly. These also have the property that under the specified long-run closures,  $\Lambda_f r_M = r^*$  and  $\Lambda_d r_M = r_S$  so that (labor standards-adjusted) profit rates equalize between sectors.<sup>28</sup>

This set-up implies that our new system of excess demand equations in  $\pi_M$  and  $q_S$  can be written as follows:

$$\text{M-Sector: } (1 - \pi_M - b_M)\bar{v}_M k_M + (1 - \pi_S)\bar{v}_S q_S + (1 - s)(\pi_M \bar{v}_M k_{dM} + \pi_S \bar{v}_S q_S) + \frac{Bz^*}{K_{dS}} - \bar{v}_M k_M = 0 \quad (11e)$$

$$\text{S-Sector: } D \left( \frac{1}{q_S} \right)^{1+\delta} \frac{z^*}{K_{dS}} - \bar{v}_S = 0 \quad (11f)$$

$$\text{IS: } g_{dS} - (s - \theta_6 \Lambda_d) \frac{k_{dM}}{1 + k_{dM}} \pi_M \bar{v}_M - \left( \frac{s}{k_{dM}} + \theta_6 \right) \frac{k_{dM}}{1 + k_{dM}} \pi_S \bar{v}_S q_S = 0 \quad (11g)$$

where international tourists' plans are now specified to be price-elastic in the long run so that  $\delta > 0$ . Manufacturing FDI is assumed to facilitate learning-by-doing and other improvements that push out the technological frontier and increase the maximum technologically feasible level of output for a given amount of capital. Thus,  $\bar{v}_M = \gamma(K_{fM})$ , where  $\gamma' > 0$ . It can be shown that  $M_{\pi_M} < 0$ ,  $M_{q_S} > 0$ ,  $IS_{q_S} < 0$ , and under the plausible assumptions that  $s > \theta_6$ ,  $IS_{\pi_M} < 0$ . This assumption, which simply requires that the domestic investment response to adjusted profit rate differences in the two sectors not be too large compared to the savings response, is consistent with our earlier analysis. Comparative static exercises yield the results summarized in Table 3. The detailed derivation of these results is relegated to the available upon request mathematical appendix.

## 5.1 The comparative dynamics of labor standards

This section analyzes the long-run effects of an increase in labor standards in manufacturing, considering separately the improvement of such standards in the foreign-owned and domestically-owned segments of the manufacturing sector. The results point to some interesting differences in behavior depending on which sector it is that the labor standards directly impact.

Our equations of motion consist of equations (21) and (23), which along with Table 3 reveal the information required to represent our system graphically with the help of Figure 10.<sup>29</sup> Note in particular that,

<sup>28</sup> Moreover, when  $\Lambda_f = \Lambda_d$ , that is, the labor standard premium is uniform across the manufacturing sector,  $r_S = r^*$ .

<sup>29</sup> Again, the detailed derivations are not provided here but are available in the available upon request appendix.

$$r_M = r_M(k_{dM}, K_{fM}, \Lambda_d) \text{ and } r_S = r_S(k_{dM}, K_{fM}, \Lambda_d)$$

with all the partial derivatives except for  $\frac{\partial r_M}{\partial k_{dM}}$  and  $\frac{\partial r_M}{\partial K_{fM}}$  being positive. The existence of a locally stable node or focus requires that the  $\hat{k}_{dM} = 0$  isocline be steeper than the  $\hat{K}_{fM} = 0$  isocline.<sup>30</sup> Notice that the northwestern and southeastern quadrants are *traps*. This implies that the stock of foreign capital and that of relative domestic manufacturing capital cannot be moving in the same direction as the steady state equilibrium is approached.

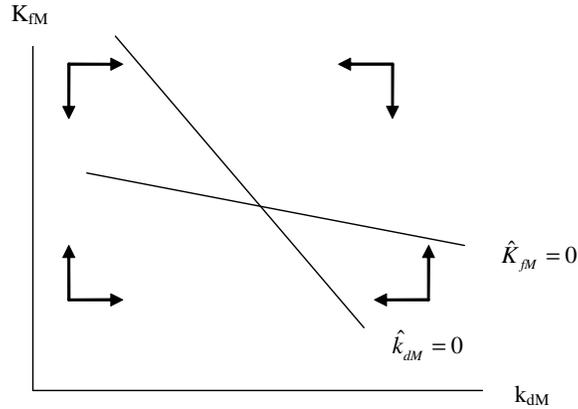


Figure 10: Phase diagram summarizing the long-run model

### 5.1.1 Higher labor standards in the foreign-owned sector

A decline in  $\Lambda_f$  shifts the  $\hat{K}_{fM} = 0$  isocline downwards and to the left. The transition to the new steady state equilibrium involves a monotonic decline in both the stock of foreign capital and the relative stock of domestic manufacturing capital (see Figure 11). Intuitively, higher labor standards in the foreign-owned sector mean a lower standards-adjusted profit rate in that sector, leading to capital outflows. The decline in foreign capital stock, in turn, results in a rise in the relative profit rate in the manufacturing sector (both because  $r_M$  rises and because  $r_S$  declines). The result is higher domestic investment in the manufacturing sector at the same time that the downward pressure on foreign inflows is dampened until the new steady state equilibrium is reached.

<sup>30</sup>Note that stability also requires that  $\gamma'$  be relatively small, that is, that the enhancement of technological capabilities due to FDI be relatively limited. This requirement is likely to be satisfied given the limited scope for such enhancements in the relatively unsophisticated garment sector. If this requirement is not satisfied, however, we get instability and corner solutions, with one or both of the state variables declining to zero.

Thus, interestingly enough, higher standards directed at the foreign-owned manufacturing sector leads to a rise in the stock of domestic manufacturing capital relative to services capital. To the extent that manufacturing is the source of positive externalities, this may be good news, although dampened by the fact that lower foreign investment may imply less inward bound technology transfer.

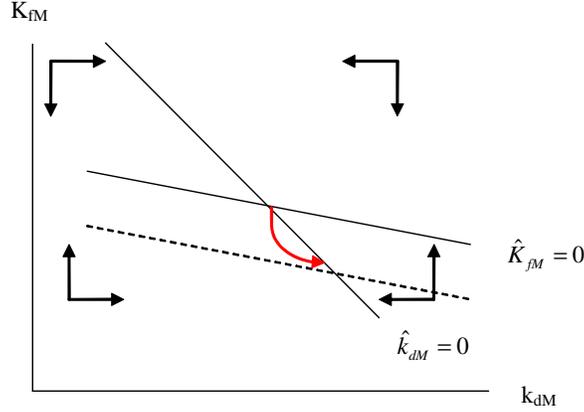


Figure 11: Improved labor standards in the foreign-owned sector.

### 5.1.2 Higher standards in domestically-owned manufacturing

As seen in Figure 12, a decline in  $\Lambda_d$  shifts both isoclines downwards and to the left. However, it can be demonstrated that the likely scenario involves the  $\hat{k}_{dM} = 0$  shifting more, so that while the stock of foreign capital is higher at the new steady state, the relative stock of domestically-owned manufacturing capital is lower.<sup>31</sup> The transition to the new steady state involves overshooting of the foreign capital stock.

The intuition for these results is as follows. Higher labor standards result in a lower standards-adjusted profit rate in the domestically-owned manufacturing sector. However, unlike the case where standards were improved in the foreign-owned manufacturing sector, there is another *direct* effect. The reduced domestic investment creates excess savings, which puts downward pressure on the manufacturing profit share and relative price of services, and thus on profit rates in both these sectors.<sup>32</sup> Since initially  $r_M$  declines more than  $r_S$ ,<sup>33</sup> both the foreign and domestically-owned relative manufacturing capital stocks too

<sup>31</sup> An alternative, relatively unlikely scenario involves both state variables attaining a lower value at the new steady state. We ignore this scenario in the interest of brevity.

<sup>32</sup> Recall that  $\frac{\partial r_i}{\partial \Lambda_d} < 0$ ,  $i = M, S$ .

<sup>33</sup> More formally, it can be shown that  $r_M \left[ 1 + \frac{\partial r_M / \partial \Lambda_d}{r_M / \Lambda_d} \right] > \frac{\partial r_S}{\partial \Lambda_d}$ . Notice that  $\frac{\partial r_M / \partial \Lambda_d}{r_M / \Lambda_d}$  is the labor standards-elasticity of the profit rate in the M-sector.

initially decline until the foreign capital stock arrives at a transitory steady state value. Beyond this point, the continued decline of the relative domestic manufacturing stock raises  $r_M$  so that foreign investment inflows resume. The foreign capital stock continues to grow while the relative domestically-owned manufacturing capital stock declines until the new steady state is reached.

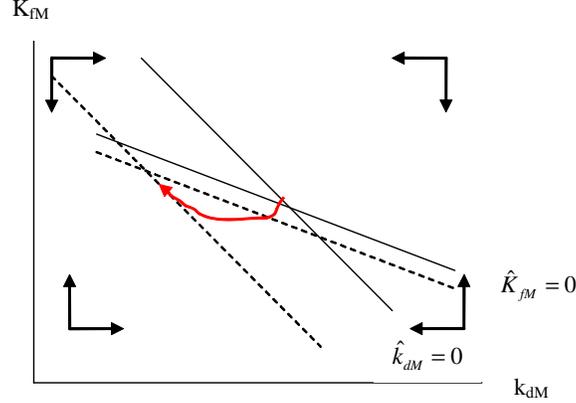


Figure 12: Higher labor standards in domestically-owned manufacturing

### 5.1.3 Higher labor standards in the entire manufacturing sector

Next consider a scenario whereby the government imposes higher labor standards in the manufacturing sector regardless of the nationality of the owners. The accumulation functions now become:

$$g_{fM} = \hat{K}_{fM} = \theta_5(\Lambda r_M - r^*); \quad 0 < \Lambda_f < 1 \quad (21')$$

$$g_{dM} = g_{dS} + \theta_6(\Lambda r_M - r_S) \quad (22')$$

$$g_d = \hat{k}_{dM} = \hat{K}_{dM} - \hat{K}_{dS} = g_{dM} - g_{dS} = \theta_6(\Lambda r_M - r_S); \quad 0 < \Lambda_d < 1 \quad (23')$$

A comparative dynamic analysis similar to the one carried out in the previous sub-sections indicates that both the isoclines again shift downwards and to the left (see Figure 13). However, it can be demonstrated that the  $\hat{K}_{fM} = 0$  unambiguously shifts more, so that while the stock of foreign capital is lower at the new steady state, the relative stock of domestically-owned manufacturing capital is higher. The transition to the new steady state involves overshooting of the relative domestically-owned manufacturing capital stock.

Higher across-the-board labor standards result in a lower labor standards-adjusted profit rate in both manufacturing sectors. As in Section 5.1.2, there is another *direct* effect. The reduced domestic investment creates excess savings, which puts downward pressure on the manufacturing profit share and relative price of services, and thus on profit rates in both these sectors. Since initially  $r_M$  declines more than  $r_S$ , both the foreign and domestically-owned relative manufacturing capital stocks too initially decline until the domestic relative capital stock arrives at a transitory steady state value. Beyond this point, the result of the continued decline of the foreign-owned stock is to raise  $r_M$  while lowering  $r_S$  so that the domestic manufacturing stock builds up. The relative domestic manufacturing stock continues to grow while the foreign capital stock declines until the new steady state is reached.

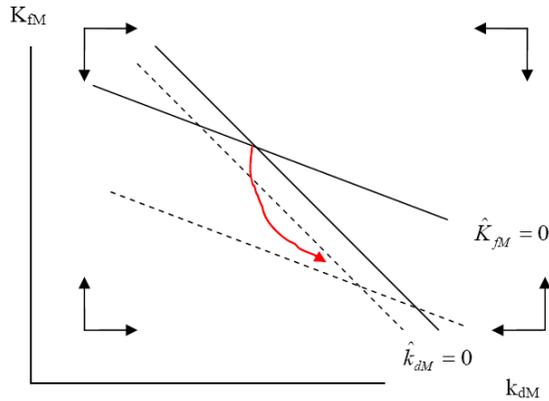


Figure 13: Higher labor standards imposed across the manufacturing sector

The reader may have noticed that the fact that foreign capitalists do not consume locally, and that all FDI is used up in importing capital goods (which means that the foreign capital stock does not make an appearance in the macroeconomic balance equation) makes a huge difference between the direct effects of  $\Delta\Lambda_f$  on the one hand, and those of  $\Delta\Lambda_d$  and  $\Delta\Lambda$ , on the other. This difference plays a major role in driving the results of our comparative dynamic exercises.

## 6 Summary and Concluding Remarks

This paper started out by developing a framework that incorporates several stylized features of the Cambodian economy. In particular, it introduced a variant of the dependent economy framework that takes into account the varied nature of the Cambodian tradable sector. Our framework has a non-tradable goods producing sector and two tradable goods producing sectors, one that

produces manufactures as part of a vertically integrated global production chain that sells in highly competitive markets and another that sells tourism-related services in the form of a brand-name product. Cambodia is currently part of a much discussed experiment called the “Better Factories program” sponsored by the International Labor Organization (ILO) in collaboration with the World Bank, under which Cambodian apparel manufacturers are provided preferred access to the US market in return for demonstrated improvements in working conditions for labor. This program, if successful, may become a template for other countries. A major focus throughout the paper, and especially while exploring comparative dynamics, therefore, was to analyze possible dynamic consequences of higher labor standards using simple models.

Based on our initial framework, we carried out several comparative static exercises to explore the consequences of various policy measures or exogenous shocks. A fiscal contraction, for example, results in a real internal depreciation, which is a rather standard result. Due to the real internal exchange rate change, however, the composition of economy-wide output shifts in favor of tradable services and away from tradable manufactures, rather than from non-tradables to tradables, as in the canonical dependent economy model. Moreover, it reduces the profit rate in both the tradable sectors, with implications for savings and capital accumulation. Higher private savings have similar consequences for sectoral distribution, profit rates, and the real internal exchange rate.

A shift in domestic or international consumer preferences towards domestic *manufactures* results in a real internal depreciation, greater tradable output (in both sectors), and diversion of investment from services into manufactures due to differential profit rate movements. A shift in international preferences towards domestic *services*, on the other hand, while also resulting in a real internal depreciation, has the effect of shifting the mix of output towards services. More interestingly, the profit rates fall in both tradable sectors, which in turn has negative consequences for domestic and foreign investment.

Turning to raising labor standards through better wage contracts, our analysis indicates that, given the small size of its domestic market, its high export-orientation, and the competitive nature of international markets for labor-intensive manufactures, such standards may hurt our stylized economy in the short run, although the long-run effects could be more salubrious. This underscores the need to cushion the short-run impact through effective incentives such as preferential access to Cambodian products in high income markets.

Next, we extended our framework to analyze medium-run dynamic distributional considerations. In doing so, we simplified by assuming away the non-tradable sector in order to focus on tradables. In the presence of weak intersectoral labor market spillover effects, we got the unsurprising result that higher manufacturing sector labor standards, modeled as a rise in a conceptual wage floor, reduce the steady state profit share in both sectors. This need not be true, however, since the tightening of the manufacturing sector labor market due to greater output in response to demand from more prosperous workers could spill over into significantly higher wages in the services sector, which, through greater demand for manufactures, could metamorphose into a virtuous cycle

with higher wages, rising manufacturing output, rising foreign investment, and productivity enhancements coexisting with a higher profit share in the manufacturing sector as the economy arrives at its new steady state. Notice that the key feature separating the two cases is the strength of the spillover effects from the manufacturing sector labor market to the services sector one. Strong effects in the form of higher wages in the services sector when manufacturing employment rises makes the second (virtuous) case more likely.

Finally, we adapted our framework to explore long-run changes in steady state sectoral capital stocks in a dynamic framework. Assuming that the tightening of labor standards imposes additional costs on investors which are factored into investment decisions, we considered three distinct cases: (i) in which the standards are imposed on international investor-owned manufacturing firms (ii) in which domestically-owned firms are targeted, and (iii) in which the entire manufacturing sector is targeted. In the first two scenarios, the stock of capital in the directly affected sector declines over time while that of the other sector rises. This perhaps is not surprising given that the targeted firms are the ones that bear the cost of the standards. Less intuitively, however, the imposition of higher standards across the entire manufacturing sector yields results similar to those derived when only the foreign-owned firms are targeted for improvement.

The main lesson emerging from our analysis is that Cambodia's reliance on selling in highly competitive global sectors makes raising labor standards a risky enterprise unless accompanied by greater access to international markets (i.e., a rise in  $B$ ) in the short run. If steps are taken to cushion the initial impact, however, the long-run consequences could be healthy in terms of shifting domestic resources towards the manufacturing sector. This finding arises in large part from the plausible assumption that while international investors consider the international profit rate differential, domestic investors are more interested in domestic inter-sectoral profit rate differences. To the extent that factors such as economies of scale, learning-by-doing, and opportunities for technological improvement through reverse engineering tend to be present to a greater extent in the manufacturing sector, our analysis raises interesting questions about the possible consequences of various policy actions. In particular, given the nuanced structure of the Cambodian tradable sector, it suggests that, even within a simple framework, the impact of higher labor standards may be much more complicated than would appear to be the case at first glance.

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Table 1: Definitions of important variables

Variable	Definition (subscript $i = M, N, S$ and $j = f, d$ )
$P_i, P^*$	Domestic and international price levels, respectively
$W_i, w_i$	Nominal and real wages, respectively
$\underline{W}_M$	Wage floor in the manufacturing sector
$a_i$	Unit labor coefficients
$b_i$	Intermediate input coefficients
$r_i$	Profit rates
$X_i$	Volume of exports
$\eta$	Proportional gap between M- and S-sector wages
$\tau_i$	Mark-up factor
$Q_i$	Quantity of output
$\pi_i$	Profit share of output
$C_i$	Consumption of sectoral output
$\varepsilon_i$	Unit variable costs of production (wages plus intermediate inputs)
$\lambda$	Pass-through coefficient
$q_i$	Price of sectoral output relative to that of manufactures
$Z, z, z^*$	Domestic nominal and real income, and world real income, respectively
$\alpha$	Price elasticity of substitution in domestic consumption
$\beta$	International price elasticity of demand for manufactured exports
$\delta$	International price elasticity of demand for services exports
$\bar{G}, \bar{g}$	Nominal and real government spending, respectively
$t^*$	Tax rate
$g_{jk}$	Rates of capital accumulation
$K_{ji}, k_{ji}$	Nominal and relative (to $K_{ds}$ ) capital stocks, respectively
$B$	Parameter reflecting international demand for manufactures
$D$	Parameter reflecting international demand for services
$\theta_{ji}$	Parameters reflecting the “animal spirits” of investors
$s$	Average propensity to save
$\psi$	Worker’s share of productivity growth
$\Lambda_i$	Profit rate premium associated with labor standards

Table 2: Short-Run Comparative Statics

	$q_N$	$v_M$	$v_S$	$r_M$	$r_S$	$\pi_M$	$\pi_S$	$q_S$	$g_{fM}$
Higher $\bar{g}$	-	-	+	-	-	0	0	-	-
Reduced $t^*$	+	+	-	+	+	0	0	+	+
Higher $s$	-	-	+	-	-	0	0	-	-
Higher $B$	-	+	+	+	-	0	0	-	+
Higher $A$	-	+	+	+	-	0	0	-	+
Higher $D$	-	-	+	-	-	0	0	-	-
Reduced $\bar{\tau}_M$	+/-	-	+/-	+/-	+/-	-	0	+/-	-
Reduced $\bar{\tau}_S$	+	+	+/-	+	+/-	0	-	+/-	+
Higher $\bar{W}_M$	+/-	-	+/-	-	+/-	-	0	+/-	-

Table 3: Long Run Comparative Statics

	$\pi_M$	$q_S$	$r_M$	$r_S$
Increase in $k_{dM}$	-	+	-	+
Increase in $K_{fM}$	-	+	-	+
Increase in $\Lambda_d$	+	+	+	+