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Price transmission, domestic relative incentives and inter-sector resource flow analysis

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Price Transmission, Domestic Relative Incentives and Inter-sector Resource Flow Analysis

by
Evious K. Zgovu

Abstract
This paper models the implications of partial pass-through of tariff/subsidy-inclusive border prices for the domestic relative incentive structure and inter-sector resource flow. The paper shows that partial pass-through reduces nominal protection, affects substitutability in the economy and ultimately the pattern of relative sectoral incentives. In general, the smaller the pass-through the smaller the lowering of pro-importables and anti-exportables incentive biases after tariff reforms. Consequently, commercial policy is unlikely to achieve full extent of inter-sector resource flows, at least in the short-term. Sluggish export supply response to tariff reforms in developing countries could be due to major pass-through problems.

Outline

1. INTRODUCTION

The traditional theory of the incidence of protection (Sjaastad 1980; Sjaastad and Clements, 1981; Greenaway and Milner, 1986 and 1993) implicitly assumes that imports and importables are perfect substitutes. It is as if importables and imports were a homogeneous commodity, produced in both the domestic and the rest of the world. Similarly, locally produced goods that are consumed locally (i.e. exportables) and those that are ultimately exported (i.e. exports) are implicitly assumed to be perfect substitutes. The assumption of perfect substitution paves way for the conclusion that the price of importables increases by the full amount of the increase in the border (tariff-inclusive) price of imports, *ceteris paribus*. Similarly, prices of locally-consumed exportables increase by the full amount of the change in the subsidy-inclusive export border prices. On the premises of perfect substitution 'true' subsidisation of locally-consumed exportables and 'true' subsidisation of exports are indistinguishable.

In practice, however, perfect substitutability between the above commodity groups is rare particularly in the context of small developing economies trading in a narrow and low quality product range against a wide range of high quality import and export goods. For this reason, among others, the transmission of changes in the border prices to domestic prices tends to be partial (Dornbusch and Krugman, 1976; Isard, 1977; Artus and McGuirk, 1981; Goldstein and Khan, 1985; Colman, 1985; Colman and Young, 1990; Tyers and Anderson, 1992; Bejerano *et al*, 1993; and Colman, 1995; and Sadoulet and de Janvry, 1995)[1]. Goldstein and Khan (1985) report price transmission coefficients in the neighbourhood of 0.5 (or 50 percent). Bejerano *et al* (1993) estimate the elasticities of price transmission from world export prices to farm prices for a number of Ecuadorian export commodities, namely, coffee and cocoa and found generally high but nevertheless less than unity price transmission coefficients of 0.81 and 0.93, respectively. Tyers and Anderson (1992) found mostly partial transmission of the border price-to-producer and consumer price for Bangladesh, Brazil and Nigeria. Thus, there is evidence suggesting that price transmission is generally partial, at least in the short term.

Theory and evidence show that the presence of partial price transmission sharply diminishes the real exchange rate changes, which in turn undermines the expenditure-

switching effects of such exchange rate changes even when demand and supply elasticities of imports and exports are high (Goldstein and Khan, 1985). Thus, it sounds plausible to hypothesise that ignoring the presence of partial price transmission could result in overstatement of the measures of 'true' protection of importables and overstatement of the measure of 'true' taxation of exportables, *ceteris paribus*. Furthermore, where partial price transmission is established it becomes necessary to distinguish 'true' subsidisation (or taxation) of locally-consumed exportables from 'true' subsidisation (or taxation) of exports.

The aim of this paper is therefore to show the implications in theory of the presence of partial transmission of changes in border prices to domestic prices (i.e. relaxing the assumption of perfect substitution between the pairs of commodities seen above) for nominal protection, the degree of substitution in the economy and ultimately domestic relative incentives (proxied by 'true' importables protection and 'true' subsidy or tax of locally-consumed exportables) which induce inter-sector resource flows. We avail of the results to explain why import tariff reforms may be necessary but not sufficient to clear a distorted incentive structure. The remainder of the paper is organised as follows. Section 2 investigates the possible effects of incorporating partial price transmission on nominal protection, substitution index, and 'true' importables protection and 'true' subsidisation (or taxation) of locally-consumed exportables. Section 3 considers the implications of the revised formula of 'true' importables protection and 'true' subsidisation (or taxation) of locally-consumed exportables for inter-sector resource flows. In Section 4 we consider the implications of commercial policy reforms entailing reduction in trade taxes on domestic relative incentive structure in the presence of partial price transmission. The paper's summary and conclusions are set out in Section 5.

2. THE MODEL

We analyse the implications of partial price transmission for the domestic relative incentives and inter-sector resource flows within the framework of the incidence of protection (Sjaastad 1980; Sjaastad and Clements, 1981; Greenaway and Milner, 1986, 1993). Our analysis culminates in the revision of the expressions of nominal protection, index of substitutability, and 'true' protection of importables and 'true' subsidisation (or taxation) of locally-consumed exportables. On the basis of these results we discuss the implications for inter-sector resource flows.

Nominal Protection

Literature shows that in the presence of partial price transmission, commercial policy interventions (e.g. *ad valorem* import tariffs and nominal export subsidies) do not raise domestic prices of importables and locally-consumed exportables by the same margin as they raise the border prices of imports and exports, respectively. Thus, import border prices increase by a margin say, t (equivalent to the import tariff), whilst the price of importables increases by only αt, where α is the coefficient of transmission of changes in import border price to the price of importables. Similarly, from the exports and exportables side, export border prices increase by the magnitude of the *ad valorem* export subsidy rate, s, whilst the price of locally-consumed exportables increases by the proportion βs, where β is the coefficient of transmission of the subsidy-inclusive export price to the domestic exportables prices. We assume that the price transmission coefficients α and β are exogenously determined by the degree of substitutability between the respective commodities, among other things. The relationship between import border price and importables price, and also the relationship between export price and the price of locally-consumed exportables can therefore be expressed as follows:

$$\hat{P}_{DM} = \alpha \hat{P}_M \qquad 0 \le \alpha \le 1 \tag{1}$$

$$\hat{P}_{DX} = \beta \hat{P}_E \qquad 0 \le \beta \le 1 \tag{2}$$

where P_{DX} is price of locally-consumed exportables; P_E is subsidy-inclusive border price of exports;[1] P_{DM} is price of importables; P_M is tariff-inclusive border price of imports; and, the circumflex denotes proportionate changes.

Taking world prices as fixed, and assuming that import and export border price changes reflect the introduction of commercial policy instruments (i.e. uniform *ad valorem* import tariff, t, and export subsidy rates, s, respectively), we can rewrite the specification of domestic prices as follows:

1It is the transmission of 'export border price' to 'locally-consumed exportables price' that is relevant for our analyses. We cannot use world or international prices here since for a small country export border prices are clearly different from the international export prices for reasons including the smallness of the country in the international markets, and also that the quality of the exports may not be at par with the quality of the major exporters' commodities, *inter alia*. Tyers and Anderson (1992) also use border prices (unit values) in their analysis of price transmission as explained already.

$$\hat{P}_{DM} = \alpha t \tag{3}$$

$$\hat{P}_{DX} = \beta s \tag{4}$$

Domestic Relative Incentives: 'True' Protection and 'True' Subsidy

Given eq. (3) and (4) we proceed to consider the way the measures of 'true' protection and 'true' subsidy rates are affected as follows. We uphold the rest of the assumptions underlying the traditional model of the incidence of protection [2]. Thus, 'true' protection of importables and 'true' subsidy of locally-consumed exportables defined as the proportionate changes in the commodities' relative prices following the introduction of uniform *ad valorem* import tariff and export subsidy rates can be expressed as:

$$t^* = \frac{\hat{P}_{DM} - \hat{P}_N}{1 + \hat{P}_N} = \frac{\alpha t - \hat{P}_N}{1 + \hat{P}_N} \tag{5}$$

$$s^* = \frac{\hat{P}_{DX} - \hat{P}_N}{1 + \hat{P}_N} = \frac{\alpha s - \hat{P}_N}{1 + \hat{P}_N} \tag{6}$$

where t^* is 'true' protection of importables, s^* is 'true' subsidy of locally-consumed exportables, and P_N is price of non-traded goods (N).

From eqs. (5) and (6) it is clear that the smaller the price transmission is, the smaller the nominal protection $\forall$ ◎ and nominal export subsidy $\exists$ and consequently the smaller the measures of 'true' protection and 'true' subsidy, respectively, *ceteris paribus*. In the extreme case of completely imperfect price transmission, that is, $\forall \exists$ there would be 'true' disprotection of importables, and 'true' export taxation, for $\hat{P}_N > 0$, *ceteris paribus*.[2] In the other limit that $\forall \exists$, which is the case of full price transmission, we obtain the typical measures of 'true' protection and 'true' subsidy rates espoused in the traditional model of the incidence of protection. In this case the size of 'true' protection and 'true' subsidy rates are positive for $t>0$, $s>0$, and, $t > \hat{P}_N$ and $s > \hat{P}_N$, and more importantly 'true' subsidisation (or taxation) of locally-consumed

2Although the price of importables and locally-consumed exportables have not risen in this case, the price of non-tradeables will still tend to increase if imports and exports are substitutes of non-traded goods.

goods and 'true' subsidisation (or taxation) of exports are the same as held in the traditional theory of the incidence of protection. Where $s = 0$, as in most developing countries, then 'true' subsidy rate is negative, in which case it is an implicit 'true' export tax. Intermediate values ⓓ ∀ⓓ and ⓓ ∃ ⓓ yield lower 'true' protection and 'true' export subsidisation than that obtaining with full price transmission.

The Price of Non-traded Goods, Substitution Indexes and Domestic Relative Incentives

We have seen how the prices of importables (P_{DM}) and locally-consumed exportables (P_{DX}) are affected by tariff and subsidy-induced changes in border prices where ∀ 1 and ∃ 1, and also where ∀ ∃ 1. The issue now is how the price of non-traded goods (P_N) is affected by the imposition of *ad valorem* import tariffs or application of export subsidy given the possibility of partial price transmission. The channels through which the price of non-traded goods is affected by either action are explained below. We consider the effects of an import tariff first, and later consider the effects of an export subsidy.

Imposition of a uniform *ad valorem* import tariff on imports raises the prices of both imports (in local currency) and importables, other things remaining constant. The increases in the tariff-inclusive price of imports and price of importables induces production and consumption substitution effects with non-traded goods. For example, on the consumption side, demand for imports and importables falls as these become dearer relative to non-traded goods. In production, importables production expands, whilst the production of non-traded goods contracts as resources are shifted in favour of importables whose relative price has risen. With time, the price of non-traded goods increases under the apparent pressure of net positive excess demand to restore internal equilibrium, *ceteris paribus*. In the foregoing, the extent of the increase in the price of importables depends upon the extent of price transmission between the import border price and importables. If price transmission is perfect or complete then the price of importables rises by the full margin of the import tariff. However, if price transmission is partial for reasons cited already, then the price of importables rises by only a fraction of the import tariff, the fraction being the coefficient of price transmission. Consequently, the increase in the relative price of importables is smaller than otherwise, hence, the incentive to shift resources in favour of importables will also be smaller than otherwise.

The above expositions suggest that changes in the price of non-traded goods are influenced by changes in the price of importables as well as changes in the tariff-inclusive price of imports, given the degree of price transmission, *inter alia*. This relationship can be expressed as follows (if for the present we assume no change in the price of exports and locally-consumed exportables):

$$\hat{P}_N = \omega_1 \hat{P}_{DM} + \omega_2 \hat{P}_M \tag{7}$$

where P_{DM} is price of importables; P_M is tariff-inclusive border price of imports; P_N is price of non-traded goods; T is index of substitution in production and consumption between importables and non-traded goods; and T is index of substitution in consumption between imports and non-traded goods.

From the export/exportables side, an *ad valorem* subsidy rate introduced on the border export price brings about internal production and consumption substitution effects. For example, when a uniform *ad valorem* export subsidy is applied the border price of exports and the price of locally-consumed exportables rise relative to the price of non-traded goods. Consequently, export and locally-consumed exportables production increases relative to the production of non-traded goods. In consumption, domestic demand for locally-consumed exportables and export commodities falls, but demand for non-traded goods rises, other things remaining constant.

From above, the price of non-traded goods is affected by the prices of both subsidy-inclusive exports and locally-consumed exportables. The precise effect on the price of non-traded goods is fashioned by the size of price transmission, that is, the extent to which the price of locally-consumed exportables rises when an *ad valorem* subsidy rate is applied to the border export price. Under conditions of full price transmission the answer is obvious, that is, the price of locally-consumed exportables rises by the same rate (i.e. the subsidy rate) of the increase in the border price of exports. Under conditions of partial price transmission, however, the price of locally-consumed exportables increases by only a fraction, the fraction being the coefficient of price transmission. It is clear therefore that under conditions of partial price transmission the relative price of locally-consumed exportables is invariably smaller than where full price transmission is assumed. Thus where subsidies are used there is a lower ‘true’ incentive

to shift resources into expanding the production of locally-consumed exportables, whilst where locally-consumed exportables face taxation (say, when only import tariffs are used) partial price transmission alleviates 'true' taxation by curtailing the decline in the relative price. In consumption, partial price transmission undermines the incentive to reduce consumption of exportable commodities, and thus it also undermines the incentive to increase consumption of non-traded goods.

Following from above, the price of non-traded goods can be expressed as a function of subsidy-inclusive export price and price of locally-consumed exportables (assuming no change in importables protection) as follows:

$$\hat{P}_N = \omega_3 \hat{P}_{DX} + \omega_4 \hat{P}_E \tag{8}$$

where P_{DX} is price of locally-consumed exportables; P_E is subsidy-inclusive border price of export goods; P_N is price of non-traded goods; T is index of substitution in production and consumption between locally-consumed exportables and non-traded goods; and T_D is index of substitution in production and consumption between export goods and non-traded goods.

Assuming a mixed trade policy strategy involving the application of both *ad valorem* import tariffs and export subsidy, changes in the price of non-traded goods can be expressed as a combination of eqs. (7) and (8) as shown below:

$$\hat{P}_N = \omega_1 \hat{P}_{DM} + \omega_2 \hat{P}_M + \omega_3 \hat{P}_{DX} + \omega_4 \hat{P}_E \tag{9}$$

Applying eqs. (1) and (2) to eq. (9) we find:

$$\hat{P}_N = (\alpha\omega_1 + \omega_2)\hat{P}_M + (\beta\omega_3 + \omega_4)\hat{P}_E \tag{10}$$

Eq. (10) shows that under conditions of completely imperfect price transmission, that is, $\forall \exists$ $_D$ for example, an increase in the price of non-traded goods will only be due to increases in the border prices (P_M and P_E). The increase in the price of non-traded goods

against unchanged prices of importables and locally-consumed exportables leads to disprotection of importables (i.e. $t^*<0$) and implicit exportables taxation (i.e. $s^*<0$) (see eqs. 5 and 6). Thus, in terms of internal resource flows it is clear that non-traded goods would gain at the expense of the disprotected importables and taxed locally-consumed exportables sectors.

'True' disprotection of importables and 'true' taxation of locally-consumed exportables decline as ∀◎and◎∃◎rise, and at some point we have positive 'true' protection and 'true' subsidy. If there is perfect or complete price transmission on both sides (that is, imports-importables, and exports-locally-consumed exportables), hence, ∀ ∃ 1, then eq. (10) reduces to the standard result for the perfect substitution case. Note that for ∀ ∃ 1, the separate importables-non-traded goods substitution effect, T, and the imports-non-traded goods (consumption) substitution effect, T, collapse into one consumption and production substitution index as held in the traditional theory of the incidence of protection. This also applies to the production and consumption effects on the exportables side.

Assuming the proportional changes in the border prices of imports and exports reflect the introduction of import tariff (t) and export subsidy (s), we can rewrite eq. (10) in terms of t and s, and use eqs. (5) and (6) to revise the formula of 'true' protection and 'true' subsidisation of locally-consumed exportables, respectively, as follows:

$$t^* = \frac{(\alpha - \alpha\omega_1 - \omega_2)t - (\beta\omega_3 + \omega_4)s}{1 + (\alpha\omega_1 + \omega_2)t + (\beta\omega_3 + \omega_4)s} \tag{11}$$

$$s^* = -\left\{\frac{(\alpha\omega_1 + \omega_2)t - (\beta - \beta\omega_3 - \omega_4)s}{1 + (\alpha\omega_1 + \omega_2)t + (\beta\omega_3 + \omega_4)s}\right\} \tag{12}$$

for ◎◎◎◎◎◎◎◎∀ @∃ ◎T ◎T ◎T ◎T◎ ◎ ◎ ◎

Eqs. (11) and (12) show that the sizes of 'true' protection and 'true' subsidy rates depend not only on the substitution indexes T ◎T ◎T ◎T but also on the extent of price transmission (i.e. ∀◎and◎∃) in the economy. It is clear that if ∀ ◎and◎∃

then 'true' protection and 'true' subsidy rates tend to be smaller (in absolute terms) than otherwise.

3. IMPLICATIONS FOR INTER-SECTOR RESOURCE FLOWS

The effects of the various magnitudes of price transmission and substitution indexes on the measures of 'true' protection (t^*) and 'true' subsidy (s^*) can be analysed by considering the implications for the sizes of t^* and s^* of varying sizes of price transmission coefficients and substitution indexes. For instance, using the polar case of perfect transmission, that is, ∀ ∃ ⓓthen the result (i.e. sizes of 'true' protection and 'true' subsidy) collapses to the three good (or the traditional model) result, *ceteris paribus*. The other polar case of ∀ ∃ 0 [3] and the intermediate case of 0< ∀ ∃<*1*, yield a number of results which are also dependent on the sizes of substitution indexes T T ⓓTⓓand ⓓT (whose sum equals unity using the homogeneity constraint).

The case of ∀=0 means that non-traded goods (N) are substitutes of either importables (DM) only (i.e. $T_1>0$) or imports (M) only (i.e. $T_2>0$), *ceteris paribus*, whilst ∃=0 means that N are substitutes of either domestically-consumed exportables (DX) only (i.e. $T_3>0$) or exports (X) only (i.e. $T_4>0$). The above sets of results can be summarised as follows:

(i) $T_1>0$ and $T_2=0$; or $T_1=0$ and $T_2>0$;
(ii) $T_3>0$ and $T_4=0$; or $T_3=0$ and $T_4>0$;

If ∀ and ∃ were simultaneously equal to zero, then we obtain the following sets of sizes of substitution indexes:

(iii) $T_1>0$, $T_2=0$, $T_3>0$, $T_4=0$;

which indicate that non-traded goods are substitutes of domestically produced importables and domestically consumed exportables only, but not substitutes of imports and exports; and,

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3That is, importables and imports are not substitutes and domestically consumed exportables and exports are not substitutes, *ceteris paribus*.

(iv) $T_1=0$, $T_2>0$; $T_3=0$, $T_4>0$;

which show that non-traded goods are substitutes of imports and exports only.[4]

Suppose that export and import border prices increase due to commercial policy action, imports were not substitutes of importables (i.e. $\forall=0$, hence, importables price is unaffected by import price increases), exports and locally-consumed exportables were not substitutes (i.e. $\exists=0$, hence, exportables price is unaffected by export price increases), non-traded goods were not substitutes of importables (i.e. $T_1=0$) nor substitutes of locally-consumed exportables (i.e. $T_3=0$), but non-traded goods were substitutes of imports ($T_2>0$) and exports ($T_4>0$). As a result, the price of non-traded goods will still increase with the increase in border prices, *ceteris paribus*. Since the price of non-traded goods increases, whilst the prices of importables and locally-consumed exportables remain unchanged, therefore, the relative prices of importables and locally-consumed exportables will decline. Thus, the proportionate changes in the relative prices of importables and exportables are negative, which indicate 'true' disprotection of importables and 'true' taxation of locally-consumed exportables.

The above outcome can be depicted by applying case (iv) to eqs. (11) and (12), to yield 'true' protection (t^*) and 'true' subsidy (s^*) rates rewritten as, respectively:

$$t^* = -\left(\frac{\omega_2 t + \omega_4 s}{1 + \omega_2 t + \omega_4 s}\right) \tag{13}$$

$$s^* = -\left(\frac{\omega_2 t + \omega_4 s}{1 + \omega_2 t + \omega_4 s}\right) \tag{14}$$

Eq. (13) shows that there is in fact disprotection of importables, and eq. (14) shows that there is 'true' taxation (i.e. negative 'true' subsidy) of locally-consumed exportables. In

4In the above cases (i.e. (i) to (iv)) the substitution indexes sum to unity. In other extreme cases, non-traded goods may be a substitute of only one of the goods, hence, the size of the index of substitution between non-traded goods and the good in question is unity but zero for the rest of the other goods as shown below: $T_1=1$ and $T_2=T_3=T_4=0$; $T_2=1$ and $T_1=T_3=T_4=0$; $T_3=1$ and $T_1=T_2=T_4=0$; and $T_4=1$ and $T_1=T_2=T_3=0$.

terms of resource flows, it is clear that importables and locally-consumed exportables will be net losers of resources to the other sectors (e.g. non-traded goods and export).

In practice, the extreme or polar cases considered above are rare, implying that for policy analysis purposes the important expressions are eqs. (11) and (12) which show that the incidence of protection in the economy depends on both the degree of price transmission and substitution between non-traded goods and the rest of the goods (imports, importables, locally-consumed exportables and exports) in the economy.

4. IMPLICATIONS OF IMPORT TARIFF REFORMS FOR THE INCENTIVE STRUCTURE

Based on the foregoing analysis it is fair to contemplate that commercial policy reforms that entail reduction, and not outright removal, of instruments such as *ad valorem* import tariffs and non-tariff measures (NTMs) can expect their impact to be limited by the presence of partial price transmission. It is probably this outcome that also accounts for the sluggish supply response to price reforms.

To the extent that partial price transmission undermines the response of the domestic prices to changes in the border prices as illustrated above, it is to be expected that import tariff reforms will bring about smaller reductions in the price of importables than the extent by which border prices are reduced (see eq. (1)). If import tariff reforms start from a position of high import tariffs, the smaller the extent of price transmission the smaller the reduction in the rate of nominal protection which precipitates relative sectoral biases. Already this points to the possibility of persistence or rigidity of relative price disorientation regardless of the reform effort, other things remaining constant.

From eq. (7) changes in the price of non-traded goods is the weighted average of the changes in the price of importables and imports price, the weights being the respective substitution indexes (T_1 and T_2) as described before. Assuming substitution in production and consumption between importables and non-traded goods (i.e. $T_1>0$), and substitution in consumption between imports and non-traded goods (i.e. $T_2>0$), tariff reforms lead to changes in the price of non-traded goods through changes in the prices of both importables and imports. The role of the price of importables depends, however, on the extent of price transmission. Thus, partial price transmission restrains the impact of

import tariff reductions on the price of non-traded goods by limiting the fall in the price of importables. In the extreme case (i.e. no price transmission) or where T_I=0, the price of non-traded goods falls only due to a fall in the price of imports.

In terms of the measures of relative incentives it is relatively easy to see that the impact of tariff reforms on the rate of 'true' protection of importables (eq. 12) and 'true' subsidy of locally-consumed exportables (eq. 13) is dampened by partial price transmission through restrained declines in the prices of importables and non-traded goods. Thus, partial price transmission perpetuates 'true' protection and negative 'true' subsidy (i.e. implicit 'true' taxation) thereby sustaining some elements of the pro-importables bias and anti-exportables bias incentive structure that would otherwise have been cleared by tariff reforms. It is therefore not surprising that import tariff reforms have in some places been met with low unexpected export supply response.

5. SUMMARY AND CONCLUSIONS

The paper has shown that the possibility of partial price transmission has implications for the size of nominal protection (e.g. import tariffs) and the degree of substitution, which in turn affect the extent of 'true' protection of importables and 'true' subsidisation (or taxation) of locally-consumed exportables. It has also been shown that partial price transmission undermines the efforts of import tariff reductions, and through that accounts for some of the sluggish export supply response. With respect to the size of nominal protection, the paper has shown that partial price transmission reduces nominal protection or the extent to which domestic prices change following the introduction of commercial policy instrument. With respect to the degree of substitution, the paper has presented a modified measure of the degree of substitution by extending the number of commodities which are substitutes of non-traded goods. That is, with partial transmission we work with a five-good model whereas with full price transmission the substitution index is discussed in the context of a three-good model. In the revised model we showed that non-traded goods may be substitutes of importables, imports, exports and locally-consumed exportables. This means that it is important to recognise that non-traded goods may have unique substitutional relationships with imports, importables, exports and locally-consumed exportables. The latter possibility implies that the price of non-traded goods can change when the price of any one of the commodities (imports, importables, exports and locally-consumed exportables) changes.

The paper has demonstrated that the above modifications have important implications for the sizes of 'true' protection of importables and 'true' subsidisation (or taxation) of locally-consumed exportables. In particular, we have shown that the smaller is the size of price transmission, the weaker is the role of domestic prices, hence, the smaller are the rates of 'true' protection of importables and 'true' subsidisation of locally-consumed exportables. Hence, the lower the incentive to allocate resources into the importables and locally-consumed exportables sectors, *ceteris paribus*. It has also been shown that where import tariff reduction efforts are undertaken partial price transmission checks the reductions in 'true' importables protection and implicit 'true' taxation of locally-consumed exportables. On the whole, the paper has shown that commercial policy instruments are less likely to achieve their potential extent of inter-sector resource flows due to conditions that inhibit full price transmission, *inter alia*, at least in the short term.

[**Endnotes**]

1. Literature also shows that partial price transmission can also be caused by other factors including the weight of imports in total domestic expenditure, the elasticity of factor prices (mainly nominal wages) with respect to actual (or expected) domestic price changes, the elasticity of domestic prices with respect to changes in factor prices (mostly nominal wages), policy intervention of a market-insulating type, and time lags between "order" and "delivery" times which become more prominent where there are differences in different countries' internal seasonal price patterns and inter-year variations in trade patterns.

2. The underlying assumptions of the theory of the incidence of protection from Greenaway and Milner (1993) are: a small developing trading economy with given factor (capital and labour) endowments; the economy produces and consumes three different products (the importables *M*, exportables *X*, and non-traded goods, *N*); flexible prices which ensure that the *N* sector is in equilibrium; a fixed exchange rate and initial trade balance; *M* is most capital intensive, *N* has intermediate capital intensity, while *X* has the lowest capital intensity. Intra-sector substitution is ruled out for simplicity. It is also assumed that importables and exportables are not substitutable (this assumption though is relaxed in further work by Greenaway and Milner (1988a) and Milner (1989)).

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