Exports, Foreign Direct Investment and the Costs of Corporate Taxation: Appendix

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Remark 1 This appendix is not for publication. It is found in Keuschnigg, C. (2006), Exports, Foreign Direct Investment and the Costs of Corporate Taxation, CEPR DP 5769, and can be downloaded from www.iff.unisg.ch/keuschnigg, DP Public Finance.

The appendix states world output market equilibrium. Substituting the savings investment identity $S = K$ into the budget $C_1 = L - S$ in (2.1) gives domestic output market equilibrium in the first period,

$$C_1 + K = L. \quad (A.1)$$

GDP $Y_1 = L$ consists of traditional sector output only and is spent on consumption and investment $K$. The model does not explain trade in the first period.

The GNP identity of the second period follows upon inserting $\pi^e$ from (2.16) and $S = K = k + s_X k_X$ into the second period budget constraint (2.1). Using the profit definitions $\pi$ and $\pi_X$ as well as the public sector budget (2.17) yields

$$C_2 + pc = Y_2 \equiv pK + K + V_I. \quad (A.2)$$
The first two terms on the right side amount to domestic GDP consisting of the output value of innovative and traditional goods. The last term is profit repatriation from foreign subsidiaries. Adding this to GDP gives domestic GNP $Y_2$ which is equal to domestic absorption. There are no imports of differentiated goods. Note that a monopolist supplies the entire market, $c = k$. Using $K = k + s_Xk_X$, the GNP equation is rearranged to give

$$(C_2 - K) - s_Xpk_X = V_I. \quad (A.3)$$

The round bracket is imports of standard goods. The second term represents the value of exports of differentiated goods. The trade balance deficit (excess imports) must be equal to foreign factor income which stems from profit repatriations of foreign subsidiaries.

The foreign economy is endowed with fixed labor $L^f$. It is specialized in the production of the standard *numeraire* good and uses an investment technology that converts one unit of the standard good today into $R$ units tomorrow. There is no local innovate goods production. Varieties consumed in the second period stem from imports or subsidiary production of multinationals. Since foreign market entry is risky, not all varieties on offer in the home country are also supplied abroad. Hence, $n_X + n_I < n$. Lower indices denote varieties supplied via exports or FDI. Given symmetry, foreign budget constraints are

$$C_1^f = L^f - S^f, \quad C_2^f + E^f = RS^f, \quad E^f = n_Xp_Xc_X + n_ip_ic_I. \quad (A.4)$$

Using the same specification of utility as for domestic agents and noting the budget in (A.1) yields foreign demand for brand $j$ as in (2.3).

By the Ricardian technology, output in the first period is equal to labor $L^f$. Without trade, first period output market equilibrium is $L^f - C_1^f = S^f = K^f + s_Ik_I + s_Ff_I$, where aggregate foreign savings must pay for local investment $K^f$ plus investment demand $s_Ik_I + s_Ff_I$ from inbound FDI. Savings earn a return $r$ and yield second period income $RS^f$ derived from output of the standard good. Income is spent on standard goods and on imported or FDI produced varieties. Foreign GNP amounts to $Y_2^f = RS^f$ and is spent on consumption of standard and differentiated goods, $Y_2^f = C_2^f + s_Xp_Xc_X + s_Ip_ic_I$. GNP abroad is lower than GDP because of profit repatriations leaving the country. To see this,
substitute savings $S^f$ as noted above, expand by $V_I - V_I$, and use $V_I$ from (2.16) and $\pi_I = (p_I - r) k_I$ from (2.12), $Y^f_2 = RS^f = RK^f + s_I k_I + s_I p_I k_I - V_I$. Combining the two equations for $Y^f$ and using the monopoly position $c_I = k_I$ of foreign subsidiaries yields the foreign trade balance,

$$RK^f + s_I k_I - C^f_2 = s_X p_X c_X + V_I.$$  \hspace{1cm} (A.5)

The left side is net exports of standard goods which must pay for imports of innovative goods and profit repatriations. Adding up (A.3) and (A.5) and noting $c_X p_X = p k_X$ yields world market clearing for standard goods in the second period, $C_2 + C^f_2 = (RK^f + s_I k_I) + K$. The right hand side stands for traditional goods output, with the first bracketed term referring to foreign and the second term to domestic output.