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World Poverty and the Role of Agricultural Technology: Direct and Indirect Effects

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Appendix 3
Structure of the Computable General Equilibrium Model

1 Overall View of the Model

The model used in this paper is a standard neoclassical CGE in which agents respond to relative prices as a result of profit maximizing and utility maximizing behavior in determining levels of production and consumption, and markets reconcile endogenous supply and demand decisions with adjustments in relative prices.

CGE models differ primarily in the choices of closure rules which equilibrate commodity, factor, and foreign exchange markets, in rules specified to reconcile the government budget constraint, and in the mechanism used to equilibrate savings and investment levels in the economy. In our model, all commodity markets follow the neoclassical market-clearing price system, in which jointly determined producer and consumer prices vary only by given tax rates. Labor markets have been specified to reflect some regional differences. Africa and Asia each have three categories of labor: public employees, and a division of the remaining workers by residence (urban, rural) in Asia, and by skill in Africa. The two nonpublic categories of labor are imperfect substitutes. We assume that urban labor in Asia and skilled labor in Africa are in surplus and are thus hired at an exogenous real wage. Wages for rural labor in Asia and unskilled labor in Africa are, in contrast, flexible. Public employees receive an exogenous, fixed real wage. In Latin America, labor markets are relatively more integrated, with a categorization of workers by skill only.

The foreign exchange market equilibrates via adjustments of the real exchange rate. With foreign borrowing fixed, and an additional constraint of fixed balance of payments, the balance of trade is pre-specified at a constant level. Pressures to change export or import quantities (and hence, demand and supply of foreign currency) are therefore equilibrated by adjustments in the real exchange rate.

Government earnings comprise revenues raised from indirect taxes, trade taxes, and net foreign borrowing. Public outlays consist of non targeted food subsidies, current expenditures on the services provided by the public sector, investment and some small transfers to households and firms. Government transfers, current expenditures and investment expenditures are fixed. Government deficit is covered by borrowing on the domestic credit market.

Private investment is savings driven. Savings are generated by exogenous constant rates for households and by residual savings from firms. Private savings is equal to net savings available after government borrowing is covered.

The relationship between the rest of the world and the domestic economy is determined, for each sector, by the substitutability between imported and domestic goods on the consumption side, and by the substitutability in production for the domestic market and for the international market. Allocations between the domestic and international markets for demand and supply occur in response to the relative prices of

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foreign goods, themselves defined by international prices, the exchange rate, and government policies (taxes, subsidies, and tariffs).

The model is homogenous of degree one in all prices and nominal values. Our numeraire is the global producer price index at its initial level, and all nominal values are thus measured in real terms relative to this price. Fixed wages in this context should be interpreted in terms of production cost. Real incomes are computed with social group-specific consumer price indices which unlike the global producer price index include the prices of imported goods, taxes, and subsidies. The model solves for a one-period equilibrium and results have to be interpreted in comparative static terms.

Our model is different from a standard CGE in the production specification for the agricultural sectors. A joint production function is specified for the 'agricultural export', 'cereals' and 'other agriculture' sectors following the profit function approach used in multi-market modeling. This approach characterizes the nature of agricultural production at the farm level, in which combinations of crops produced and factors employed are jointly chosen as part of a single income strategy and where a variety of common fixed factors affect the levels of all activities. Nonagricultural sectors, in contrast, are represented by traditional multi-level CES production functions for primary factors and by fixed coefficient functions for intermediate inputs.

2 Equations of the Model

The equations of the model and a list of variables are reported in Table A3.1. Our model allows for imperfect substitution in consumption and production between domestic and foreign goods. Import and export prices [equations (1) and (3)] are equal to the world prices PWM_i and PWE_i converted into domestic prices at the exchange rate ER and adjusted for import taxes tm_i, export taxes te_i , and indirect taxes td_i on domestic sales. A constant trade margin coefficient mg_i is also added to each transaction (hence, included in the price), and the corresponding services will be added (see below) to the demand for the trade sector. Goods D_i sold on the domestic market are combined with imports M_i in a CES aggregation function resulting in the total supply Q_i on the domestic market. The consumer price of this composite good for each sector is thus a CES function of the consumer price of D_i and the import price PM_i [equation (2)]. Since domestically produced goods X_i are allocated between exports E_i and domestically sold goods D_i within a CET aggregation, the producer price PX_i is a CET function of the export price PE_i and the producer price of goods sold on the domestic market PD_i [equation (4)]. Equations (5) to (7) compute the value-added price PN_i received by the producer, the aggregate consumer price index (CPI) and an aggregate producer price index ($PINDEX$).

For the non-agricultural sectors, sectoral gross output $X_i{}^S$ is a CES function of the given capital stock K_i and labor [equation (8)]. Demand for intermediate use of good j in the production of sector i, N_j, is determined by a Leontief technology [equation (9)]. Labor is divided in L imperfect substitute categories corresponding to skill or residence and aggregated in the production function with a Cobb-Douglas (CD) function. Sectoral labor demand by category L^d_{li} is derived from profit maximization by the firms and depends on the net price of output and the vector of wages w [equation (10)]. For the agricultural sectors, a system of output supply for the three commodities and labor demand for the two categories is derived from the maximization of a generalized Leontief profit function [equations (11) and (12)]. Labor allocation between the three crops is based on proportional adjustment of the initial labor/output rations [equation (13)]. For all sectors, total factor productivity is a function of sectoral private investment and total public investment [equation (14)].

Labor supply by category L^s_l is assumed to be given in the current period [equation (15)]. The labor market can be closed in two ways: in the neoclassical closure [equation (17)] the wage rate is flexible and adjusts to clear the market. In the Keynesian closure, the wage is exogenous and there is a labor

surplus [equations (17') and (18)]. Labor surplus is determined by endogenously generated total labor demand [equation (16)].

Each sector's capital income $KINC_i$ is given by value-added net of labor payments [equation (19)]. A firm's net income Y_i is equal to its net capital income plus government transfers [equation (20)]. Their disposable income YD_i is income net of taxes and payments to the rest of the world [equation (21)]. Household h receives income [equation (22)] from labor of each category l (in proportion $\_hl$ to its ownership share in the category), distributed profit from each sector i (in proportion $\_hi$ to its ownership in the sector), transfers from different firms, and government transfers. Their disposable income YD_h is income net of taxes and transfers abroad [equation (23)]. Government revenue consists of direct taxes on firms' profits and households' income, import tariffs and export taxes, indirect taxes on domestic sales, and foreign transfers [equation (24)].

The government budget constraint [equation (27)] states that revenues less expenditures on consumption and investment, subsidies, transfers to firms, household and rest of the world is equal to the budget deficit. The budgetary rule maintains investment [equation (26)] and consumption expenditures fixed while the deficit adjusts in response to changing revenues. Sectoral allocations of government commodity demand are given by fixed coefficients [equation (25)].

Households' consumption demand for goods is a function of their disposable income, savings, and the vector of consumer prices. A linear expenditure system (LES) is specified to derive household demands subject to a budget constraint [equation (28)]. Savings behavior is given by a fixed savings rate, with savings proportional to disposable income [equation (37)].

Demand for goods for investment purposes is derived from private sectoral and public investment demands through the matrix of coefficients g_{ij} and g_{ig} that specifies the composition of investment goods in each sector. Total demand for investment is Z_i [equation (29)].

Total demand for goods Q_i [equation (30)] is shared between imports and domestically produced goods depending on the price of the imported good relative to the domestic good [equations (31) and (32)]. The supply of goods X_i^S is allocated for sale on the export and domestic markets depending on the relative prices [equations (33) and (34)]. Equation (35) defines the revenues from the trade margin, which are considered to be a source of demand for the trade sector output. Equilibrium between demand and supply in the goods market is imposed in equation (36).

Total private savings consists of household savings [equation (37)] and firm savings [equation (38)]. Private investment is determined by the amount of funds available from savings, after the necessary funds for financing government borrowing have been subtracted, and investment is allocated among sectors in fixed proportions [equations (39) and (40)].

Equilibrium on the foreign exchange market is achieved by changes in the real exchange rate, such that the (fixed) balance of trade less transfers abroad made by households, government and firms, is equal to capital inflow [equation (41)].

3 Calibration of the Model

3.1 Initial Quantities and Prices, and Share Parameters

Measurement units for labor categories are chosen such that all wages are initially equal to unity. Similarly, measurement units for the domestic commodities D_i , imports M_i , and exports E_i are chosen such that consumer prices P_i and PM_i , the world price PWE_i and the exchange rate ER equal 1 in the base year.

With these normalization rules, all initial quantities and other prices can be computed, rendering the parameters that are directly computed from these values a matter of simple algebra. Indirect tax rates (td_i), tariff rates (tm_i), exports tax rates (te_i), and trade margins (mg_i) are jointly determined with the quantities transacted, from the tax collection, trade margins and nominal transaction flows recorded in the original SAMs. Other initial quantities such as labor-output ratios in the agricultural sectors, distributional shares of labor income, capital income and firms' income, sectoral distribution of government consumption and investment, and various transfers simply reflect the values observed in the base data. Input-output coefficients (a_{ij}) are computed from observed payments to the sectors. Weights m_i and n_i used in the price indices are the sectoral shares in total domestic production and household consumption, respectively. The distribution of private investment by sector is assumed to be constant. Thus, relative changes in sectoral private investment are all equal to the relative change of aggregate private investment.

3.2 Parameters of the Generalized Leontief Profit Function in Agriculture

Output supplies for the three agricultural products and factor demands for the two labor categories are derived from profit maximization of a Generalized Leontief profit function. In calibrating the model, two difficulties are encountered. None of the consistent systems of output supply and factor demands (i.e., those which obey symmetry and homogeneity constraints to be compatible with an underlying profit function) exhibit constant elasticities over all values of production and factor use. The second problem is that whatever set of elasticities we can draw from the literature will usually not be a consistent set. Calibration of the model thus consists in finding parameters which give a consistent set of elasticities for the initial production structure represented in the SAM and which simultaneously reproduces as closely as possible a first guess on elasticities.

First guesses for supply and demand elasticities were mostly derived from the catalogue of elasticities elaborated by Sullivan, Wainio, and Roningen (USDA, 1989) for different regions of the world. These elasticities were then forced to satisfy the additivity and symmetry constraints of a full system by using an algorithm to minimize the distance to the base values while maintaining unchanged the base values for the direct price elasticities (in simpler terms, only cross-price elasticities were adjusted). The consistent set of elasticities are of the same order of magnitudes as our initial guesses, and are reported in the Table A3.2.

For Asia, the product elasticities were computed from the figures suggested for 'Other South Asia', Indonesia, the Philippines, and 'Other East Asia' in the USDA catalogue (1989) Since direct price elasticities across these regions were fairly similar, averages were used. Livestock elasticities are reported only for the Philippines and 'Other East Asia'. In both cases, its cross-price elasticity with respect to cereals is approximately -1, while cross-price elasticities with respect to cash crops are not provided. The latter was assumed to be a small number Cross-price elasticities of cash crops with respect to cereals prices are also reported for the Philippines and Other East Asia. These are -0.15 and -0.1, respectively.

Elasticities of rural labor with respect to crop prices were those estimated for India by Quizon and Binswanger (1986). The demand for urban labor is sufficiently small that the parameters have no significant effect on the model's results. Having no information, we use a slightly lower direct elasticity and assume that most of the indirect effects would come from its substitutability with the rural labor force.

For Africa, the available information is sparse. There are some elasticities in the USDA catalogue for Nigeria and 'Other Sub-Saharan Africa'. However, neither livestock nor any of the root crops that constitute a large share of food production are reported. Direct price responses for cereals and cash crops are of the same order of magnitude as the Asian average. Thus, we choose the same elasticities with respect to the cash crop prices , and we assume lower values of direct price elasticities for food crops, livestock and labor, drawing from the common understanding that markets are less developed in this continent. Correspondingly, cross-price elasticities have to be lowered relative to Asia.

3.3 Other Elasticities (See Sadoulet, Subramanian and de Janvry (1992) for details)

Latin America:

Table A3.3 lists the parameters that are needed beyond the data collected in the SAM for the Latin American archetype. For the consumption elasticities, we use the econometric estimates obtained by Kouwenaar. Production elasticities were also econometrically estimated by Kouwenaar. However, their values are by all measure extremely low, much below the range of elasticities usually used in CGE models, reflecting a very rigid economy. We thus decided to pursue the analysis with a more neutral assumption of medium-to-low elasticities between 0.7 and 0.95.

Africa and Asia:

Table A3.3 also enumerates the parameters for the African and Asian models. The demand system is an LES, for which the parameters are derived from the observed shares of consumption (in the SAM) and from estimated income elasticities by income class. For the four aggregation functions (CES for labor categories in the nonagricultural sectors, for capital and labor in the nonagricultural supply functions, and for imports and domestic commodities in consumption, and a CET aggregation of exports and domestic sales in domestic production), the share parameters are derived from the observed initial values once the elasticities of substitution have been determined. The elasticities are chosen as follows:

i) On the supply side, all nonagricultural production functions are CES in capital and labor, with a medium value of substitutability between these factors equal to 0.8. Labor is a CES aggregate of the two labor categories with a low value of substitutability equal to 0.2.

ii) For the aggregation elasticities between imports and domestic products in consumption, a relatively low value of substitutability (elasticity of 0.5) has been assumed for the nonagricultural products. This reflects an assumption of product differentiation between the domestically produced commodities and the imports of these large aggregates. For the agricultural sector (predominantly livestock), high substitutability (elasticity of 3) is assumed. However, with the observed very low share of imports in domestic consumption for Asia, the transmission of an external price increase to domestic price is not very high. For the African archetype, foreign price changes are irrelevant since there are no imports. The elasticity of substitution between imported and domestic food crops, which is key to our analysis, has been calibrated as follows: For the Asian archetype, an almost infinite substitutability (20) is chosen to characterize the observed high degree of competitiveness; for the African archetype for which domestically produced food crops are different from the imported cereals, the calibration is based on the relation between these elasticities and the cross price elasticity of demand for these domestic commodities with respect to the price of imported cereals. Based on Sullivan et. al., these cross price elasticities are all equal to 0 for the Sub-Saharan African countries, indicating that the elasticity of substitution is equal to the direct price elasticity of consumption for the aggregated food crop good. Although these direct price elasticities vary across households. they are close to 0.6 for the larger poor consumer classes. Thus, the elasticity of substitution was set to 0.6 for this archetype . Sensitivity analysis (not reported here) shows that the results are not qualitatively sensitive to the specific choices of these values within an acceptable range.

iii) On the export side, level of elasticities of transformation depend on the homogeneity of the aggregated sectors. But, as we observed on the consumption side, these elasticities are bound to be of medium values. Therefore, a medium-high elasticity of transformation (1.2) is used for the agricultural export sector, a medium-low value (0.8) for the industrial sector, and a lower value (0.5) for the food processing sector, which is dominated by mills which produce for the domestic market.

Table A3.1 - Equations of the Computable General Equilibrium Multimarket Model

Price System

(1) $PM_i = \overline{PWM_i}\ ER\ (1 + tm_i + td_i + mg_i)$

(2) $P_i(1 + sub_i) = CES(PD_i(1 + td_i + mg_i), PM_i)$

(3) $PE_i(1 + te_i + mg_i) = \overline{PWE_i}\ ER$

(4) $PX_i = CET(PD_i, PE_i)$

(5) $PN_i = PX_i - \sum_j a_{ji} P_j$

(6) $CPI = \sum_i \nu_i P_i$

(7) $PINDEX = \sum_i \mu_i PX_i$

Production

(8) $X_i^s = a_i\ CES\left(\overline{K}_i, CD(L_{li}^d)\right), \quad i \in NAg$

(9) $N_{ji} = a_{ji} X_i^s, \quad i \in NAg$

(10) $L_{li}^d = L_{li}(PN_i, w), \quad i \in NAg$

(11) $X_i^s = a_i GLT(PX_j / PX_i, w_l / PX_i, \overline{K}_A), \quad i, j \in Ag$

(12) $L_{lA}^d = GLT(PX_j / w_l, w_k / w_l, \overline{K}_A)$

(13) $L_{li}^d = L_{lA}^d X_i^s \lambda_i \Big/ \left(\sum_j \lambda_j X_j^s\right), \quad i, j \in Ag$

(14) $a_i = a_{io} I_g^{\varepsilon g_i} I_i^{\varepsilon p_i}$

Labor Market

(15) $L_l^s = \overline{L}_l^s$

(16) $L_l = \sum_i L_{li}^d$

(17) $L_l = L_l^s$ full employment

(17') or $w_l = \overline{w}_l$ fixed wage

(18) $U_l = L_l^s - L_l$

Institutions Income

(19) $KINC_i = PN_i X_i^s - \sum_l w_l\ L_{li}^d$

(20) $Y_i = \alpha_{ii} KINC_i + PINDEX\ T_{ig}$

(21) $YD_i = (1 - t_i) Y_i - ER\ T_{wi}$

(22) $Y_h = \sum_l \alpha_{hl} w_l L_l + \sum_i \alpha_{hi}\ KINC_i + \sum_i \theta_{hi} YD_i + PINDEX\ T_{hg}$

(23) $YD_h = (1 - t_h)\ Y_h - ER\ T_{wh}$

(24) $Y_g = \sum_i t_i Y_i + \sum_h t_h Y_h + \sum_i tm_i\ ER\ \overline{PWM_i} M_i + \sum_i te_i\ PE_i\ E_i$
$+ \sum_i td_i (PD_i D_i^d + \overline{PW_i}\ ER\ M_i) + ER\ \overline{FF}$

Government Budget

(25) $C_{gi} = gcons_i k_g CG_o$

(26) $I_g = k_g GI_o$

(27) $Y_g - \sum_i P_i C_{gi} - \sum_i P_i \gamma_{ig} I_g - \sum_i sub_i P_i Q_i$

$$-PINDEX\left(\sum_h T_{hg} + \sum_i T_{ig}\right) - ER\, T_{wg} = \overline{S_g}$$

Product Demand

(28) $C_{hi} = LES((1-s_h)\, YD_h, P)$

subject to the household budget constraint:

$\sum_i P_i C_{hi} \equiv (1-s_h)\, YD_h$

(29) $Z_i = \sum_j \gamma_{ij} I_j + \gamma_{ig} I_g$

(30) $Q_i = \sum_h C_{hi} + C_{gi} + Z_i + \sum_j N_{ij}$

(31) $Q_i = CES\left(D_i^d,\ M_i\right)$

(32) $\frac{M_i}{D_i^d} = CES^*\left[\frac{PM_i}{PD_i(1+td_i+mg_i)}\right]$

(33) $X_i^s = CET\left(D_i^s, E_i\right)$

(34) $\frac{E_i}{D_i^s} = CET^*\left(\frac{PE_i}{PD_i}\right)$

(35) $MG = \sum_i mg_i(\overline{PWM_i}\ ER\, M_i + PE_i\, E_i + PD_i\, D_i^d)$

(36) $D_i^s = D_i^d$ $\quad i \neq$ trade sector

$D_i^s = D_i^d + \frac{MG}{P_i}$ $\quad i =$ trade sector

Savings and Investment

(37) $S_h = s_h YD_h$

(38) $S_i = \left(1 - \sum_h \theta_{hi}\right) YD_i$

(39) $I_i = kinv_i INV$

(40) $\sum_{ij} P_j \gamma_{ji} I_i = \sum_h S_h + \sum_i S_i + \overline{S}_g$

Foreign Exchange Market

(41) $\sum_i \overline{PWE_i} E_i - \sum_i \overline{PWM_i} M_i - \sum_h T_{wh} - T_{wg} - \sum_i T_{wi} = \overline{FF}$

Endogenous Variables

PM_i Import price in domestic currency

P_i Price of composite good

PD_i Price of domestically produced good for domestic market

PE_i Export price in domestic currency

PX_i Average producer price

PN_i Net producer price
CPI Aggregate consumer price index
a_i Total factor productivity
X_i^s Domestic production
N_{ji} Use of input j in sector i
L_{li}^d Demand of labor of category *l* in sector i
L_{lA}^d Demand of labor of category *l* in the agricultural sectors
L_l^s Supply of labor of category *l*
w_l Wage of labor of category *l*
L_l Employment of labor category *l*
U_l Unemployment of labor category *l*
$KINC_i$ Capital income in sector i
Y_i, YD_i Income and disposable income of firm i
Y_h, YD_h Income and disposable income of household h
Y_g Government revenues
I_g Public investment
k_g Adjustment scalar in government budget
C_{gi} Government consumption
C_{hi} Private consumption
Z_i Demand for good i for investment
Q_i Domestic demand for composite good
M_i Import
D_i^d Domestic demand for domestically produced good
D_i^s Supply of domestically produced good
E_i Export
MG Trade margin revenues
S_h Savings of household h
S_i Savings of firm i
I_i Investment in sector i
Inv Private investment
ER Exchange rate

Exogenous Variables and Coefficients

$\overline{K_A}$ Fixed factors in agricultural sectors
$\overline{K_i}$ Capital stock in sector i
$\overline{PWM_i}$, $\overline{PWE_i}$ World price of imported and exported good i
$\overline{FF}$ Foreign borrowing
$\overline{S_g}$ Government savings (deficit if negative)
T_{ig} Transfer from government to firm i
T_{wi}, T_{wh}, T_{wg} Transfer from firm i, household h, and government to the rest of the world
te_i, tm_i Export and import tax rates on good i
mg_i Trade margin on good i
td_i Indirect tax rate on good i
t_i Tax rate on income of firm i
t_h Tax rate on income of household h
a_{ij} Input-output coefficient
γ_{ig}, γ_{ij} Share of good i in government and sector j investment
ν_i, μ_i Weights in price indices

α_{hl}	Ownership share of household h in labor *l*
α_{hi}	Share of household h in capital of sector i
α_{ii}	Share of firm i in capital of sector i
$gcons_i$	Share of good i in government consumption
CG_o, CI_o	Initial values of government consumption and investment
$kinv_i$	Share of sector i in private investment

Numeraire

PINDEX	Aggregate producer price

Policy Variables

sub_i	Subsidy on good i (› 0 for food only)
T_{hg}	Transfer from government to household

Functions

CES	Constant elasticity of substitution function
CET	Constant elasticity of transformation function
CES*	Derived relation from cost minimization in a CES
CET*	Derived relation from revenue maximization in a CET
CD	Cobb-Douglas function
GLT	Generalized Leontief function

Indices and Sets

i, j	Index for activities/commodities, i, j $\in J$
l	Index for labor categories, $l \in L$
h	Index for households, h$\in$ *H*
Ag	Set of agricultural activities, Ag$\subset J$
NAg	Set of nonagricultural activities, NAg$\subset J$

Table A3.2 - Elasticities of Output Supply and Factor Demand

African Archetype	Ag Export	Food Crop	Other Ag	Unskilled Labor	Skilled Labor
Ag Exp	0.30	-0.16	-0.10	-0.03	0.00
Food Crop	-0.10	0.20	-0.07	-0.03	0.00
Other Ag	-0.10	-0.10	0.20	0.00	0.00
Unskilled Labor	0.12	0.14	0.01	-0.30	0.02
Skilled Labor	0.01	0.05	0.00	0.15	-0.20

Asian Archetype	Ag Export	Food Crop	Other Ag	Rural Labor	Urban Labor
Ag Exp	0.45	-0.11	-0.09	-0.27	0.00
Food Crop	-0.08	0.35	-0.22	-0.06	0.00
Other Ag	-0.05	-0.15	0.40	-0.19	-0.01
Rural Labor	0.17	0.05	0.26	-0.50	0.01
Urban Labor	0.02	0.02	0.19	0.17	-0.40

Latin American Archetype	Ag Export	Food Crop	Rural Labor	Urban Labor
Ag Exp	0.50	-0.35	-0.14	-0.01
Food Crop	-0.20	0.45	-0.24	-0.01
Rural Labor	0.15	0.42	-0.60	0.03
Urban Labor	0.09	0.15	0.26	-0.50

Table A3.3 -- Elasticities and Parameters used in the Models

I. Household Consumption Parameters

Latin America

	Urban Households		Rural Household (Farm size)		
	Poor	Rich	Small	Medium	Large
Income elasticities					
Ag Exports	0.88	0.83	0.88	0.87	0.84
Other ag	0.77	0.73	0.88	0.87	0.84
Oil	0.78	0.74	0.97	0.95	0.98
Industrial goods	0.92	0.92	0.98	0.99	0.99
Services	1.22	1.18	1.12	1.10	1.10
Frish Parameter	-4.00	-2.00	-4.00	-3.00	-2.00

Asia and Africa

	Urban Households		Rural Households (Farm size)		
	Poor	Rich	Small	Medium	Large
Income elasticities					
Food crops	1.27	0.56	1.13	1.13	0.65
Other ag	1.21	0.98	1.04	1.04	0.89
Ag Processing	1.08	0.97	1.01	1.01	0.99
Industrial goods	0.76	1.11	0.79	0.79	1.13
Services	0.78	1.15	0.96	0.96	1.21
Frish Parameter	-4.00	-2.00	-4.00	-3.00	-2.00

II. Sectoral Parameters

Latin America

	Ag Export	Cereal	Foodproc	Oil	Industry	Services	Govt. Services
Depreciation rate	0.045	0.045	0.045	0.045	0.045	0.045	0.045
Elasticity in import CES	0.6	1.2	0.8	0.9	0.9	0.6	**
Elasticity in export CET	0.8	**	0.9	0.9	0.9	0.95	**
Labor aggregation	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Capital-Labor in Producti	**	**	**	0.8	0.8	0.8	0.8

Note: ** = Not Applicable

Asia and Africa

	Ag Export	Cereal	Other Ag	Foodproc	Oil	Industry	Services	Govt. Services
Elasticity in import CES	**	30(0.3)	3(0.5)	0.5	0.5	0.5	0.5	**
Elasticity in export CET	1.2	**	0.5	0.5	0.8	0.8	0.5	**
Labor aggregation	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Capital-Labor in Producti	**	**	**	0.8	0.8	0.8	0.8	0.8

Note: ** = Not Applicable; Figures in brackets are for Africa, when these differ from those of Asia