

## MOBILITY OF CAPITAL, HEALTH SECTOR AND WALRAS' LAW: A GENERAL EQUILIBRIUM ANALYSIS

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**Abstract:** This paper has attempted to examine the consequences of a regime shift from the one of international immobility of health capital to the international mobility of health capital on the sizes of the different sectors of a small open developing in terms of a 3-sector general equilibrium model with a non-traded services sector (healthcare). In the basic model, there is no labour market distortion while in the extended model there is institutionally fixed wage in the sector that provides healthcare services. In this set-up, we have found that a regime shift of international immobility of capital to the international mobility of capital leads to a situation where one of the two traded sectors might vanish and leads to raise a question regarding the validity of trade-balance condition.

**Key words:** Health sector, International health capital mobility, Walras' Law and General Equilibrium.

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## **1. Introduction**

India is one of the fastest growing countries in the modern world as per as GDP is concerned as in recent years it is experiencing a GDP growth rate around 6 to 8 percent. Apart from high growth rate of GDP Indian economy is not performing well in the path of economic development and one of the reasons behind it is poor infrastructural facilities especially in the social sector. Hence instruments of social sector (education, health etc.) should gain special emphasis from the policy makers. Health sector is gaining more importance among other growing sectors like IT, education etc because of its potentiality. Recently India's total expenditure on health care as percentage of GDP is close to 5-6 percent, whereas it is 4.7% in China, 3.5% in Thailand, 4.2% in Malaysia and 3.4% in Saudi Arabia etc.

In recent past the recession in 2008 and recent economic slowdown since 2011 intensified by the Eurozone crisis and the slowdown in the US economy, have brought about a gloom in world economic growth projections. A recent report released by the United Nations (UN) shows that all developing economies will get affected by the slowdown. However, the good news is that East Asian and South Asian economies are increasingly being seen as growth drivers of the world as an outcome of which the health sector has grown exponentially. A CII- Mckinsey report states that the Indian health sector has emerged as one of the largest service sectors with estimated revenue of around \$30 billion constituting 5% of GDP and offering employment to around 4 million people. By 2025, the Indian population will touch 1.4 billion with about 45% constituting urban adults<sup>1</sup>. To cater to this demographic change, the health sector will have to be about \$100 billion in size contributing nearly 8-10% of the future GDP. It will provide more incentive to the foreign investors to invest in the Indian health sector. It is to be noted that such type of foreign investment through foreign direct investment (FDI hereafter) may create some positive impact along with some negative impact. For example, while the emergence of corporate hospitals or foreign funding and tie ups in the hospital segment can have many positive implications, such as helping to improve physical infrastructure, standards, quality of healthcare, technology, and processes along with spill over benefits in areas such as medical devices, pharmaceuticals,

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<sup>1</sup> Source: The Times of India, dated:2<sup>nd</sup> February, 2012.

outsourcing, and research and development, it may also result in higher costs of health care and greater segmentation between the public and private health sectors.

It is to be noted that Government of India has been worried to see the trend of foreign players taking over domestic players in the health care sector (pharmaceutical firms, etc). India today allows 100 per cent FDI in the health sector, but the policy is being reviewed in the wake of fears over the takeover of these domestic companies by MNCs leading to the fact that essential medicines becoming costlier and thereby impacting public health programmes, including the universal immunisation programme. Though as many as 61 drugs worth \$80 billion are likely to go off patent in the U.S. between 2011 and 2013, making it possible for Indian companies to produce cheaper generic versions. Keeping in view the need to exercise a certain degree of supervision over takeovers, the Ministry has recommended that prior approval of the Foreign Investment Promotion Board (FIPB) be made mandatory<sup>2</sup>.

National Health Accounts (NHA) has Shown that in India public health expenditure as a share of GDP increased from 0.96 per cent in 2004-05 to just 1.01 per cent in 2008-09 as compared to 5 per cent for developed economies. The public health sector is characterized by economically inefficient along with poor physical infrastructure. The mismatch between demand and supply of healthcare services and infrastructure has triggered the emergence of private participation in the Indian health sector through FDI. Thus it is become crucial to us to examine the impact of FDI in the health sector<sup>3</sup>.

In this paper we have structured a theoretical model based on general equilibrium trade models with special emphasis to the health sector. From that model we are going to examine the impact of FDI in the healthcare. In a general equilibrium trade models there exists two different ways through which one can show the effect FDI on the output levels of different sectors. One is through infinitesimal change in foreign capital (change in exogenous foreign capital) and other is finite change in foreign capital (change in endogenous foreign capital). In this paper we want to

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<sup>2</sup> The Hindu- 3<sup>rd</sup> September,2011.

<sup>3</sup> We shall refer to FDI as changes in foreign capital stock and FDI in the health sector as changes in foreign health capital stock. In other words 'usual' foreign capital in this paper is referred to as 'foreign capital' and foreign capital related to health sector is referred to as 'foreign health capital'.

show how the behaviour of health sector changes in the presence of finite change in foreign health capital (or, finite change in foreign capital). Here we want to correlate the issues related to international health capital mobility (or, international capital mobility), health sector.

The main motivation behind the present paper generates from two different angles. Firstly, through this paper we have explained the impact of inflow endogenous foreign capital on the size of health care and by doing so we have also explained the impossibility of trade-balance in terms of absence of Walras' law. As per our knowledge this is the first paper in general equilibrium trade model which explains the impossibility of Walras' law in the presence of endogenous foreign capital and here lies the novelty of our paper. The second motivation generates from the fact that existing literature on general equilibrium trade models related to any specific problem in a developing economy usually attempts to examine the impact of exogenous changes (may be in the form of exogenous change in capital stock) on variables like factor prices, output levels of various sectors and national income rather than on the implications of endogenous changes in capital on the above mentioned variables. Contrary to the conventional works here we have discussed the implications of regime switch from no capital mobility to full capital mobility (in the form of both usual and health capital). The present study thus attempts to examine the impact of finite changes in policies rather than the widely used impact of infinite changes in policies. This is more in line with contemporary literature on trade and capital flows such as Marjit and Kar (2005), Marjit and Gupta (2008) etc.

In this paper we consider that total health capital stock consists of both domestic health capital and foreign health capital. Similarly, total capital stock of the economy consists of both domestic capital and foreign capital. We have considered two regimes here. One is the regime of international health capital immobility (or, international capital immobility) and the second one is the regime of international health capital mobility (or, international capital mobility). In the context of first regime we have considered both foreign capital and foreign health capital as exogenous implying the existence of international capital immobility and foreign health capital immobility. In the second regime we have considered endogenous foreign health capital and foreign capital implying perfect mobility of both types of capital.

The paper is organized in the following manner. Section 2 considers the basic model. It is divided into four subsections. Subsection 2.1 considers international health capital immobility and subsection 2.2 considers international health capital mobility. Again, subsection 2.3 considers international capital immobility and subsection 2.4 considers international capital mobility. Finally, the concluding remarks are made in section 3.

## 2. The Basic Model

### 2.1 International Health Capital Immobility

We consider a small open economy where international health capital is immobile<sup>4</sup> and it consists of three sectors in a Heckscher-Ohlin-Samuelson framework. One of the three sectors, is the export sector (A), which produces its output using labour (L) and capital (K). Another sector is the import sector (M), which produces output by using labour and capital. This is the import competing sector while sector A is a sector that produces exportable products. The third sector is the health sector (H) which uses labour as well as health capital (N) which is specific to this sector. The health sector produces a non-traded final commodity<sup>5</sup>. Sector M is protected by tariff (t). Here K consists of domestic capital ( $K_D$ ) and foreign capital ( $K_F$ ) and we assume that  $K_D$  and  $K_F$  are perfect substitutes. All these three sectors<sup>6</sup> use labour which is perfectly mobile among these three sectors. Health capital is specific to sector H while K is completely mobile between sectors A and M. It is to be noted that health capital consists of both domestic health capital ( $N_D$ ) and foreign health capital ( $N_F$ ), and we assume that  $N_D$  and  $N_F$  are perfect substitutes.

In our model sector A produces its output  $X_A$ , sectors M and H produce output  $X_M$  and  $X_H$  respectively. Here we assume that the export sector is more labour intensive compared to the import sector. The export product is considered as the numeraire and its price is set equal to

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<sup>4</sup> International health capital immobility is a situation where domestic rate of return on foreign health capital ( $R$ ) is greater than the rate of return on foreign health capital in the international market ( $R^*$ ) and there is restriction on the entry of foreign health capital to the domestic economy.

<sup>5</sup> In a developing economy most of the health commodities are non-traded final commodities such as different types of hospital facilities as well as health facilities like availability of medicines, health check-up facilities etc.

<sup>6</sup> All the three sectors produce final commodities in this model but one of them produces non-traded final commodity.

unity. We assume that both foreign capital income and foreign health capital income are completely repatriated. Production functions exhibit constant returns to scale with diminishing marginal productivity for each factor.

The notations used in the model are stated as follows:

$X_i$  = product produced by the  $i$ th sector,  $i = A, M, H$ ,  $P_A^*$  = world price of commodity A,  $P_A$  = domestic price of commodity A, we assume  $P_A = P_A^* = 1$ ,  $P_M^*$  = world price of good M,  $P_M = P_M^*(1+t)$  = domestic price of good M,  $P_H$  = domestically determined price of good H,  $L$  = fixed number of workers in the economy,  $N_D$  = domestic health capital stock of the economy,  $N_F$  = foreign health capital stock of the economy,  $N$  = economy's aggregate health capital stock,  $K_F$  = foreign capital stock,  $K_D$  = domestic capital stock,  $K$  = economy's aggregate capital stock,  $a_{ji}$  = quantity of the  $j$ th factor for producing one unit of output in the  $i$ th sector,  $j=L, K, N$  and  $i = A, M, H$ ,  $\theta_{ji}$  = distributive share of the  $j$ th input in the  $i$ th sector,  $\lambda_{ji}$  = proportion of the  $j$ th factor used in the production of the  $i$ th sector,  $t$  = ad-valorem rate of tariff on the import of commodity M,  $W$  = competitive wage rate,  $r$  = rate of return to capital,  $R$  = rate of return to health capital,  $D_i$  = consumption demand for the  $i$ th final commodity,  $i = A, M, H$ ,  $E_{PH}^H$  = own price elasticity of demand for commodity H,  $E_Y^H$  = income elasticity of demand for commodity H,  $Y$  = national income at domestic price,  $I$  = import demand for commodity M,  $\sigma_i$  = elasticity of factor substitution in sector  $i$ ,  $i = A, M, H$ .

The equational structure of the model is as follows.

The competitive equilibrium conditions in the product market for the three sectors give us the following equations.

$$a_{LA}W + a_{KA}r = 1 \quad (1)$$

$$a_{LM}W + a_{KM}r = P_M^*(1+t) \quad (2)$$

Here we assume that the wage rate of the health sector is fixed at a higher level ( $\bar{W}$ ) compared to the competitive wage rate ( $W$ )<sup>7</sup>.

$$a_{LH}\bar{W} + a_{NH}R = P_H \quad (3)$$

Sector specificity of health capital is given by the following equation

$$a_{NH}X_H = N_D + N_F = N \quad (4)$$

We assume for simplicity that  $a_{LH}$  is fixed<sup>8</sup>.

Perfect mobility of capital between sectors A and M can be expressed as

$$a_{KA}X_A + a_{KM}X_M = K_D + K_F = K \quad (5)$$

Full employment of labour implies the following equation

$$a_{LA}X_A + a_{LM}X_M + a_{LH}X_H = L E(X_H) \quad (6)$$

The demand for the non-traded final commodity is given by

$$D_H = D_H(P_H, P_M, Y) \quad (7)$$

We assume that commodity H is a normal good with negative and positive own price elasticity and income elasticities of demand, respectively, that is,  $E_{PH}^H < 0$  and  $E_Y^H > 0$ .

The cross price elasticity is positive, that is,  $E_{PM}^H > 0$ .

The demand –supply equality condition for commodity H is

$$D_H(P_H, P_M, Y) = X_H \quad (8)$$

The demand for commodity M and the volume of import are given by the following equations, respectively.

<sup>7</sup> Here we have assumed that the labour of the health sector will get a wage rate  $\bar{W}$ , which is higher than  $W$  because the workers of health sector deal with human health and they are involved with relatively skill-intensive works, though we have not considered in this paper any division between skilled and unskilled workers.

<sup>8</sup> In this paper we have assumed  $a_{LH}$  as fixed coefficient. It is to be noted that the relaxation of the assumption, that is fixed  $a_{LH}$ , will leave the conclusions of the model basically unchanged.

$$D_M = D_M(P_H, P_M, Y) \quad (9)$$

$$I = D_M(P_H, P_M, Y) - X_M \quad (10)$$

The national income of the economy at domestic prices is given by

$$Y = X_A + P_M X_M + P_H X_H - rK_F - RN_F + tP_M^* I \quad (11.1)$$

or

$$Y = (\bar{W} - W) a_{LH} X_H + W L + RN_D + rK_D + tP_M^* I \quad (11.2)$$

The working of the model is as follows. There are eleven endogenous variables in the system:  $W$ ,  $r$ ,  $R$ ,  $P_H$ ,  $X_A$ ,  $X_M$ ,  $X_H$ ,  $D_M$ ,  $D_H$ ,  $I$  and  $Y$ . Determination of the general equilibrium is possible, since we have eleven independent equations to solve for eleven unknowns. We can find out the value of  $W$  and  $r$  from equations (1) and (2). For given  $a_{LH}$  and for given  $\bar{W}$  from equation (3.1) we can express  $R$  as a function of  $P_H$ . Thus it is an indecomposable structure. Hence  $a_{NH}$  can be expressed as a function of  $P_H$ . For given  $N$ ,  $X_H$  can be expressed as a function of  $P_H$  also. So, from equations (5) and (6)  $X_A$  and  $X_M$  are expressed in terms of  $P_H$ . Again from equation (11.3) we can express  $Y$  as a function of  $P_H$ . So equation (7) is expressed as a function of  $P_H$ . Equation (8) thus helps us to determine the value of  $P_H$ . Once  $P_H$  is known  $X_A$ ,  $X_M$ ,  $Y$  and  $X_H$  are also known. Once  $P_H$  and  $Y$  are known, equations (7) and (9) help us to determine the values of  $D_H$  and  $D_M$  respectively. Finally using equations (4) and (10) we get the values of  $R$  and  $I$  respectively.

## 2.2 International Health Capital Mobility

Here we assume that in the presence of international health capital immobility we have  $R > R^*$ , where  $R^*$  is the given return on foreign health capital in the international market. In such a situation we have no foreign health capital inflow. If  $R$  falls to  $\tilde{R}$ , where,  $R > \tilde{R} > R^*$ , we find that there is some amount of inflow of foreign health capital ( $N_F$ ) and at last we will reach at the equilibrium level<sup>9</sup> of  $N_F$  where,  $R = R^*$ .

<sup>9</sup> At  $R=R^*$ , we have the equilibrium level of foreign health capital inflow due to equilibrium in the international health capital market.



Using equations (1) and (2) we can solve for  $W$  and  $r$ . Here  $a_{NH}$  is given, since  $\bar{W}$  and  $R$  are given. Using  $R = R^*$  in our basic model we find that equation (3) gives us the value of  $P_H$ . Given  $a_{NH}$ , from equation (4) we can express  $X_H$  as a function of  $N_F$  and hence by using equations (5) and (6) we can express  $X_A$  and  $X_M$  in terms of  $N_F$ . From equation (9)  $D_M$  can be expressed as a function of  $Y$  only, since  $P_H$  and  $P_M$  are given. Thus  $I$  can be expressed in terms of  $Y$  and  $N_F$ . Using this fact in equation (11.2) we can express  $Y$  as a function of  $N_F$ . Thus from equation (7) one can express  $D_H$  in terms of  $N_F$  and hence  $N_F$  can be determined from equation (8). Once  $N_F$  is known, the variables  $X_A$ ,  $X_M$ ,  $X_H$ ,  $D_H$ ,  $D_M$ ,  $I$  are also known. In order to examine the impact of an increase in  $N_F$  on  $R$  we need to explore the relationship between  $P_H$  and  $R$  on one hand and  $X_H$  and  $N_F$  on the other hand. To find out the relationship between  $P_H$  and  $R$  we establish the following lemma.

**Lemma 1:** *A fall in  $R$  leads to a fall in  $P_H$  iff  $\sigma_H < 1$ .*

**Proof of Lemma 1:** Differentiating equation (3) and by using  $da_{LH} = dW = 0$ , we get,

$$\theta_{NH} (\hat{R} + \hat{a}_{NH}) = \hat{P}_H$$

$$\text{By definition } \sigma_H = (\hat{a}_{NH} - \hat{a}_{LH}) / (\hat{W} - \hat{R})$$

Using the envelope result  $Wda_{LH} + Rda_{NH} = 0$  and by inserting  $\hat{a}_{LH} = \hat{W} = 0$  in the expression of  $\sigma_H$  one obtain

$$\hat{a}_{NH} = -\hat{R} \sigma_H$$

Using the value of  $\hat{a}_{NH}$  in the expression of  $\hat{P}_H$  we can write

$$\text{or, } \hat{R} = [1 / \theta_{NH}(1 - \sigma_H)] \hat{P}_H,$$

$$\text{or, } \hat{P}_H = \theta_{NH}(1 - \sigma_H) \hat{R}$$

Hence  $\hat{R} < 0$  implies  $\hat{P}_H < 0$ , iff  $\sigma_H < 1$ .

We thus find that the lemma holds if the production function for the health sector is non-Cobb-Douglas.

Similarly, the relationship between  $N_F$  and  $X_H$  can be established by the following lemma.

**Lemma 2:** Under the assumption that  $-\frac{\mu}{\sigma_H} \hat{N}_F < \hat{R} < 0$ , where  $\mu = (N_F/N)$ ; an increase in  $N_F$

leads to an increase in  $X_H$ .

**Proof of Lemma 2:** To prove this lemma we have to first of all show that  $\hat{X}_H > 0$ , when  $\hat{N}_F > 0$ . Differentiation of equation (4) gives us

$$\hat{a}_{NH} + \hat{X}_H = \mu \hat{N}_F$$

By definition  $\sigma_H = (\hat{a}_{NH} - \hat{a}_{LH})/(\hat{W} - \hat{R})$

By using the envelope result  $Wda_{LH} + Rda_{NH} = 0$  and by inserting  $\hat{a}_{LH} = \hat{W} = 0$  in the expression of  $\sigma_H$  one obtain

$$\hat{a}_{NH} = -\hat{R} \sigma_H$$

Thus  $\hat{X}_H$  can be written as  $\hat{X}_H = \mu \hat{N}_F + \hat{R} \sigma_H$

Hence we can say that  $\hat{X}_H > 0$ , when  $\hat{N}_F > 0$  iff  $\hat{R} > -\frac{\mu}{\sigma_H} \hat{N}_F$ .

In fact when  $\hat{N}_F > 0$ , we have  $\hat{R} < 0$ .

Thus,  $\hat{X}_H > 0$ , iff  $-\frac{\mu}{\sigma_H} \hat{N}_F < \hat{R} < 0$ .

An increase in  $N_F$  implies a fall in  $R$ . Given  $a_{LH}$ , from equation (3) we can say that  $P_H$  will also fall due to fall in  $R$  (see lemma 1). On the other hand from equation (4) we can argue that there will be an increase in  $X_H$  due to an inflow of  $N_F$ <sup>10</sup>. An increase in  $X_H$  implies an increase in  $a_{LH}X_H$ , as  $a_{LH}$  is fixed and hence a fall in  $\{LE(X_H) - a_{LH}X_H\}$ , that is, a reduction in the labour availability to sectors A and M. A fall in the labour endowment available to sectors A and M causes a Rybczynski effect as a result of which  $X_M$  increases and  $X_A$  falls, given that sector A is more labour-intensive than sector M<sup>11</sup>. Using equations (11.3), (10) and after some manipulation we can say that an increase in  $N_F$  leads to a fall in  $Y$ , due to the factor price effect and tariff revenue effect<sup>12</sup>. An increase in  $X_H$  leads to an increase in  $Y$ . This is known as labour

<sup>10</sup> See Lemma 2.

<sup>11</sup> We shall get opposite results if we assume that sector A is more capital intensive relative to sector M.

<sup>12</sup> An increase in  $N_F$  leads to a fall in  $R$ . Thus fall in  $R$  implies a fall in  $Y$ . We call it factor price effect. From (11.2) we can express  $Y$  as a function of  $P_H$  and  $I$ . Using this fact in equation (10) we can express  $I$  in terms of  $P_H$  and

reallocation effect<sup>13</sup>. Thus the effects of an inflow of  $N_F$  on  $Y$  is depends upon the net effect of factor price effect, tariff revenue effect and labour reallocation effect. If labour reallocation effect dominates over rest of the effects creates a positive effect on  $Y$  and hence on welfare. Thus the following proposition can now be established.

**Proposition 1:** *A shift from international health capital immobility regime to an international health capital mobility regime leads to under some reasonable conditions: (i) a decrease in the rate of return to health capital and a decrease in the price of the output of the health sector; ii) increase in the levels output of both health and import sector and a reduction in the level of output of the export sector and (iii) an increase in national income and hence an increase in social welfare.*

### 2.3 International Capital Immobility and Impossibilities of Vanishing Industries

The model which we use in this section is similar to that of the model of section 2.1 and hence the working of the general equilibrium is similar to that of section 2.1.

### 2.4 International Capital Mobility

Here we use the model of the section 2.1. we assume that  $K_D$  as an exogenous and  $K_F$  as an endogenous variables. Here we also assume that  $r$  falls to  $\tilde{r}$ , where,  $r > \tilde{r} > r^*$ , and we find an inflow of  $K_F$  and ultimately  $r$  will reach to  $r^*$ . By assuming  $K_F$  as an endogenous variables and after using  $r=r^*$  in our variant of the basic model we will face a problem of uniqueness<sup>14</sup> to solve the general equilibrium. Thus determination of the general equilibrium is not possible. However,

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hence we can express  $Y$  in terms of  $P_H$  only. Thus  $D_M$  is expressed in terms of  $P_H$ . An increase in  $N_F$  leads to a fall in  $P_H$  and an increase in  $X_M$ . Here a fall in  $P_H$  leads to a fall in  $D_M$ . Thus increase in  $X_M$  and decrease in  $D_M$  leads to a reduction in  $I$ . Hence reduction in  $I$  leads to a fall in  $Y$ . We call it tariff revenue effect.

<sup>13</sup> The workers of health sector enjoy a wage rate ( $\bar{W}$ ), which is higher compared to the competitive wage rate ( $W$ ), that prevails in rest of the economy. Hence increase in employment in the health sector, (because  $\bar{W} > W$ ) is at the cost of reduction in employment in the other sectors of the economy. Thus the wage differential ( $\bar{W} - W$ ) leads to the labour reallocation effect.

<sup>14</sup> Inserting  $r=r^*$  in the variant we can get two different values of  $W$ , one from equation (1) and other from equation (2).

from here we can infer that an inflow of  $K_F$  leads to a fall in  $r$ . From equation (1) and (2) we can argue that a reduction  $r$  leads to an increase in  $W$  in both of these equations. If  $W$  increases more in equation (2) than in equation (1) we find that sector A vanishes. On the other hand if  $W$  increases more in equation (1) than in equation (2) we find that sector M vanishes<sup>15</sup>. Intuitively this result is quite interesting and also new in the trade literature. Here we have considered a 3-sector general equilibrium model with only two traded sectors. Now if owing to a regime shift one of the two traded sectors vanishes, the model becomes inconsistent because in a small open economy there must be at least two traded sectors, one exports and the other imports competing, for satisfying the trade-balance condition. In a small open economy, the trade-balance condition takes care of the Walras' Law. Interestingly, in both cases we find that the Walras' Law becomes invalid. This leads to us the following proposition.

**Proposition 2:** *A shift from international capital immobility regime to an international capital mobility leads to invalidate the Walras' Law.*

### 3. Concluding Remarks and Theoretical Implications

In this paper we have assumed that foreign health capital (or, foreign capital) as endogenous. In this paper we have developed a three sector general equilibrium model based on H-O-S framework and from such set up we have shown that a change in regime from international health capital immobility to international health capital mobility, lead to expansion of both health sector and import sector and contraction of export sector. We have also shown an improvement in national income under some reasonable conditions under such a regime change.

Next we have considered a shift from a regime of international capital immobility to international capital mobility and such type of shift of regime leads two types of situation. The first one being the situation when the traditional import sector absorbs the entire foreign capital and leading to the extinction of the export sector and the second situation is one where the import sector vanishes, the export sector survives. Theoretically speaking in both the cases we find the absence of Walras' Law and this is extremely surprising outcome as per as trade theories are concern.

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<sup>15</sup> See the Appendix with Special Cases.

Intuitively our model states that finite change in the specific capital to non-traded sector may validate the Walras' Law, however, inflow of foreign capital to HOS nugget may lead to us in a situation of theoretical vulnerability regarding the absence of Walras' Law. More precisely, this paper shows a path to the researchers in the way of modeling a general equilibrium trade model, that is, it teaches us not to build up a 3- sector model with a non-traded sector to show the impact of finite changes of trade policy, where trade parameter belongs to rest of the sectors.

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