Answer to Referee Report #1

Many thanks for your comments.

- With respect to the equation listing: We attach below a new Appendix with the full set of equations.
- With respect to "few Spanish-isms": The English version is being revised to correct those mistakes.
- With respect to Armington elasticities: It has been performed according to referee's suggestions and four changes have been added:

  (1) In section 6, the second paragraph has been updated, including a new footnote:

  "The sensitivity analysis focuses on the elasticities related to the welfare and production functions. In the first line in Table 6 is displayed the base scenario "All divestments" for "National acquisitions" and "Closures". The benchmark elasticities have been duplicated and halved, except for the case of the Armington elasticities (where a more competitive international framework has been tested) [FOOTNOTE: Anderson and van Wincoop (2004) review the Armington elasticities literature and find values between 5 and 10 more plausible than the lower GTAP estimates used in this paper. The sensitivity analysis adopts an intermediate value of 7.5 for all sectors.], and β (where very rigid and flexible wages scenarios have been tested)."

  (2) In section 6, the third paragraph has been updated:

  "(…) among consumption goods has a small effect on labour market variables. The elasticity of substitution capital-labour affects the capital and labour demands. Nevertheless, the labour market variables are not significantly affected. Finally, the higher Armington elasticity reflects that more competitive goods markets temper adjustments in the labour market.

  (3) Additional lines at the bottom of Table 6 (see next page):

  (4) New reference:
  Anderson , J. E. and van Wincoop, E. (2004) "Trade Costs", *Journal of Economic Literature*, XLII, pp. 691-751.

Table 6: Sensitivity analysis

	National Acquisitions			Closures		
	Employment	**Unemployment rate**	**Wages**	**Employment**	**Unemployment rate**	**Wages**
Base: All divestments	1.00	-3.55	0.24	-1.49	11.00	-0.74
Elasticity of substitution between savings and consumption ($\sigma CA = 1$)						
$\sigma' CA = 2$	0.99	-3.60	0.24	-1.50	10.99	-0.74
$\sigma' CA = 0.5$	1.00	-3.52	0.24	-1.48	11.00	-0.74
Elasticity of substitution between consumption and leisure ($\sigma CO = 1$)						
$\sigma' CO = 2$	0.89	-6.37	0.43	-1.74	8.08	-0.54
$\sigma' CO = 0.5$	1.06	-1.87	0.13	-1.34	12.62	-0.85
Elasticity of substitution among consumption godos ($\sigma BC = 1$)						
$\sigma' BC = 2$	1.09	-3.47	0.23	-1.64	12.25	-0.82
$\sigma' BC = 0.5$	1.00	-3.67	0.25	-1.28	9.53	-0.64
Elasticity of substitution between labour and capital (σLK = Narayanan and Walmsley, 2008)						
$\sigma' LK = \sigma LK * 2$	0.99	-3.43	0.23	-1.75	12.53	-0.84
$\sigma' LK = \sigma LK * 0.5$	1.00	-3.55	0.24	-1.27	9.79	-0.66
Armington trade elasticity ($\sigma' A$ = Narayanan and Walmsley, 2008)						
$\sigma' A = 7.5$	0.25	-1.35	0.09	-0.67	5.36	-0.36
Real wage flexibility with respect to the unemployment rate ($\beta = 1.5$)						
$\beta' = 0.001$	0.71	-0.01	0.56	-0.38	0.01	-1.35
$\beta' = 20$	1.18	-5.85	0.03	-2.62	22.18	-0.11

Appendix 2: Model equations

As general rule, the notation in the model is as follows: endogenous variables are denoted by capital letters, exogenous variables by capital letters with a bar, and parameters by small Latin and Greek letters. There are 23 ($i, j = 1,\ldots, 23$) production sectors and each sector produces one good. The model's equations are as follows, and variables and parameters are listed below.

A. 1. Production

The nested technology presents constant returns to scale and a competitive pricing rule. Given that the top nest is a Leontief function, the zero-profit condition for domestic firms and MNEs in sector i are, respectively:

$$PROFIT_i^{X\_DOM} = PX\_DOM_i - c\_dom_{0i} PVA\_DOM_i - \sum_{j=1}^{23} c\_dom_{ji} PO_j \left(1 + TAU.it_i^{II}\right) = 0$$

($i = 1,\ldots, 23$) **(A1)**

$$PROFIT_i^{X\_MNE} = PX\_MNE_i - c\_mne_{0i} PVA\_MNE_i - \sum_{j=1}^{23} c\_mne_{ji} PO_j \left(1 + TAU.it_i^{II}\right) = 0$$

($i = 1,\ldots, 22$) **(A2)**

where, according to the nested structure, the unitary cost of the value added composite generated by sector i is a CES function:

$$PVA\_DOM_i = \frac{1}{\alpha\_dom_i}\left(a\_dom_i^{\sigma_i^{LK}} \left(1+soc_i\right)^{1-\sigma_i^{LK}} W^{1-\sigma_i^{LK}} + \left(1-a\_dom_i\right)^{\sigma_i^{LK}} R\_DOM_i^{1-\sigma_i^{LK}}\right)$$

($i = 1,\ldots, 21$) **(A3)**

$$PVA\_MNE_i = \frac{1}{\alpha\_mne_i}\left(a\_mne_i^{\sigma_i^{LK}} \left(1+soc_i\right)^{1-\sigma_i^{LK}} W^{1-\sigma_i^{LK}} + \left(1-a\_mne_i\right)^{\sigma_i^{LK}} R\_MNE_i^{1-\sigma_i^{LK}}\right)$$

($i = 1,\ldots, 21$) **(A4)**

$$PVA\_DOM_i = \frac{1}{\alpha\_dom_i}\left(\begin{array}{l} a\_dom_i^{\sigma_i^{LK}} \left(1+soc_i\right)^{1-\sigma_i^{LK}} W^{1-\sigma_i^{LK}} + \\ \left(1-a\_dom_i\right)^{\sigma_i^{LK}} \left(aa\_dom_i R\_DOM + \left(1-aa\_dom_i\right) R\_PUB\right)^{1-\sigma_i^{LK}} \end{array}\right)$$

($i = 22$) **(A5)**

$$PVA\_MNE_i = \frac{1}{\alpha\_mne_i}\left(a\_mne_i^{\sigma_i^{LK}} \left(1+soc_i\right)^{1-\sigma_i^{LK}} W^{1-\sigma_i^{LK}} + \left(1-a\_mne_i\right)^{\sigma_i^{LK}} R\_MNE^{1-\sigma_i^{LK}}\right)$$

($i = 22$) **(A6)**

$$PVA\_DOM_i = \frac{1}{\alpha\_dom_i}\left(a\_dom_i^{\sigma_i^{LK}} \left(1+soc_i\right)^{1-\sigma_i^{LK}} W^{1-\sigma_i^{LK}} + \left(1-a\_dom_i\right)^{\sigma_i^{LK}} R\_PUB_i^{1-\sigma_i^{LK}}\right)$$

($i = 23$) **(A7)**

There is imperfect substitution between production made by domestic firms and MNEs. This is modelled through an Armington aggregate:

$$PROFIT_i^X = PX_i - \left(ax_i^{\sigma_i^A} PX\_DOM_i^{1-\sigma_i^A} + \left(1-ax_i\right)^{\sigma_i^A} PX\_MNE_i^{1-\sigma_i^A} \right) \quad \text{(i=1,...,22)} \qquad \textbf{(A8)}$$

We assume that firms maximize profits, and choose the optimal mix of national and imported goods, and that of domestic sales and exports. This leads to the next zero profit conditions:

$$PROFIT_i^A = PA_i - \left(e_i^{\sigma_i^A} PX_i^{1-\sigma_i^A} + \left(1-e_i\right)^{\sigma_i^A} \left(\overline{PFXCUR}\right)^{1-\sigma_i^A} \right)^{\frac{1}{1-\sigma_i^A}} \qquad (i = 1,\ldots, 23) \qquad \textbf{(A9)}$$

$$PROFIT_i^{CET} = PA_i - \frac{1}{\zeta_i}\left(d_i^{-\varepsilon_i} PO_i^{\varepsilon_i+1} + \left(1-d_i\right)^{-\varepsilon_i} \left(\overline{PFXCUR}\right)^{\varepsilon_i+1} \right)^{\frac{1}{\varepsilon_i+1}} \qquad (i=1,\ldots,23) \qquad \textbf{(A10)}$$

These zero profit conditions are used to get derived demand functions, by applying the Shepard's Lemma on cost functions.

Next, we introduce the corresponding market clearing equations, with demands and supplies showing in the left-hand and the right-hand side, respectively:

$$X\_DOM_i\left(-\frac{\partial PROFIT_i^{X\_DOM}}{\partial PO_j} \right) + X\_MNE_i\left(-\frac{\partial PROFIT_i^{X\_MNE}}{\partial PO_j} \right) = II_{ji} \qquad (i,j = 1,\ldots, 23) \qquad \textbf{(A11)}$$

$$X\_DOM_i\left(-\frac{\partial PROFIT_i^{X\_DOM}}{\partial R\_DOM_i} \right) = \overline{K_i^{RC\_DOM}} \qquad (i = 1,\ldots, 23) \qquad \textbf{(A12)}$$

$$X\_MNE_i\left(-\frac{\partial PROFIT_i^{X\_MNE}}{\partial R\_MNE_i} \right) = \overline{K_i^{RC\_MNE}} \qquad (i = 1,\ldots, 22) \qquad \textbf{(A13)}$$

$$X\_DOM_i\left(-\frac{\partial PROFIT_i^{X\_DOM}}{\partial R\_PUB_i} \right) = \overline{K_i^{PUB}} \qquad (i = 22, 23) \qquad \textbf{(A14)}$$

$$\sum_{i=1}^{23}\left(X\_DOM_i\left(-\frac{\partial PROFIT_i^{X\_DOM}}{\partial W} \right) + X\_MNE_i\left(-\frac{\partial PROFIT_i^{X\_MNE}}{\partial W} \right) \right) = \left(\overline{L} - Q_l\right)\left(1-U\right) \qquad \textbf{(A15)}$$

$$X_i\left(-\frac{\partial PROFIT_i^X}{\partial PX\_DOM_i} \right) = X\_DOM_i \qquad (i = 1,\ldots, 23) \qquad \textbf{(A16)}$$

$$X_i\left(-\frac{\partial PROFIT_i^X}{\partial PX\_MNE_i} \right) = X\_MNE_i \qquad (i = 1,\ldots, 22) \qquad \textbf{(A17)}$$

$$A_i\left(-\frac{\partial PROFIT_i^A}{\partial PX_i} \right) = X_i \qquad (i = 1,\ldots, 23) \qquad \textbf{(A18)}$$

$$A_i\left(-\frac{\partial PROFIT_i^A}{\partial FC_i} \right) = IMP_i \qquad (i = 1,\ldots, 23) \qquad \textbf{(A19)}$$

$$A_i\left(-\frac{\partial PROFIT_i^{CET}}{\partial PO_i} \right) = O_i \qquad (i = 1,\ldots, 23) \qquad \textbf{(A20)}$$

$$A_i\left(-\frac{\partial PROFIT_i^{CET}}{\partial FC_i}\right)=EXP_i \qquad (i=1,\ldots,23) \qquad \textbf{(A21)}$$

$$X_i=X\_DOM_i+X\_MNE_i \qquad (i=1,\ldots,23) \qquad \textbf{(A22)}$$

$$X_i+IMP_i=O_i+EXP_i \qquad (i=1,\ldots,23) \qquad \textbf{(A23)}$$

$$I_i+\sum_{i=1}^{23}II_{ij}+FC_i=O_i \qquad (i=1,\ldots,23) \qquad \textbf{(A24)}$$

A. 2. Consumption

The final demand functions are derived from the maximization of the representative consumer's nested welfare function:

$$WF=\left(Q_c\right)^{1-\tau_{sav}}\left(Q_{sav}^{priv}\right)^{\tau_{sav}} \qquad \textbf{(A25)}$$

subject to the budget constraints:

$$Y_{RC}=W\left(\overline{L}-Q_l\right)(1-U)+\sum_{i=1}^{23}R\_DOM_i\overline{K_i^{RC\_DOM}}+\sum_{i=1}^{22}R\_MNE_i\overline{K_i^{RC\_MNE}}+\overline{NTPS} \qquad \textbf{(A26)}$$

$$Y_{RC}=PRIVSAV+\sum_{i=1}^{22}PO_i\left(1+TAU.it_i^{FC}\right)FC_i^{RC} \qquad \textbf{(A27)}$$

where:

$$PRIVSAV=P_{sav}Q_{sav}^{priv}$$

The nests in the welfare function are defined by:

$$Q_c=\left(b^{\sigma^{CL}}Q_{cg}^{1-\sigma^{CL}}+(1-b)^{\sigma^{CL}}Q_l^{1-\sigma^{CL}}\right)^{\frac{1}{1-\sigma^{CL}}} \qquad \textbf{(A28)}$$

$$Q_{cg}=\prod_{i=1}^{22}\left(FC_i^{RC}\right)^{\tau_i} \qquad \textbf{(A29)}$$

Consumption goods are purchased by the representative consumer and the public sector:

$$FC_i=FC_i^{RC}+FC_i^{PUB} \qquad (i=1,\ldots,23) \qquad \textbf{(A30)}$$

The solution to the maximization problem yields the demand functions for savings, leisure, and final demand.

A. 3. Public Sector

The income of the public sector is given by:

$$Y_{PUB}=\sum_{i=22,23}R\_PUB_i\overline{K_i^{PUB}}+\sum_{i=1}^{23}\left(SOC_i+IT_i\right)-\overline{NTPS} \qquad \textbf{(A31)}$$

where revenues come from several taxes:

$$SOC_i=Wsoc_i\left(X\_DOM_i\left(-\frac{\partial PROFIT_i^{X\_DOM}}{\partial W}\right)+X\_MNE_i\left(-\frac{\partial PROFIT_i^{X\_MNE}}{\partial W}\right)\right)$$

$$(i=1,\ldots,23) \qquad \textbf{(A32)}$$

$$IT_i=TAU.it_i^{II}\begin{pmatrix} PX\_DOM_iX\_DOM_i\left(-\dfrac{\partial PROFIT_i^{X\_DOM}}{\partial PO_i}\right)+ \\ PX\_MNE_iX\_MNE_i\left(-\dfrac{\partial PROFIT_i^{X\_MNE}}{\partial PO_i}\right)\end{pmatrix}+PO_iI_iTAU.it_i^{GKF}+PO_iFC_iTAU.it_i^{FC}$$

$$(i = 1,\ldots, 23) \qquad \textbf{(A33)}$$

The macro closure rule is:

$$Y_{PUB} - \sum_{i=1}^{23} PO_i \left(1 + TAU.it_i^{FC}\right) FC_i^{PUB} = PUBSAV \qquad \textbf{(A34)}$$

where:

$$PUBSAV = P_{sav} Q_{sav}^{pub}$$

A. 4. Foreign sector, investment and savings

The macro closure of the model involves some other constraints related to investment and savings in this open economy:

$$\sum_{i=1}^{23} \overline{PFXEXP_i} + \overline{FORSAV} = \sum_{i=1}^{23} \overline{PFXIMP_i} \qquad \textbf{(A35)}$$

$$PRIVSAV + PUBSAV + \overline{FORSAV} = \sum_{i=1}^{23} PO_i \left(1 + TAU.it_i^{GKF}\right) I_i \qquad \textbf{(A36)}$$

A. 5. Factor Markets

The equilibrium in the capital market is given in **(A6)**, and the equilibrium in the labour market in **(A7)**, with some restrictions related to the unemployment assumptions:

$$\frac{W}{CPI} = \left(\frac{1-U}{1-\overline{U0}}\right)^{\frac{1}{\beta}} \qquad \textbf{(A37)}$$

$$CPI = \frac{\sum_{i=1}^{23} \theta_i PO_i}{\sum_{i=1}^{23} \theta_i \overline{PO_i}} \qquad \textbf{(A38)}$$

Table A1. Endogenous Variables

Symbol	Definition
A_i	Armington aggregate (total amount of goods supplied) of sector *i*
CPI	Consumer Price Index
CUR	Factor of conversion of foreign currency into domestic currency
EXP_i	Exports of sector *i*
FC_i	Final domestic consumption of goods produced by sector *i*
FC_i^{RC}	Final private consumption of goods produced by sector *i*
FC_i^{PUB}	Final public consumption of goods produced by sector *i*
I_i	Investment (gross capital formation) in goods produced by sector *i*
II_{ji}	Intermediate inputs from sector *j* used by sector *i*
IMP_i	Imports from sector *i*
IT_i	Indirect taxes revenue in sector *i*
O_i	Production of sector *i* sold in the domestic market
P_{sav}	Savings shadow price
PA_i	Unit cost of the Armington aggregate of sector *i*

PO_i	Unit cost of the production of sector i sold in the domestic market
$PRIVSAV$	Private savings
$PROFIT_i^A$	Unit profits for A_i (according to origin)
$PROFIT_i^{CET}$	Unit profits for A_i (according to destination)
$PROFIT_i^X$	Unit profits for X_i
$PROFIT_i^{X\_DOM}$	Unit profits for X_DOM_i
$PROFIT_i^{X\_MNE}$	Unit profits for X_MNE_i
$PUBSAV$	Public savings
$PVA_i^{X\_DOM}$, $PVA_i^{X\_MNE}$	Unit cost of primary inputs used by domestic and MNEs firms in sector i
PX_i	Price of the goods produced by sector i
PX_DOM_i	Price of the goods produced by domestic firms in sector i
PX_MNE_i	Price of the goods produced by MNEs in sector i
Q_c	Demand for aggregate consumption
Q_{cg}	Demand for aggregate consumption of goods
Q_l	Demand for leisure
$Q_{sav}^{priv}, Q_{sav}^{pub}$	Private and Public demand for savings
R_DOM_i, R_MNE_i, R_PUB_i	Capital rental rates in sector i
SOC_i	Revenue from social contributions paid by employers and employees of sector i
TAU	Endogenous multiplier for revenue neutrality
U	Unemployment rate
W	Wages
WF	Welfare
X_i, X_DOM_i, X_MNE_i	Production of sector i
Y_{RC}	Disposable income of the representative consumer
Y_{PUB}	Disposable income of the public sector

Table A2. Exogenous Variables and Parameters

Symbol	Definition
$\overline{FORSAV}$	Foreign savings
$\overline{K_i^{RC\_DOM}}, \overline{K_i^{RC\_MNE}}$	Capital endowment of the representative consumer to produce good i
$\overline{K_i^{PUB}}$	Capital endowment of the public sector to produce good i
$\overline{L}$	Labour endowment
$\overline{NTPS}$	Net transfers from the representative consumer to the public sector
$\overline{PFX}$	World prices
$\overline{PO_i}$	Benchmark Prices
$\overline{U0}$	Benchmark Unemployment rate

a_dom_i, a_mne_i, aa_dom_i, ax_i, b, c_dom_{0i}, c_mne_{0i}, c_dom_{ji}, c_mne_{ji}, d_i, e_i	Share parameters
$it_i^{II}, it_i^{GKF}, it_i^{FC}$	Indirect taxes rates, *ad valorem*, in sector *i*, that burden intermediate inputs, investment and final consumption, respectively
soc_i	Social contributions rates, *ad valorem*, paid in sector *i*
$\alpha\_dom_i, \alpha\_mne_i$ ζ_i	Scale parameters
β	Sensibility parameter real wages-unemployment rate
ε_i	Elasticity of transformation in sector *i*
θ_i	Share parameters
σ_i^A	Armington elasticity of substitution in sector *i*
σ^{CL}	Elasticity of substitution between consumption and leisure
σ_i^{LK}	Elasticity of substitution between labour and capital in sector *i*
τ_i, τ^{sav}	Share parameters