COMPOSITIONAL EFFECTS OF GOVERNMENT SPENDING IN A TWO-COUNTRY, TWO-SECTOR PRODUCTION MODEL

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We employ a two-country, two-sector, two-period, Heckscher-Ohlin model to analyze the production-side channels through which a change in the composition of government spending in one country affects real exchange rates, rental rates, and current account balances throughout the world. With one traded and one non-traded consumption good, the model highlights the way in which the world capital stock reshuffles internationally in response to changes in the composition of government spending. These international capital flows correspond to temporary current account imbalances, and serve as the transmission mechanism linking real exchange rate changes at home and abroad.

1. Introduction

The sectoral makeup of government spending patterns is by no means constant over time. In the United States, for example, the percentage of federal expenditures going to services fell from approximately 77 percent in 1973 to 66 percent in 1987. If government services are viewed as primarily non-tradeable, this represents roughly a 10 percentage point swing in federal expenditures from the non-tradeable to the tradeable sector. The purpose of this paper is to study the effects of such shifts in the composition of government spending in an open economy. We explore this issue within the context of a two-country, two-sector, two-period, Heckscher-Ohlin model, and thus focus on the general equilibrium production-side channels through which the composition of government spending can affect important macroeconomic variables at home and abroad.

With one traded consumption good and one non-traded consumption good, and with capital traded but labor internationally immobile, we show

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that a compositional shift in home government spending toward the non-traded good will lead to an appreciation of the real exchange rate in the home country, and if production of the non-traded good is relatively labor (capital) intensive, to a fall (rise) in world real capital rental rates and an accompanying domestic current account surplus (deficit). The temporary current account imbalance induced by the government spending composition shift corresponds to a reshuffling of the world's capital stock across countries to reflect the shift in demand for the non-traded goods of the home country. Moreover, the international capital flows required to keep the world capital market in equilibrium serve as the international transmission mechanisms linking home and foreign real exchange rate movements: the appreciation of the domestic real exchange rate leads, through the process of international capital movements, to an accompanying real appreciation abroad. Accordingly, the composition of government spending is shown to be an important and predictable determinant of the effects of fiscal policy on key macroeconomic variables of the world economy.

Several authors have emphasized the importance of the composition of government spending in determining the impact of fiscal policy in an open economy. Helpman (1976) demonstrates a differential employment effect from government spending on traded versus non-traded goods in a one-period, two-sector, small open economy that faces a minimum wage restriction and associated unemployment. Helpman (1977) adds a restriction on intersectoral capital mobility to the minimum wage restriction and examines the real exchange rate consequences of a shift in government spending toward the non-traded good. Barry (1987) extends Helpman's analysis to allow for anticipated and unanticipated short-term and permanent fiscal policy changes. While motivated by similar concerns, these small open economy minimum wage models have been used to ask somewhat different questions than and provide answers which are quite different from the equilibrium, full employment, two-country model considered below. Papers by Greenwood (1984) and Frenkel and Razin (1987), while similarly interested in the compositional effects of government spending, analyze this question within the context of pure endowment economies, and consequently find that the effects of government spending composition depend on a comparison of various demand-side substitution elasticities. An important feature of our model is the essential role played by production restrictions in pinning down those effects. Finally, Razin (1984) explores the compositional effects of government spending in a model of a small open economy with a fixed national physical capital stock, while Brock (1988) examines this issue in a small open economy with the national capital stock endogenous but under the assumption that the non-traded good, rather than used for consumption, takes the form of capital installation costs: in both papers, neither the two-sector general equilibrium production-side issues which we consider nor the
issue of the international transmission mechanism linking home and foreign
real exchange rate movements arise.¹

We exploit the notion of an integrated world economy [Helpman and
Krugman (1985)] to derive in a simple way the impact of domestic
government spending composition changes on real exchange rates in the
world economy. With the real exchange rate results, the impact on world real
capital rental rates follows directly from the Stolper–Samuelson theorem.
Finally, Rybczynski effects determine the way in which the world capital
stock must reallocate across countries to eliminate international differences in
real rental rates and reproduce the integrated equilibrium after the govern-
ment spending compositional shift. The required international capital move-
ments show up as temporary current account imbalances, and serve to
transmit the domestic economy’s real exchange rate movements abroad.
Thus, the structure of the neoclassical production model is exploited fully in
our analysis of the compositional effects of government spending.

The remainder of the paper is organized as follows. Section 2 describes the
integrated equilibrium and derives the effect of a compositional shift on
relative prices and real capital rental rates. Section 3 considers a two-country
trading world that replicates the integrated equilibrium of section 2, and
examines the impact of the compositional shift on real exchange rates and
world real rental rates. Section 3 also derives the international capital
movements that occur in response to the compositional shift. Section 4
presents a summary and conclusions.

2. The integrated world economy

We consider in this section a two-period, two-good, two-factor integrated
world economy. Within the integrated economy, there is no restriction on the
movement of goods or factors. Periods are labeled by i=(1,2) and the two
goods are labeled n and t. The world economy is endowed with stocks of
capital K and labor L that remain fixed over time. In the two-country model
of the following section, the world capital stock will still be taken as fixed,
but national capital stocks can be augmented or reduced through inter-
national flows of capital. Technology is also unchanged over the two periods
of the model, and is linearly homogeneous. Define $F(K,L)$ as the set of
feasible output vectors for this economy. Facing prices $P^*_n$ and $P^*_t$, compe-
titive producers will maximize the value of GNP in each period. Nominal
GNP is then given by the revenue function:

¹Other related papers include Matsuyama (1988), who analyzes the effect of changes in the
terms of trade on the current account balance of a small overlapping generations economy,
focusing on the implications of the Stolper–Samuelson theorem for aggregate saving behavior,
and Murphy (1986) who analyzes the effect of productivity shocks on the current account
balance of a small open economy, with a methodological focus similar to ours.
\[
R(P_{i}^{n}, P_{i}^{t}, K, L) = \max \{ P_{i}^{n}Q_{i}^{n} + P_{i}^{t}Q_{i}^{t} \mid (Q_{i}^{n}, Q_{i}^{t}) \in F(K, L) \}, \quad i = 1, 2, \tag{1}
\]

where \(Q_{i}^{n}\) and \(Q_{i}^{t}\) are national outputs of \(n\) and \(t\), respectively.

The economy is populated with identical consumers whose utility is defined over the two-period consumption of \(n\) and \(t\). We assume that utility is homothetic and time separable, and that consumers discount second-period utility by the factor \(\beta\). The aggregate expenditure function for this economy is given by:

\[
E(P_{i}^{n}, P_{i}^{t}, U_{i}) = \min \{ P_{i}^{n}C_{i}^{n} + P_{i}^{t}C_{i}^{t} \mid U(C_{i}^{n}, C_{i}^{t}) \geq U_{i} \}, \quad i = 1, 2, \tag{2}
\]

where \(C_{i}^{n}\) and \(C_{i}^{t}\) represent aggregate private consumption of \(n\) and \(t\), respectively, and where \(U(\cdot)\) is the aggregate utility function.

Government purchases of \(n\) and \(t\) in period \(i\) are given by \(G_{i}^{n}\) and \(G_{i}^{t}\), respectively. These purchases are assumed not to enter private utility. We will focus on the effects of a shift in the composition of government spending rather than on its level or on the timing of spending and taxes. Thus, the government is assumed throughout to balance its budget in each period with lump-sum taxes. Moreover, we assume initially that

\[
G_{i}^{n} = G_{2}^{n}; \quad G_{i}^{t} = G_{2}^{t}, \tag{3}
\]

so that both the level and composition of government spending is fixed over time.

Each individual is endowed at the beginning of period 1 with an identical bundle of capital and labor. The owner of a unit of capital receives its marginal physical product. Individuals save (dissave) in period 1 by buying (selling) claims to the marginal physical product of capital in period 2.\(^2\) We normalize the price of these claims to one. However, since goods are not storable and since the aggregate world capital stock is fixed over time, there is no possibility of aggregate world saving or dissaving.\(^3\) Consequently, in each period the integrated world economy must consume exactly what it produces. By giving up \(1/P_{1}^{n}\) units of good \(i\) in period 1, a consumer can purchase a claim to a unit of capital which, in the second period, will produce \(R_{K}(P_{2}^{n}, P_{2}^{t}, K, L)/P_{2}^{n} = R_{K}(\pi_{2}, K, L)\) units of good \(i\), where \(R_{K}(\pi_{2}, K, L)\) is the marginal physical product of capital in period 2, \(\pi_{2} = P_{2}^{n}/P_{2}^{t}\), and where the linear homogeneity of the revenue function in prices has been exploited.

\(^2\)Since there is no uncertainty in the model, the opportunity for individuals to purchase claims on the world capital stock obviates the need for financial assets, and we ignore them in future discussion.

\(^3\)The absence of aggregate world savings is a property shared by models of endowment economies with non-storable goods. See, for example, Frenkel and Razin (1986).
The real (consumption based) interest rate in the economy, \( r \), is then given by:

\[
r = P_1^i R_K(\pi_2, K, L).
\]  

(4)

Therefore, in order for the economy to be content consuming what it produces in each period, intertemporal optimization requires that

\[
r = \left[ \frac{\partial U_1(Q_1^1 - G_1^1, Q_1^2 - G_1^2) / \partial C_1}{\beta \partial U_2(Q_2^1 - G_2^1, Q_2^2 - G_2^2) / \partial C_2} \right].
\]  

(5)

Equilibrium condition (5) determines \( P_1^i \) as a function of intratemporal relative prices \( \pi_1 \) and \( \pi_2 \) and government spending levels \( G_1^1, G_1^2, G_2^1 \) and \( G_2^2 \). Since \( P_1^i \) is the reciprocal of the first-period cost of a claim to a unit of capital measured in terms of first-period good \( t \), it determines the intertemporal price structure of the model.

Finally, since the government budget is by assumption balanced in each period, the intertemporal price structure determined in (5) will ensure that the private sector budget constraint holds period by period as well, since the intertemporal prices consistent with (5) must lead the economy as a whole temporal to save nor to dissave in either period. Therefore

\[
R(\pi_i, K, L) - \pi_i G_t^i - G_i = E(\pi_i, U_i), \quad i = 1, 2,
\]  

(6)

where we have used the linear homogeneity of the revenue and expenditure functions to write each period's budget constraint in terms of relative intratemporal prices \( \pi_i \).

By standard properties of the revenue and expenditure functions, differentiating (6) with respect to \( \pi_i \) yields the equilibrium conditions for the \( n \) market:

\[
R_{\pi_i}(\cdot) - G_t^i = E_{\pi_i}(\cdot), \quad i = 1, 2,
\]  

(7)

with equilibrium then guaranteed in the \( t \) market by Walras' Law. Equilibrium intratemporal relative prices \( \pi_1 \) and \( \pi_2 \) are thus determined by (7), while the relative intertemporal price structure given by \( P_1^i \) is determined by (5). Initially, since the composition of government spending is fixed over time by (3), equilibrium intratemporal relative prices are identical in the two periods. Thus, so too are equilibrium quantities supplied and demanded by the private sector, as determined by (7). Finally, with both government and private consumption levels initially time-invariant, we assume that the government initially consumes \( n \) and \( t \) in the same proportion as does the
private sector. The relevance of this will be made clear in the next section. This characterizes the initial stationary equilibrium.

Consider now the impact on the integrated economy of an anticipated compositional shift in second-period government spending. Since we wish to isolate the importance of the composition of government spending as distinct from its level, we define a compositional shift in government spending as one which leaves private utility unaltered. Totally differentiating (6) and setting \( dU_1 = dU_2 = 0 \) yields:

\[
dG_2'/dG_2^t = -\pi_2. \tag{8}
\]

Expression (8) describes combinations of second-period compositional shifts in government spending which preserve (first- and) second-period utility. Expression (8) states that for small changes, private utility will be maintained under any shift in the second-period composition of government spending which, at original second-period prices, would leave aggregate government expenditure levels unchanged.

With this as our definition of a compositional change, suppose that the government announces in period 1 a compositional shift in second-period spending toward good \( n \). The effect of this shift on relative prices comes from totally differentiating (7), which yields:

\[
d\pi_i = -\left[ \frac{1}{E_{\pi_i\pi_i}(\cdot) - R_{\pi_i\pi_i}(\cdot)} \right] dG_i^t. \tag{9}
\]

From the properties of the revenue and expenditure functions, \( d\pi_2/dG_2^t > 0 \); the relative price of \( n \) rises in period 2 in response to the second-period government compositional shift into \( n \). Relative intratemporal prices in period 1 are unaffected by the second-period compositional shift.\(^4\) Thus, the relative intratemporal price of \( n \) rises from period 1 to period 2 as a result of the shift. Finally, the intertemporal price structure determined by \( P^t_i \) adjusts according to (5). Since the composition change defined by (8) leaves the right-hand side of (5) unaffected, the real (consumption based) interest rate \( r \) must also be unchanged in equilibrium. This implies, by (4), that \( P^t_i \) must move to offset any changes in \( R_{K_i}(\pi_2, K, L) \). But the sign of \( R_{K_i}(\pi_2, K, L) \) is determined by the relative factor intensities of \( n \) and \( t \) according to the Stolper–Samuelson theorem. Hence, the equilibrium response of \( P^t_i \) to the composition shift is determined by the Stolper–Samuelson theorem as well.

Fig. 1 depicts the effect of the second-period compositional shift on period 2 relative prices. Initial period 2 government purchases are given by \( G_2^t \) and

\(^4\)The absence of feedback effects on period 1 prices is a direct result of our assumptions of time-separable preferences, a balanced government budget, and the absence of aggregate world saving.
$G'_2$. Private utility $\bar{U}_2$ is measured initially with $(G'_2, G'_2)$ as the origin, and $\pi_2$ equates good supplies to total (public plus private) demands. If the government increases its demand for $n$ to $G'_2$, and continues to demand $G'_2$, the initial private utility level $\bar{U}_2$ is no longer attainable as measured from the new origin $(G'_2, G'_2)$. To guarantee $\bar{U}_2$, government demands for $t$ must fall to $G'_2$, at which point $\bar{U}_2$ is just attainable at the new relative price $\pi'_2$. As a result of the second-period compositional shift into $n$, $\pi'_2 > \pi_2 = \pi_1$.

3. The open economy

In this section we carve up the factor endowments of the integrated economy of section 2 into two economies, home (no star) and foreign (star), each with distinct government activity. In particular, we assume that there are no government purchases in the foreign country, and that the government modeled in the previous section is located in the domestic country. Finally, we assume that both countries remain non-specialized, and that
capital and the good \( t \) are traded freely between countries, but that labor is internationally immobile and that the good \( n \) is non-traded.\(^5\)

Under these assumptions, it is well known that the two trading economies will replicate the initial integrated equilibrium of the previous section. In order to begin with trade initially balanced in both periods, we make the additional assumption of identical relative factor abundances in the two countries. Specifically, we assume that individuals in each country are endowed with a common bundle of labor and capital in period 1. As such, there is no trade in goods (or capital) in either period in the initial situation.\(^6\)

Fig. 2 illustrates the initial equilibrium. Since it is stationary, the graphs characterize equilibrium in each period. The countries share identical production possibilities frontiers and identical and homothetic preferences. Thus, the only difference between the home and foreign country is that private utility is

\(^5\)The assumptions of perfect capital mobility and an integrated equilibrium can be relaxed in a small country setting without changing the nature of any of our results for the domestic economy. See Durlauf and Staiger (1987).

\(^6\)On the production side, this implies that aggregate capital-labor ratios are identical in the two economies so that, facing the same intratemporal relative prices in each period, both countries produce the traded and non-traded goods in identical proportions. On the demand side, factor price equalization implies that per capita disposable income is lower in the home than the foreign country, due to domestic government expenditures, but constant over time. Homothetic tastes and our assumption that the domestic government initially consumes goods in the same proportion as the private sector then ensures that each country consumes non-traded and traded goods in the same proportion as well. The argument requires only that trade initially be balanced, not that countries initially do not trade. Thus, the model is easily generalized to one in which the traded good sector is monopolistically competitive. Then two-way trade occurs between countries with identical relative factor endowments even though the sectoral trade balance in the monopolistically competitive sector is zero. See Helpman (1981).
measured in the home country with \((G^a, G')\) as the origin, where \(G^a\) and \(G'\) represent stationary levels of domestic government consumption and, by assumption, lie initially on the same ray from the origin as private demands.

Consider now an anticipated second-period domestic government compositional shift into the non-traded good \(n\). We assume that capital can move internationally in response to expected period 2 interest differentials, but must move at the end of period 1. Hence, any current account imbalances associated with the reallocation of the world’s capital stock will show up in period 1.

Note first that the foreign private budget constraint in the initial stationary equilibrium, which also holds in each period as a result of the equilibrium determination of intertemporal prices, is given by:

\[
R(\pi_t, K^*, L^*) = E(\pi_t, \bar{\pi}_t^*), \quad t = 1, 2, \tag{10}
\]

where \(K^*\) denotes foreign-owned capital which, because trade is balanced, initially coincides with the stock of capital located in the foreign country. Totally differentiating (10) yields:

\[
d\bar{\pi}_t^*/dG_t^* = 0. \tag{11}
\]

Thus, any small second-period compositional shift in domestic government spending will leave foreign utility unaltered. If the domestic government composition shift satisfies (8), it will also leave domestic utility unaltered. As such, a compositional shift in domestic government spending which satisfies (8) will leave utility in both countries unaltered, and will thus be equivalent in the open economy model of this section to the compositional shift considered in the integrated economy of the previous section. Consequently, if the domestic government alters according to (8) the second-period composition of its spending toward the non-traded good, the two open economies will replicate, both before and after the announced change the integrated equilibria characterized in the previous section. The effects of this compositional shift on real exchange rates in the two countries (the relative price of non-tradeables to tradeables) and on world real rental rates will be given by the results of the previous section. In particular we have:

**Proposition 1.** The first-period announcement of a domestic government compositional shift toward the non-traded good in period 2 will lead to an appreciation of the real exchange rates in the second period in both countries.
and, if the non-traded good is capital (labor) intensive, to a rise (fall) in the second-period world real rental rate.\(^7\)

Proposition 1 implies that co-movements in real exchange rates and the real rental rate induced by a compositional shift in domestic government spending will be the same across countries. However, the sign of the co-movements between these variables will depend on the relative capital intensity of the non-traded good. Real exchange rates and the real rental rate will move in the same direction as a result of a compositional shift if the non-traded good is capital intensive, and will move in opposite directions if the non-traded good is labor intensive. The real rental rate effect is the mechanism through which the domestic shift into non-traded goods, which induces a rise in the domestic real exchange rate, also leads to an appreciation of the foreign real exchange rate. If the non-traded good is capital intensive, the domestic shift drives up real rental rates in the world. This in turn requires an appreciation of the foreign real exchange rate in order for foreign production of the capital-intensive non-traded good to continue. If, instead, the non-traded good is labor intensive, the domestic shift drives the world real rental rate down. This in turn requires an appreciation of the foreign real exchange rate in order to eliminate the positive profits that would otherwise accrue to foreign producers of the capital-intensive traded good.

Finally, we consider the implications of the compositional shift for international capital movements. Recall that we have assumed that in order to employ capital for production in any period, it must be moved to the production location at the end of the previous period. Since the compositional shift we have considered has no effect on private utility levels anywhere in the world in either period, there will be no change in ownership of capital in response to the announcement of the compositional shift. However, second-period rental rates must be equalized at home and abroad in equilibrium, so that capital will flow between countries at the end of the first period until

\[
R_k(\pi_2, \bar{K}_2, L) - R_k(\pi_2, \bar{K}_2^*, L^*) = 0, \tag{12}
\]

where \(\bar{K}_2\) and \(\bar{K}_2^*\) are the stocks of capital located in the domestic and the foreign country, respectively, in the second period, and are defined by

\(^7\)We could also consider the effects of an unanticipated second-period compositional shift. The only change in Proposition 1 would be that the effects on the real rental rate and exchange rate would only occur in the domestic country. The foreign country would be completely unaffected by the unanticipated second-period domestic compositional shift in this two-period model, since the location of the world's capital stock could not adjust to the surprise shift. This highlights the role of international capital movements as the international transmission mechanism in the world economy.
$K_2 \equiv K + I; \quad \tilde{K}_2^* \equiv K^* - I,$

(13)

with $I$ representing the net international capital flow which takes place at the end of period 1. Capital will flow into (out of) the home country if $I > 0$ ($I < 0$).

Totally differentiating (12) yields:

$$\frac{dI}{dG_2^n} = -\left[R_{K_2}(\pi_2, \tilde{K}_2, L)\right]\left[\frac{d\pi_2/dG_2^n}{R_{K_2}(\pi_2, \tilde{K}_2, L) + R_{K_2^*}(\pi_2, \tilde{K}_2^*, L^*)}\right].$$

(14)

From standard properties of the revenue function, the denominator of the right-hand side of (14) is negative. From Proposition 1 we know that $d\pi_2/dG_2^n > 0$, so that the sign of $dI/dG_2^n$ is the same as the sign of $R_{K_2}(\pi_2, \tilde{K}_2, L)$. However, from Proposition 1, we also know that the sign of $R_{K_2^*}(\pi_2, \tilde{K}_2^*, L^*)$ depends on whether the non-traded good is capital or labor intensive. Combining all this with the knowledge that aggregate savings in each country is zero and that government budgets balance in each period, we have:

**Proposition 2.** *The first-period impact of an announcement of a domestic government compositional shift toward the non-traded good in period 2 will, if the non-traded good is capital (labor) intensive, lead to a first-period current account deficit (surplus) in the home country as the world capital stock reallocates across countries to facilitate greater domestic production of the non-traded good.*

Proposition 2 implies that the co.movements between the real exchange rate and lagged current account balance induced by compositional shifts in government spending depend not only on factor intensities but on the country under consideration as well. In particular, while the real exchange rate appreciates in period 2 in both countries with a domestic government shift toward the non-traded good, the first-period domestic current account will worsen (improve) and the foreign current account will improve (worsen) if the non-traded good is capital (labor) intensive. Hence, even given factor intensities, the sign of the co.movements between real exchange rates and current account balances induced by compositional shifts in government spending will be country specific.

In contrast, co.movements between the real rental rate and lagged current account balances are country specific, but independent of factor intensities. In particular, the compositional shift toward the non-traded good induces negative co.movements between these variables in the country within which the shift takes place, and positive co.movements between these variables in the rest of the world.
Fig. 3 illustrates the results of Propositions 1 and 2 for the case where the non-traded good is capital intensive. Starting from an initial second-period equilibrium with second-period relative price $\pi_2$, the announcement in period 1 of a domestic government compositional shift toward the non-traded good in period 2 will lead in the first period to a flow of capital into the home country ($I > 0$) that eliminates the incipient second-period international real rental rate differential.

This international reallocation of the world capital stock shows up as a home country current account deficit in the first period, and results in the second-period home country production possibilities frontier shifting out to the dashed frontier in fig. 3, while the second-period foreign production possibilities frontier shifts into the dotted frontier. The shapes of these shifts reflect the assumption that the non-traded good is capital intensive.

The real exchange rate appreciates in both countries in period 2 ($\pi'_2 > \pi_2 = \pi_1$), leading the home and foreign countries to the second-period production points labeled $Q_2'$ and $Q_2^{*'}$, respectively. The home country consumes all of the non-traded good it produces, but exports a portion of its tradeable good production to the foreign country as a payment to foreign owners of domestically located capital.\(^8\) For the small changes considered here, the private portion of total domestic second-period consumption

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\(^8\)Since the world ends after the second period, paying for the second-period services of capital is equivalent to paying back the entire loan: the value of the principle after the second period is zero. Thus, as a result of the two-period assumption, the domestic current account surplus in the second period offsets exactly the domestic current account deficit in period 1. With more periods, of course, future current accounts can balance indefinitely after the initial international capital movements.
Fig. 4

(labeled $C_2'$) is just sufficient to maintain domestic utility at $\bar{U}_2$. Likewise, the foreign country consumes all of the non-traded good it produces and, in addition to consuming the tradeable goods it produces, receives factor payments from the home country in the form of imported tradeables. Foreign consumption is at $C_2''$, just sufficient to maintain foreign utility at $\bar{U}_2$. Finally, with $\pi_2 > \pi_2 = \pi_1$ and with the non-traded good capital intensive by assumption, the world real rental rate rises in the second period by the Stolper–Samuelson result.

Fig. 4 summarizes the co-movements in the real rental rate, real exchange rates, and trade balances induced by a government compositional shift. We summarize these relationships in:

**Proposition 3.** Shifts in the composition of government spending from the traded to the non-traded good will result in

1. co-movements between the real exchange rate and the real rental rate, the sign of which is the same across countries but depends on the relative factor intensity of the non-traded good;

2. co-movements between the real rental rate and the lagged current account balance, the sign of which is opposite across countries but independent of factor intensities; and

3. co-movements between the real exchange rate and the lagged current account balance, the sign of which is opposite across countries and depends on the relative factor intensity of the non-traded good.

4. Summary and conclusions

This paper has explored the impact of shifts in the composition of government spending on important macroeconomic variables of the world
economy. We have utilized a two-period, two-sector, two-factor, two-country version of the Heckscher–Ohlin model to highlight the international re-shuffling of the world's capital stock that occurs in response to government-induced shifts in demand for non-traded goods. These international capital movements correspond to temporary current account imbalances, and serve as the international transmission mechanism of the government-induced disturbance. The model has yielded strong predictions concerning co-movements in macroeconomic variables of interest that arise with a shift in the composition of government spending, and suggests the important role played by factor intensities in understanding these effects. At the same time, our results point to the dangers of ignoring the composition of government spending when analyzing the impact of such spending on the macro economy.

Extensions for further research fall into two areas. First, the two-period approach we have adopted needs to be expanded to an infinite horizon problem. This extension is important if testable empirical implications are to be developed. The two-period model places extremely strong restrictions on the relationship between current trade flows and announced policy shifts. Extension of the model to many periods will generate much richer dynamics. Second, the compositional results may be generalized to the question of taxes. In particular, if income or sales taxes generate price distortions, a separate channel for the composition of fiscal policy to affect prices will exist. Whether shifting distortionary taxes will generate real effects that are as closely linked to factor intensity as the government purchases effects is an important question in addressing the general issue of the role of changing deficits on macroeconomic variables.

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