Globalisation, Technology, Poverty and Income Distributions of Households in Ghana

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INTRODUCTION

Globalization envisages a greater integration of the world economy through trade liberalization, factor mobility and transfer of technology. Trade liberalization is defined as the elimination of import and export duties on goods and services. Free factor mobility is defined as the removal of restrictions on the movement of capital and labour. The transfer of technology can take place when the country encourages the return of its highly educated nationals living abroad or designs policies that will enable emigrants to take part in the economic development without having to return home. Some governments have adopted programs designed to encourage the return of highly educated nationals living abroad, for example, Thailand, Ireland, Philippines, Taiwan, Korea, China, Japan, and India. International organisations have also developed programs to promote return of migrants, for example International Organization for Migration's Return of Qualified African Nationals Program and the Migration for Development in Africa Program. Ghana had adopted a dual citizenship policy to attract foreign direct investment and technology transfer from the Diaspora. A growing body of research suggests that Diasporas and country networks abroad are an important reservoir of knowledge and information on trade and investment opportunities as well as new technologies (Rauch, 2001). Expatriates from India, China and Israel have played a critical role in accelerating technology exchange and foreign direct investment in the economies of their homelands by establishing official business links with their host countries.

Technology plays a significant role in poverty reduction in Less Developed Countries. It can empower the poor by enabling them to address their basic needs, alleviate their own poverty and promote sustainable livelihood development. It was with this in mind that governments and non-governmental organizations took the application of technology for poverty reduction in developing countries seriously in the 70s and 80s. However, this type of activity declined through the 1980s and 1990s. Renewed interest in poverty reduction by aid donors and international finance institutions as exemplified by the Millennium Development Goals (MDGs) and within African countries themselves as seen in the NEPAD document has refocused attention on the role of technology for development, and is supported by the use of new information and communication technology and multimedia approaches. One organization that is helping in this direction is the UNESCO. It is developing activities in the field of technology and poverty eradication and sustainable development under a "Technology and Poverty Eradication" – TAPE project initiative. The focus of the project is on the provision of technology to address basic needs, access to knowledge and resources to promote sustainable livelihood development in the context of poor people using an interdisciplinary approach. The effective promotion of technology requires an interdisciplinary approach combining science and technology, the social sciences, culture, information, communication and education. The interdisciplinary approach includes applied research, information and advocacy regarding the socio-cultural dimensions of poverty and poverty eradication, informed technology choice, transfer, adaptation, development, innovation and dissemination. At the local level, the Technology Consultancy Centre of the Kwame Nkrumah University of Science and Technology established in 1972 through its own efforts established an Intermediate Technology Transfer Unit (ITTU) in the largest non-formal industrial suburb of Suame, Kumasi in the Ashanti Region. The success of the Suame project made the government of Ghana through the GRATIS project

established ITTUs in all the ten regions of Ghana. Through these ITTUs traditional technologies are being built upon to help improve the living standards of the people.

It is generally believed that expanded trade holds the key to prosperity for developing countries. According to this view, if the industrialised countries would eliminate their trade barriers, especially in apparel and agriculture, this would provide a basis for growth in developing countries, pulling hundreds of millions of people out of poverty. According to World Bank (2002), a reduction in world barriers to trade could accelerate growth, provide stimulus to new forms of productivity-enhancing specialization, and lead to a more rapid pace of job creation and poverty reduction around the world. Some country studies examine the impact of trade liberalization on poverty and income distributions. Sahn, Dorosh and Younger (1997), and Dorosh and Sahn, (2000) examined the impacts of trade and exchange rate liberalization on income distribution and poverty in Cameroon, Gambia, Madagascar and Niger and observed that trade and exchange rate liberalisation benefits poor households in urban and rural areas. Bautista and Thomas (1997) also investigated the impacts of import liberalization on poverty in Philippines and observed favourable effects of import liberalisation on income and poverty. Aka (2003) has observed for Cote d'Ivoire that the elimination of agricultural exports and import taxes leads to more poor households than in the pre-shock situation, whereas the elimination of taxes on industrial exports reduces the number of households that are poor in comparison to the pre-shock situation. Obi (2003) has observed for Nigeria that tariff adjustment tends to aggravate income disparity among households.

The elimination of trade taxes will cause a substantial fall in the revenue of the government. This decrease in the revenue will reduce the public savings. It is necessary for government to find other avenues to compensate for the decrease in revenue. The government can consider various options. The first option is to increase the lump-sum taxes as suggested by Baker and Weisbrot (2001). If the lump-sum taxes are already very high, then this option becomes infeasible. In that case, the government has to find other avenues through which poverty could be reduced and one of the ways is through the transfer of technology.

FISCAL POLICY AND POVERTY ALLEVIATION IN GHANA

The fiscal position of the Ghanaian economy has been the major concern of both the immediate past government and the current government. The underpinning issue to contend with is the nation's ability to restrict its expenditure within the limits of its revenue capacity. The tax revenue comes from direct taxes, indirect taxes, and international trade taxes. Direct taxes are levied on income and property of individuals and businesses. In 1999, direct taxes contributed about 29.72% to the total tax revenue. The major source of direct tax revenue was corporate tax followed by income tax. Indirect taxes comprise Value added tax (VAT) on both domestic and imported products, petroleum tax and other indirect taxes. In 1999, indirect taxes contributed 44.12% to the total tax revenue. The major source of indirect tax revenue was VAT followed by petroleum tax. International trade taxes are levied on imports and exports. In 1999, international trade taxes contributed 26.16% to the total tax revenue. The major source of international trade tax revenue was import duties followed by export duty. Import duties contributed 26.61% and export duties contributed 6.91% towards the total revenue of the government. The elimination of trade taxes will reduce the revenue of the government by more than one-third (if tax base is not enlarged) and as a result, public savings will be reduced. This is also going to reduce the investment, which is not good for the economy. The government of Ghana is unlikely to implement such type of tax reform. Given the importance of transfer of technology in Ghana, the government of Ghana can eliminate trade taxes and at the same time design policies to increase the transfer of technology. Using the integrated SAM from Bhasin and Annim (2005), we want to assess the impact of this fiscal and technological reform on the incidence, depth, severity of poverty; and income distributions of five categories of households' chosen according to their main economic activity.

METHODOLOGY

In the present paper, we adopt the approach of Decaluwe, Patry, Savard and Thorbecke (1999), Aka (2003) and Bhasin and Annim (2005). The CGE model for Ghana is adopted from Bhasin and Annim (2005). In the CGE model, there are 48 basic equations comprising ten equations for production and trade block; sixteen equations for income, taxes, savings, and investment block; eight equations for demand for commodities block; nine equations for prices; and five equations for equilibrium conditions and macroeconomic closures. Since there are three production activities and five categories of households, the total number of equations to be solved is 142. There are 142 endogenous variables and 34 exogenous variables. The model is just identified containing as many endogenous variables as equations.

The model is calibrated to 1999 data set. The GAMS software is used to check for the consistency of the data with the equilibrium conditions and to perform the simulations. The benchmark equilibrium must be replicated with the use of calibrated parameters and base year data. The pre-shock values for the variables are obtained from the solution of the specified model. The post shock effects of these simulations are used to find the effects on poverty line and the incomes of households. The DAD software is used to evaluate the poverty measures and PCGIVE software is used to plot the income distributions of households before and after the exogenous shocks. The pre-shock and post-shock poverty levels are obtained using Foster, Greer and Thorbecke (FGT) poverty measures

$$POV_{k,h} = \int_{0}^{z} [(z - y_h)/z]^k \, f(y_h)\, dy_h, \quad k = 0,1,2$$

where y_h is the income of household h , k is a poverty-aversion parameter, z is the endogenously determined poverty line. The incidence of poverty is indicated by $k = 0$. The depth of poverty is indicated by $k = 1$, and the severity of poverty is indicated by $k = 2$.

Since CGE models are fully calibrated on the basis of an initial year SAM that provides a set of consistent initial conditions and the SAM does not contain information on intra socio-economic household group income distribution, it is advisable to generate the intra group income distributions in the same base year as that of the SAM to calibrate the general equilibrium model. Several approaches have been used in the literature to describe and define intra group distribution of income in a CGE framework. For example, de Janvry et al. (1991) have used both a lognormal and a Pareto distribution function to depict income distribution. Decaluwe, Patry, Savard, and Thorbecke (1999) and Aka (2003) have used the Beta distribution to represent the intra group income distributions. Unlike the lognormal, the Beta function is much more flexible when it comes to the asymmetric forms it can adopt. However, since we know very little about the probability density functions of the incomes of households, density functions may be interpolated to give a clearer picture of the implied distributional shape. To estimate the density functions without imposing too many assumptions about its properties, a non-parametric approach is used in PCGIVE based on a kernel estimator of density function $f(Y_h)$.

The Kernel estimator of the density f is defined by:

$$f(Y_h) = (1/Tu) \sum_{t=1}^{T} K\{(1/u)(Y_h - y_{ht})\}$$

where K{} is the kernel function and u is a 'window width' or smoothing parameter and corresponds to the width of histogram bars. The kernel K used is the Normal or Gaussian kernel. Following Siddiqui and Kemal (2002), we estimate the density functions for the incomes of households using the Kernel estimator.

SIMULATION RESULTS

In the first simulation, we eliminate the import and export tariffs on goods and services and neutralize the effect of a fall in government revenue by increasing the transfer of technology in the agricultural sector by 20%. In the second simulation, we eliminate the import and export tariffs on goods and services and neutralize the effect of a fall in government revenue by increasing the transfer of technology in the industrial sector by 20%. In the third simulation, we eliminate the import and export tariffs on goods and services and neutralize the effect of a fall in government revenue by increasing the transfer of technology in the services sector by 20%. Table 1 indicates the effects of these simulations on macro economic variables.

Table 1 Simulation Results

Variables	Base level	S 1*	% Increase or Decrease	S 2*	% Increase or Decrease	S 3*	% Increase or Decrease
XS(agr)	1725.64	2704.21	56.70	1459.82	-15.41	1953.56	13.20
XS(ind)	1817.12	1265.11	-30.38	2448.75	34.75	1703.27	-6.27
XS(ser)	849.82	882.11	3.80	868.56	2.21	894.37	5.24
YG	729.15	535.72	-26.53	646.47	-11.34	561.79	-23.0
YH(af)	338.74	372.41	10.07	347.30	2.65	332.16	-1.83
YH (pu)	306.88	339.53	10.64	315.51	2.81	300.91	-1.94
YH (pr)	266.74	295.22	10.84	273.88	2.83	261.13	-1.96
YH(nf)	285.76	316.13	10.63	293.82	2.82	280.20	-1.95
YH(nw)	293.40	323.00	10.09	301.77	2.85	287.64	-1.96
E(agr)	645.85	1095.14	69.57	507.90	-21.36	755.07	16.91
E(ind)	990.07	609.46	-38.44	1380.70	39.46	908.38	-8.25
E(ser)	0.481	.439	-8.73	0.450	-6.44	0.638	32.64
M(agri)	192.92	234.83	21.72	221.58	14.86	209.83	8.76
M(ind)	519.21	514.62	-0.89	609.22	17.34	524.03	0.93
M(ser)	646.13	680.73	5.36	664.99	2.92	642.12	-0.62
LD(agr)	3.26	4.21	29.19	2.77	15.09	3.68	12.85
LD(ind)	2.73	1.42	-39.0	2.75	18.14	2.10	-9.80
LD(ser)	1.35	1.31	-3.40	1.42	5.02	1.16	-14.11
KD(agr)	3.96	7.17	81.3	2.95	-25.45	4.93	24.59
KD(ind)	83.74	71.68	-14.41	86.84	3.70	83.37	-0.45
KD(ser)	3.18	4.31	35.56	2.93	-7.80	3.02	-5.19
PC(agri)	0.63	0.54	-13.54	0.63	0.48	0.57	-8.60
PC(ind)	0.72	0.73	2.10	0.65	-9.36	0.68	-4.89
PC(ser)	0.851	0.864	1.53	0.856	0.59	0.791	-7.05
W	187.66	211.64	12.78	192.30	2.48	184.40	-1.74
R	4.89	3.93	-19.62	5.71	16.76	4.36	-10.98

*Simulation 1: Elimination of import and export tariffs and 20% improvement in Agricultural Technology

*Simulation 2: Elimination of import and export tariffs and 20% improvement in Industrial Technology

*Simulation: 3: Elimination of import and export tariffs and 20% improvement in Service Technology

In the first simulation, elimination of import and export tariffs and improvement in the agricultural technology impacts the agricultural sector favorably and results into higher imports, exports and output of agricultural goods. As the agricultural sector expands, there is a movement of labor from the industrial and services sectors towards the agricultural sector and there is a movement of capital from the industrial sector towards the agricultural and services sectors. As a result, returns to labor increase and returns to capital decrease. The incomes of all types of households increase because of these changes in factor prices and reallocation of resources. The cut

in import and export tariffs and improvement of technology in the agricultural sector reduces the prices of composite goods in agricultural sector considerably. The fall in the prices of composite goods reduces the poverty line by 8.04%. The income of the government decreases by 26.53%, which reduces the investment in the industrial sector, and that reduces the output of the industrial sector.

In the second simulation, elimination of import and export tariffs and improvement in the industrial technology impacts the industrial sector favorably and results into higher imports, exports and output of industrial goods. As the industrial sector expands, there is a movement of capital from the agricultural and services sectors towards the industrial sector. As a result, returns to both labor and capital increase. The incomes of all types of households increase because of these changes in factor prices and reallocation of resources. The cut in import and export tariffs and improvement of technology in the industrial sector reduces the prices of composite goods in industrial sector considerably. The fall in the prices of composite goods reduces the poverty line by 2.65%. The income of the government decreases by 11.34%, which reduces the investment in the agricultural sector, and that reduces the output of the agricultural sector.

In the third simulation, elimination of import and export tariffs and improvement in the services technology impacts the services sector favorably to a lesser extent and the agricultural sector favorably to a larger extent. This results into higher exports and output of services and higher imports, exports and output of agricultural goods. As the agricultural and services sectors expand, there is a movement of labor and capital from the industrial and services sectors towards the agricultural sector. As a result, returns to labor and capital decrease. The incomes of all types of households decrease because of these changes in factor prices and reallocation of resources. The cut in import and export tariffs and improvement of technology in the services sector reduces the prices of composite goods in all the three sectors considerably. The fall in the prices of composite goods reduces the poverty line by 7.74%. The income of the government decreases by 23%, which reduces the investment in the industrial and services sectors, and that reduces the output of the industrial sector.

Table 2 presents information on the incidence, depth, and severity of poverty for the base year and variations in these measures after the shocks. In the base year, the incidence, depth, and severity of poverty are the highest among the private sector employees. The least incidence, depth, and severity of poverty are prevalent among the agricultural farmers. In the first simulation, reduction in consumer prices of agricultural goods reduces the poverty line and incomes of all households increase because of an improvement in agricultural technology. This causes the incidence, depth, and severity of poverty for all categories of households to be reduced. The maximum reduction in the incidence, depth and severity of poverty is noticed for the private sector employees. The least reduction in the incidence, depth, and severity of poverty is noticed for the public sector employees, agricultural farmers and non-working, respectively. This shows that elimination of import and export tariffs accompanied by an improvement in the agricultural technology could reduce the incidence, depth, and severity of poverty in a low-income country. In the second simulation, reduction in consumer prices of industrial goods and improvement in industrial technology reduces the poverty line and increases the incomes of all households to a less extent, respectively. These changes cause the incidence, depth, and severity of poverty for all categories of households to decrease. The maximum decrease in the incidence, depth and severity of poverty is noticed for the private sector employees. The least decrease in the incidence and depth of poverty is observed for public sector employees, whereas the least decrease in the severity of poverty is noticed for agricultural farmers.

The study shows that elimination of import and export tariffs accompanied by an improvement in the industrial technology could also be used as a tool to reduce poverty in a low-income country. In the third simulation, reduction in consumer prices of all goods and services reduces the poverty line and incomes of all households reduce because of an improvement in services technology. This causes the incidence, depth, and severity of poverty for all categories of households to be reduced. The maximum reduction in the incidence of poverty is noticed for the non-farm self-employed, whereas the maximum reduction in the depth and severity of poverty is observed for private sector employees. The least

reduction in the incidence of poverty is noticed for the public sector employees, whereas the least reduction in the depth and severity is noticed for agricultural farmers. This shows that elimination of import and export tariffs accompanied by an improvement in the services technology could reduce the incidence, depth, and severity of poverty in a low-income country.

Table 2 Poverty Measures for the Base Year and Simulations

Agricultural	Public	Private Farmers	Non-farm Sector Employees	Non-Sector Employees	Self-Employed	Working
alpha=0	base	17.29%	19.28%	25.36%	21.04%	20.00%
	Simulation 1	13.23% (-4.06%)	16.96% (-2.32%)	18.39% (-6.7%)	15.77% (-5.27%)	16.38% (-3.62%)
	Simulation 2	16.35% (-0.94%)	18.57% (-0.71%)	24.10% (-1.26%)	19.41% (-1.63%)	18.94% (-1.06%)
	Simulation 3	16.11% (-1.18%)	18.39% (-0.89%)	23.68 % (-1.68%)	19.28 % (-1.76%)	18.94% (-1.06%)
alpha=1	base	7.15%	9.02%	9.85%	8.56%	7.99%
	Simulation 1	5.54% (-1.61%)	7.17% (-1.85%)	7.32% (-2.53%)	6.56% (-2.0%)	6.01% (-1.98%)
	Simulation 2	6.46% (-0.69%)	8.46% (-0.56%)	9.03% (-0.82%)	7.92% (-0.64%)	7.35% (-0.64%)
	Simulation 3	6.55% (-0.6%)	8.40% (-0.62%)	8.94 % (-0.91%)	7.85% (-0.71%)	7.28% (-0.71%)
alpha=2	base	4.16%	5.3%	5.41%	4.96%	4.30%
	Simulation 1	3.22% (-0.94%)	4.09% (-1.21%)	3.97% (-1.44%)	3.80% (-1.16%)	3.13% (-1.17%)
	Simulation 2	3.86% (-0.30%)	4.95% (-0.35%)	4.94% (-0.47%)	4.59% (-0.37%)	3.92% (-0.38%)
	Simulation 3	3.81% (-0.35%)	4.91% (-0.39%)	4.90% (-0.51%)	4.55% (-0.41%)	3.88% (-0.42%)
Mean Income	base	2,765,729	2,534,159	2,206,561	2,360,109	2,398,446
	Simulation 1	3,044,238 (10.07%)	2,803,794 (10.64%)	2,445,752 (10.84%)	2,610,988 (10.63%)	2,640,450 (10.09%)
	Simulation 2	2,839,021 (2.65%)	2,605,369 (2.81%)	2,269,006 (2.83%)	2,426,664 (2.82%)	2,466,802 (2.85%)
	Simulation 3	2,715,116 (-1.83%)	2,484,997 (-1.94%)	2,163,312 (-1.96%)	2,314,087 (-1.95)	2,351,437 (-1.96%)
Poverty Line	base	665,300	665,300	665,300	665,300	665,300
	Simulation 1	611,810 (-8.04%)	611,810 (-8.04%)	611,810 (-8.04%)	611,810 (-8.04%)	611,810 (-8.04%)
	Simulation 2	647,670 (-2.65%)	647,670 (-2.65%)	647,670 (-2.65%)	647,670 (-2.65%)	647,670 (-2.65%)
	Simulation 3	613,806 (-7.74%)	613,806 (-7.74%)	613,806 (-7.74%)	613,806 (-7.74%)	613,806 (-7.74%)

The income distributions of the various categories of households for the base year and three simulations are presented in Figures 1 to 5. In the first two simulations, the density functions for all the categories of households shift to the right, with higher mean incomes and lower poverty lines. This causes a reduction of the population below the poverty line in each household group. In the third simulation, the density functions of all the categories of households shift to the left, with lower

mean incomes and lower poverty lines. However, this type of shift also causes a reduction of the population below the poverty line in each household group.

Figure 1 Density Functions (Agricultural Farmers)

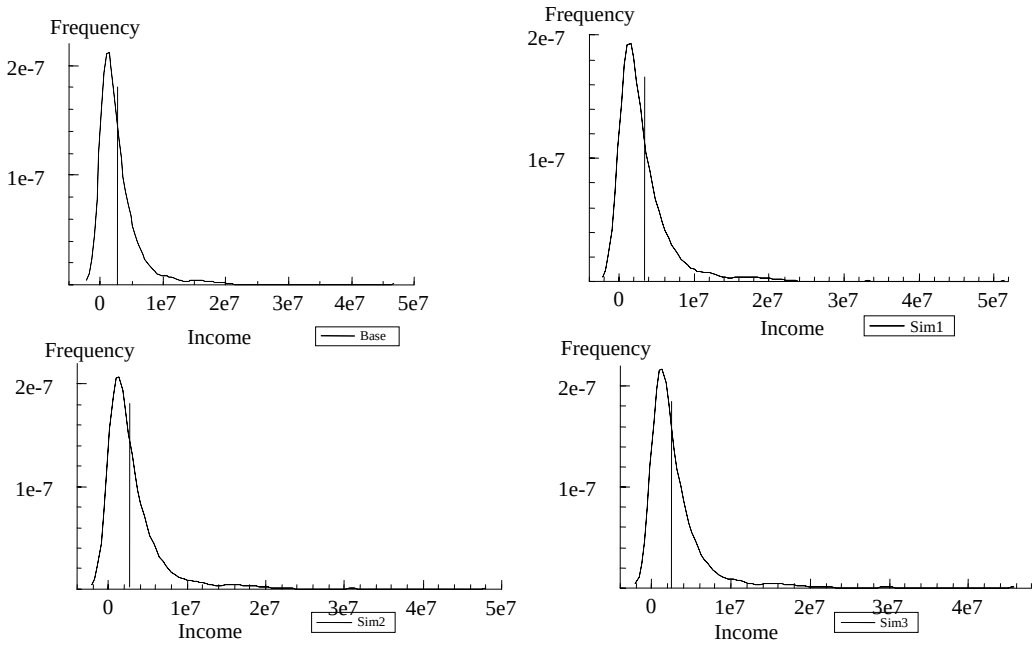


Figure 2 Density Functions (Public Sector Employees)

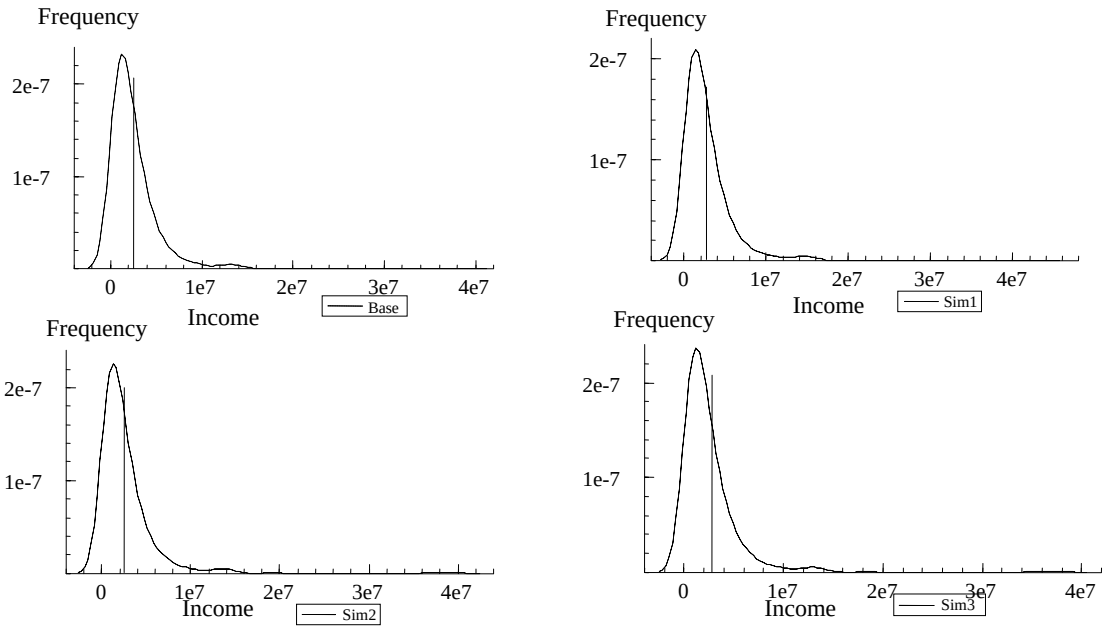


Figure 3 Density Functions (Private Sector Employees)

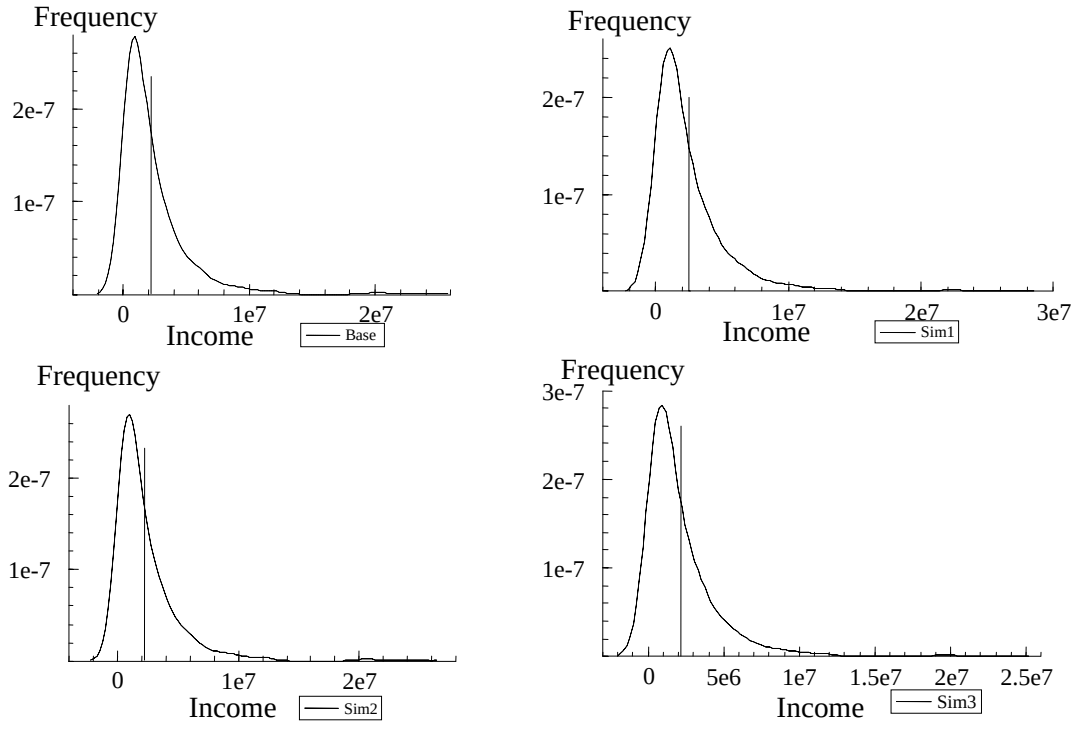


Figure 4 Density Functions (Non-farm Self employed)

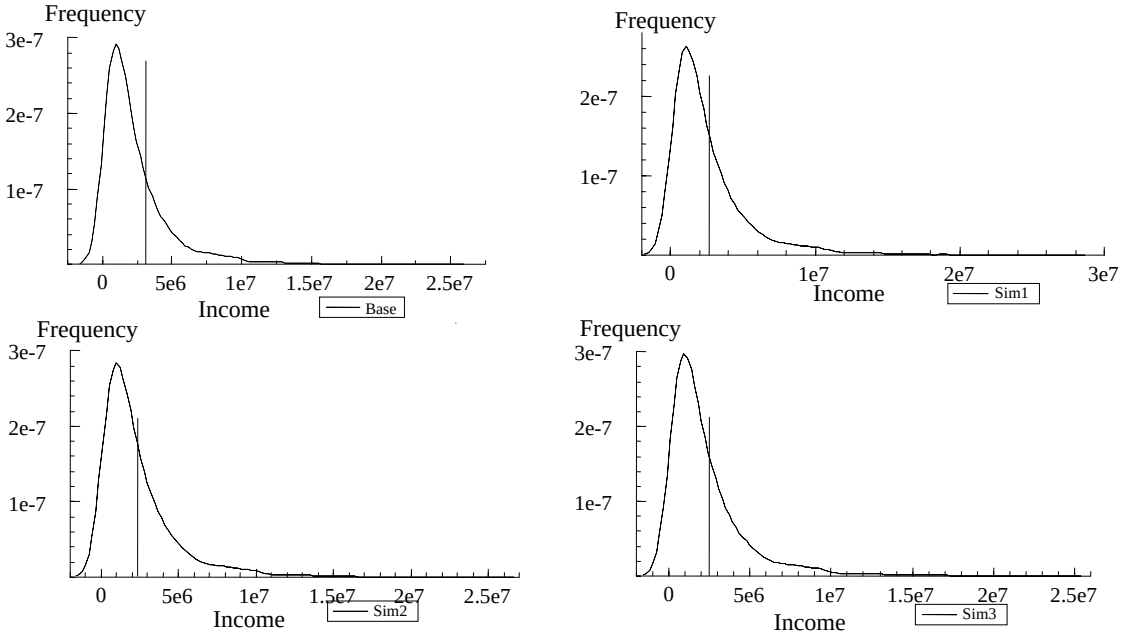
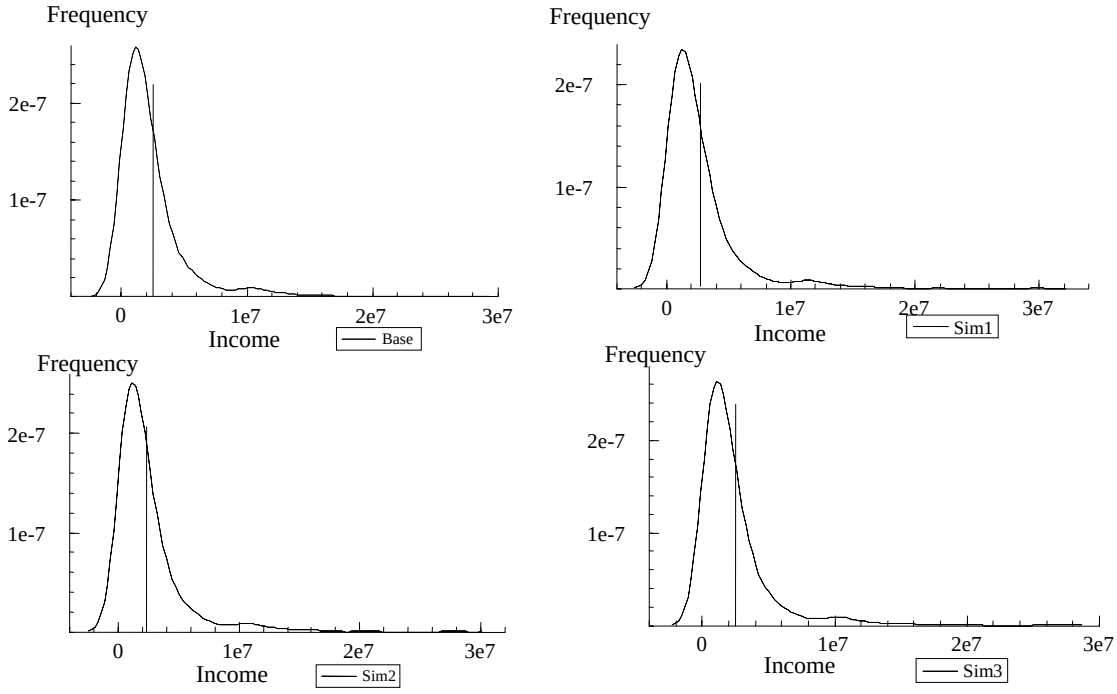


Figure 5 Density Functions (Non-working)



CONCLUSION

To analyze the impact of elimination of import and export tariffs on goods and services accompanied by an improvement in technology on the incidence, depth, and severity of poverty and income distributions of households, the study has used the CGE framework. The study has analyzed the impact of three shocks on poverty and income distributions. The first shock takes the form of elimination of import and export tariffs accompanied by an improvement in the agricultural technology. The second shock involves the elimination of import and export tariffs accompanied by an improvement in the industrial technology. The third shock takes the form of elimination of import and export tariffs accompanied by an improvement in the services technology. The study has shown that all the three shocks could be used to reduce the incidence, depth, and severity of poverty in a low-income country. The first two shocks improve the income distributions of households, whereas the third shock worsens the income distributions of households in a low-income country. It is suggested that the government of Ghana should design policies to improve technology in the agricultural and industrial sectors so as to reduce poverty and improve income distributions of households.

REFERENCES

Adelman, I., and S. Robinson. (1979) 'Income Distribution Policy: A Computable General Equilibrium Model of South Korea' in Adelman, I. (ed) The Selected Essays of Irma Adelman, Vol. 1. Dynamics and Income Distribution. Economists of the Twentieth Century Series, Aldershot, U. K., 256-89.

Aka, B. F. (2003) 'Fiscal Adjustment, Poverty, Inequality and Welfare in Cote d'lvoire: A CGE Model Analysis', Final Report, AERC, Nairobi, Kenya.

Azis, I. And E. Thorbecke. (2001) 'Modelling the Socio-Economic Impact of the Financial Crisis: The Case of Indonesia', Mimeo, Cornell University.

Baker, D., and M. Weisbrot. (2001) 'Will Trade Gains Make us Rich? An assessment of the Prospective Gains from New Trade Agreements', Center For Economic and Policy Research, Washington, D.C.

Bautista, R. and M. Thomas (1997) 'Income Effects of Alternative Trade Policy Adjustments on Philippine Rural Households: A General Equilibrium Analysis', TMD Discussion paper No. 22, International Food Policy Research Institute.
Bhasin, V. and S. Annim. (2005) "Impact of Elimination of Trade Taxes on Poverty and Income Distribution in Ghana", International Monetary Fund: Macroeconomic Policy Challenges in Low Income Countries, 1-42.
Chia, N., Wahba, S., and J. Whalley (1994) 'Poverty Reduction Targeting Programs: A General Equilibrium Approach', Journal of African Economies, Vol. 3, No. 2, 309-38.
Cogneau, D. and A. S. Robillard (1999) 'Income Distribution, Poverty and Growth Madagascar: Micro simulations in a General Equilibrium Framework', Mimeograph.
Decaluwe, B., Dumont, J., and L. Savard. (1999) 'Measuring Poverty and Inequality in a Computable General Equilibrium Model', CREFA Working Paper 99-20, Department of Economics, University of Laval, Quebec, Canada.
Declauwe, B., and A. Martens. (1988) 'CGE Modelling and Developing Economies: A Concise Empirical Survey of 73 Applications to 26 Countries', Journal of Policy Modelling, Vol.10, No. 4, 529-68.
Decaluwe, B., Party, A., Savard, L. and E. Thorebecke (1999) 'Poverty Analysis Within a General Equilibrium Framework', CREFA Working Paper 99-09, Department of Economics, University of Laval, Quebec, Canada.
De Janvry, A., E. Sadoulet, and A. Fargeix. (1991) 'Adjustment and Equity in Ecuador', OECD Development Center, Paris.
De Maio, L., Stewart, F., and R. Van Der Hoeven. (1999) 'Computable General Equilibrium Models, Adjustment and the Poor in Africa', World Development, Vol. 27, No. 3, 453-70.
Dervis, K., DeMelo, J., and S. Robinson. (1982). General Equilibrium Models for Development Policy, Cambridge University Press, Cambridge, London.
Dorosh, P. A. and D. E. Sahn. (2000). 'A General Equilibrium Analysis of the Effect of Macroeconomic Adjustment on Poverty in Africa', Journal of Policy Modelling, Vol. 22, No. 6, 753-76.
Drud, A., Grais W., and G. Pyatt. (1985) 'An Approach to Macroeconomic Model Building Based on Social Accounting Principles', Discussion Paper No. 150, Development Research Department, The World Bank, Washington, DC.
Easterly, W. (2001) The Elusive Quest for Growth: Economist's Adventures and Misadventures in the Tropics, MIT Press, U.S.A.
Fofack, H. (2002) 'The Nature and Dynamics of Poverty determinants in Burkina Faso in the 1990s', World Bank Policy Research Working Paper, No. 2847.
Ghana Statistical Service (1997) A Social Accounting Matrix for Ghana 1993, Accra, Ghana.
Ghana Statistical Service (2000) Poverty Trends in Ghana in the 1990s, Accra, Ghana.
Griffin, K. (1970) 'Foreign Capital, Domestic Savings and Economic Development', Bulletin of Oxford University, Institute of Economics and Statistics, Vol. 32, No. 2.
Gunning, W. J. (1983) 'Income Distribution and Growth: A Simulation Model for Kenya' in D.G. Greene. Growth and Structural Change, Vols 1 and 2, World Bank, Washington, DC, 487-621.
Hillman, A. (2002) 'The World Bank and the Persistence of Poverty in poor Countries' European Journal of Political Economy, Vol. 18, 783-95.
Morrisson, C. (1991) 'Adjustment and Equity in Morocco', OECD Development Center, Paris.
Obi, B. P. (2003) 'Fiscal Policy and Income Distribution: Some Policy Options for Nigeria', Final Report, AERC, Nairobi, Kenya.
Rattso, J. (1982) 'Different Macro Closures of the Original Johansen Model and their Impact on Policy Evaluation', Journal of Policy Modelling, Vol. 4, No. 1, 55-97.
Rauch, J. (2001). "Business & Social Networks in International Trade", Journal of Economic Literature, Vol. 29.
Ravallion, M. (1994) Poverty Comparisons, Harwood Academic Publisher.
Sahn, D. E., Dorosh, P. A. and S. A. Younger. (1997) Structural Adjustment Reconsidered: Economic Policy and Poverty in Africa, Cambridge University Press, Cambridge.
Silverman B.W. (1986) Density Estimation for Statistics and Data Analysis, London: Chapman and Hall.
Thorbecke, E. (1991). 'Adjustment, Growth and Income Distribution in Indonesia', World Development, Vol. 19, No. 11, 1595-1614.
Weisbrot, M. and D. Baker. (2002) 'The Relative Impact of Trade Liberalization On Developing Countries', Centre for Economic and Policy Research, Washington, D.C.
World Bank. (2002) Global Economic Prospects and the Developing Countries, Washington, D.C.