

Appendix I

A Generic table for representation of poverty dynamics can be formulated as follows with simulation of 10% stepwise tax reduction.

Table: Changes in Poverty

	Base 100%	Chg (%)	SIM_100_90	Chg (%)	SIM_90_80	Chg (%)	SIM_80_70	Chg (%)
National Poverty								
Poverty Headcount (P0)	24.5550		24.4170	-0.562%	24.3090	-0.442%	24.3090	0.000%
Poverty Gap (P1)	5.5970		5.5980	0.018%	5.5940	-0.071%	5.5940	0.000%
Poverty Severity (P2)	2.0890		2.0890	0.000%	2.0880	-0.048%	2.0880	0.000%
Poverty Headcount (P0)								
Rural Small-Holders	90.2040		90.2040	0.000%	90.2040	0.000%	90.2040	0.000%
Rural Unskilled	20.5660		20.5660	0.000%	20.5660	0.000%	20.5660	0.000%
Rural Skilled	21.1780		21.1780	0.000%	20.8180	-1.700%	20.8180	0.000%
Rural Capitalist	0.0000		0.0000		0.0000		0.0000	
Urban Informal	74.7060		74.0140	-0.926%	74.0140	0.000%	74.0140	0.000%
Urban Unskilled	5.3400		4.5770	-14.288%	4.5770	0.000%	4.5770	0.000%
Urban Skilled	1.4900		1.4900	0.000%	1.4900	0.000%	1.4900	0.000%
Urban Capitalist	0.0000		0.0000		0.0000		0.0000	
Poverty Gap (P1)								
Rural Small-Holders	26.9120		26.9200	0.030%	26.9040	-0.059%	26.9030	-0.004%
Rural Unskilled	0.9910		0.9930	0.202%	0.9880	-0.504%	0.9880	0.000%
Rural Skilled	1.9310		1.9340	0.155%	1.9270	-0.362%	1.9270	0.000%
Rural Capitalist	0.0000		0.0000		0.0000		0.0000	
Urban Informal	27.0930		27.0920	-0.004%	27.0860	-0.022%	27.0850	-0.004%
Urban Unskilled	0.1580		0.1580	0.000%	0.1580	0.000%	0.1580	0.000%
Urban Skilled	0.0150		0.0150	0.000%	0.0150	0.000%	0.0150	0.000%
Urban Capitalist	0.0000		0.0000		0.0000		0.0000	
Poverty Severity (P2)								
Rural Small-Holders	10.5090		10.5140	0.048%	10.5050	-0.086%	10.5050	0.000%
Rural Unskilled	0.0740		0.0740	0.000%	0.0740	0.000%	0.0740	0.000%
Rural Skilled	0.2340		0.2350	0.427%	0.2340	-0.426%	0.2340	0.000%
Rural Capitalist	0.0000		0.0000		0.0000		0.0000	
Urban Informal	11.7260		11.7260	0.000%	11.7220	-0.034%	11.7210	-0.009%
Urban Unskilled	0.0080		0.0080	0.000%	0.0080	0.000%	0.0080	0.000%
Urban Skilled	0.0000		0.0000		0.0000		0.0000	
Urban Capitalist	0.0000		0.0000		0.0000		0.0000	

Table: continued

	SIM_70 _60	Chg (%)	SIM_6 0_50	Chg (%)	SIM_50_40	Chg (%)	SIM_40_30	Chg (%)
National Poverty								
Poverty Headcount (P0)	24.3090	0.000%	24.3090	0.000%	24.3090	0.000%	24.3090	0.000%
Poverty Gap (P1)	5.5940	0.000%	5.5930	-0.018%	5.5930	0.000%	5.5930	0.000%
Poverty Severity (P2)	2.0870	-0.048%	2.0870	0.000%	2.0870	0.000%	2.0870	0.000%
Poverty Headcount (P0)								

Rural Small-Holders	90.2040	0.000%	90.2040	0.000%	90.2040	0.000%	90.2040	0.000%
Rural Unskilled	20.5660	0.000%	20.5660	0.000%	20.5660	0.000%	20.5660	0.000%
Rural Skilled	20.8180	0.000%	20.8180	0.000%	20.8180	0.000%	20.8180	0.000%
Rural Capitalist	0.0000		0.0000		0.0000		0.0000	
Urban Informal	74.0140	0.000%	74.0140	0.000%	74.0140	0.000%	74.0140	0.000%
Urban Unskilled	4.5770	0.000%	4.5770	0.000%	4.5770	0.000%	4.5770	0.000%
Urban Skilled	1.4900	0.000%	1.4900	0.000%	1.4900	0.000%	1.4900	0.000%
Urban Capitalist	0.0000		0.0000		0.0000		0.0000	

Poverty Gap (P1)

Rural Small-Holders	26.9030	0.000%	26.9020	-0.004%	26.9020	0.000%	26.9000	-0.007%
Rural Unskilled	0.9880	0.000%	0.9880	0.000%	0.9870	-0.101%	0.9870	0.000%
Rural Skilled	1.9270	0.000%	1.9270	0.000%	1.9270	0.000%	1.9260	-0.052%
Rural Capitalist	0.0000		0.0000		0.0000		0.0000	
Urban Informal	27.0850	0.000%	27.0840	-0.004%	27.0840	0.000%	27.0830	-0.004%
Urban Unskilled	0.1580	0.000%	0.1580	0.000%	0.1580	0.000%	0.1580	0.000%
Urban Skilled	0.0150	0.000%	0.0150	0.000%	0.0150	0.000%	0.0150	0.000%
Urban Capitalist	0.0000		0.0000		0.0000		0.0000	

Poverty Severity (P2)

Rural Small-Holders	10.5050	0.000%	10.5040	-0.010%	10.5040	0.000%	10.5040	0.000%
Rural Unskilled	0.0740	0.000%	0.0740	0.000%	0.0740	0.000%	0.0740	0.000%
Rural Skilled	0.2340	0.000%	0.2330	-0.427%	0.2330	0.000%	0.2330	0.000%
Rural Capitalist	0.0000		0.0000		0.0000		0.0000	
Urban Informal	11.7210	0.000%	11.7210	0.000%	11.7200	-0.009%	11.7200	0.000%
Urban Unskilled	0.0080	0.000%	0.0080	0.000%	0.0080	0.000%	0.0080	0.000%
Urban Skilled	0.0000		0.0000		0.0000		0.0000	
Urban Capitalist	0.0000		0.0000		0.0000		0.0000	

Table: continued

	SIM_30_20	Chg (%)	SIM_20_10	Chg (%)	SIM_10_0	Chg (%)
National Poverty						
Poverty Headcount (P0)	24.3090	0.000%	24.3090	0.000%	24.3090	0.000%
Poverty Gap (P1)	5.5930	0.000%	5.5920	-0.018%	5.5920	0.000%
Poverty Severity (P2)	2.0870	0.000%	2.0870	0.000%	2.0870	0.000%
Poverty Headcount (P0)						
Rural Small-Holders	90.2040	0.000%	90.2040	0.000%	90.2040	0.000%
Rural Unskilled	20.5660	0.000%	20.5660	0.000%	20.5660	0.000%
Rural Skilled	20.8180	0.000%	20.8180	0.000%	20.8180	0.000%
Rural Capitalist	0.0000		0.0000		0.0000	
Urban Informal	74.0140	0.000%	74.0140	0.000%	74.0140	0.000%
Urban Unskilled	4.5770	0.000%	4.5770	0.000%	4.5770	0.000%
Urban Skilled	1.4900	0.000%	1.4900	0.000%	1.4900	0.000%
Urban Capitalist	0.0000		0.0000		0.0000	
Poverty Gap (P1)						
Rural Small-Holders	26.9000	0.000%	26.8990	-0.004%	26.8980	-0.004%
Rural Unskilled	0.9870	0.000%	0.9870	0.000%	0.9860	-0.101%

						%
Rural Skilled	1.9260	0.000%	1.9260	0.000%	1.9250	-0.052%
Rural Capitalist	0.0000		0.0000		0.0000	
Urban Informal	27.0820	-0.004%	27.0810	-0.004%	27.0810	0.000%
Urban Unskilled	0.1570	-0.633%	0.1570	0.000%	0.1570	0.000%
Urban Skilled	0.0150	0.000%	0.0150	0.000%	0.0150	0.000%
Urban Capitalist	0.0000		0.0000		0.0000	
Poverty Severity (P2)						
Rural Small-Holders	10.5030	-0.010%	10.5030	0.000%	10.5030	0.000%
Rural Unskilled	0.0740	0.000%	0.0740	0.000%	0.0740	0.000%
Rural Skilled	0.2330	0.000%	0.2330	0.000%	0.2330	0.000%
Rural Capitalist	0.0000		0.0000		0.0000	
Urban Informal	11.7190	-0.009%	11.7190	0.000%	11.7180	-0.009%
Urban Unskilled	0.0080	0.000%	0.0080	0.000%	0.0080	0.000%
Urban Skilled	0.0000		0.0000		0.0000	
Urban Capitalist	0.0000		0.0000		0.0000	

Appendix II

Notation and symbol explanation:

Production and Labor Market

$$X_{fc} = A_{fc} \left[\beta_K^{fc} \overline{K}_{fc}^{\frac{\mu_{fc}-1}{\mu_{fc}}} + \beta_{LS}^{fc} LS_{fc}^{\frac{\mu_{fc}-1}{\mu_{fc}}} \beta_{LU}^{fc} LU_{fc}^{\frac{\mu_{fc}-1}{\mu_{fc}}} \right]^{\frac{\mu_{fc}}{\mu_{fc}-1}} \dots\dots\dots(1) - (2)$$

Eqn 1-2: output of formal sector [superscript/subscript; fc=formal sector commodities]

X=output in formal sector; A=Technology coefficient; K=Fixed capital; β=share of input in output; LS= skilled labor; LU=unskilled labor; μ=elasticity of substitution;

$$X_{ic} = A_{ic} \left[\beta_K^{ic} \overline{K}_{ic}^{\frac{\mu_{ic}-1}{\mu_{ic}}} + \beta_{LU}^{ic} LU_{ic}^{\frac{\mu_{ic}-1}{\mu_{ic}}} \right]^{\frac{\mu_{ic}}{\mu_{ic}-1}} \dots\dots\dots(3) - (4)$$

Eqn 3-4: output in informal sector [superscript/subscript; ic=informal sector commodities]

X=output in formal sector; A=Technology coefficient; K=Fixed capital; β=share of input in output; LS= skilled labor; LU=unskilled labor; μ=elasticity of substitution;

$$i_{ic} = \frac{P_{ic} X_{ic}}{LU_{ic}} \dots\dots\dots(5) - (6)$$

i_{ic}=income in informal sector (wage in informal sector is determined)

$$wu_{ex} = \frac{P_{ex} \beta_{LU}^{ex} X_{ex}}{LU_{ex}} \dots\dots\dots(7)$$

wu_{ex}= unskilled labor wage in export sector [subscript ex is used for export sector representation]; β=share of input in output

$$wu_{ex} = i_{food} (1 + \delta) \dots\dots\dots(8)$$

δ= Transaction costs of work in rural formal sector (export) instead of working in food sector (for unskilled labor) ; i_{food}=income in food sector

$$i_{srvc} = \frac{P_{im} \beta_{LU}^{im} X_{im}}{LU_{im}} \dots\dots\dots(9)$$

i_{srvc}=income in service sector of unskilled workers

$$w_{im} = i_{srvc} + \gamma \frac{\Pi}{LU_{im}} \dots\dots\dots(10)$$

w_{im}= wages in import competing industry; γ=profit share ratio for unskilled labor in import competing sector; Π=profits;

$$\Pi = P_{im} X_{im} - i_{srvc} LU_{im} - ws_{im} LS_{im} \dots\dots\dots(11)$$

Π =profits of capitalists; ws_{im} =skilled labor wage;

$$wu_{ex} = \left(1 - \frac{hLU_{im}}{LU_{srvc} + LU_{im}}\right)wu_{srvc} + \left(\frac{hLU_{im}}{LU_{srvc} + LU_{im}}\right)wu_{im} \dots\dots\dots(12)$$

h = scale parameter

$$ws_{fc} = \frac{P_{fc}\beta_{LS}^{fc}X_{fc}}{LS_{fc}} \dots\dots\dots(13) - (14)$$

ws_{fc} = skilled wage in formal sector

$$ws_{im} = \left[\frac{1 - \beta_{LU}^{im}}{(1 - \theta)\beta_{LU}^{im} + \theta(1 - \beta_{LU}^{im})} \right]^{1/(1-\theta)} ws_{ex} \dots\dots\dots(15)$$

ws_{im} = skilled wage in import competing sector; θ = relative risk aversion of skilled workers

Disposable income and savings

$$I_{rih} = i_{food}LU_{food} \dots\dots\dots(16)$$

I_{rih} = disposable income of rural informal household

$$I_{ruh} = wu_{ex}LU_{ex} \dots\dots\dots(17)$$

I_{ruh} = disposable income of rural unskilled household

$$I_{rsh} = ws_{ex}LS_{ex} \dots\dots\dots(18)$$

I_{rsh} = disposable income of rural skilled household

$$I_{rlh} = P_{ex}X_{ex} - ws_{ex}LS_{ex} - wu_{ex}LU_{ex} - S_{ex} \dots\dots\dots(19)$$

I_{rlh} = disposable income of rural large landholders household

$$I_{uih} = i_{srvc}LU_{srvc} \dots\dots\dots(20)$$

I_{uih} = disposable income of urban informal household

$$I_{uuh} = ws_{im}LU_{im} \dots\dots\dots(21)$$

I_{uuh} = disposable income of rural unskilled household

$$I_{ush} = ws_{im}LS_{im} \dots\dots\dots(22)$$

I_{ush} = disposable income of urban unskilled household

$$I_{ukh} = P_{im}X_{im} - ws_{im}LS_{im} - wu_{im}LU_{im} - S_{im} \dots\dots\dots(23)$$

I_{ukh} = disposable income of urban capitalist household

$$I_{bch} = tM \dots\dots\dots(24)$$

I_{bch} = disposable income of bureaucrat household

$$S_{fc} = \lambda_{fc} [P_{fc} X_{fc} - w s_{fc} L S_{fc} - w u_{fc} L U_{fc}] \dots \dots \dots (25) - (26)$$

S=savings of formal sector employers (urban capitalists and rural large landholders)

Demand

$$C_c^h = \frac{\alpha_c^h I_h}{P_c} \dots \dots \dots (27) - (49)$$

α=budget share of commodities; I=household income; C=consumption of commodities by households; P=price of commodities;

Foreign Trade

$$M = \sum_h C_{im}^h + \frac{S_{im}}{P_{im}} - X_{im} \dots \dots \dots (50)$$

M=import; C= demand for imported commodities; S=savings of capitalists; P=price of imported commodities; X=output in import competing sector;

$$EX = X_{ex} - \frac{S_{ex}}{P_{ex}} \dots \dots \dots (51)$$

EX=export; X=output in export sector; S=savings of rural capitalists (large landholders); P=price of export commodities;

Equilibrium Conditions

$$\sum_c L U_c = L U \dots \dots \dots (52)$$

$$\sum_{fc} L S_{fc} = L S \dots \dots \dots (53)$$

$$X_{ic} = \sum_h C_{ic}^h \dots \dots \dots (54) - (55)$$

$$P_{im} \equiv 1 + t \dots \dots \dots (56)$$

P=price of imports; t= tariff rate

$$P_{ex} \equiv 1 \dots \dots \dots (57)$$

P=price of exports