CHAPTER 7

THE IMPACT OF A PRODUCTIVITY RISE ON SOUTH AFRICAN GENDER AND ECONOMY

7.1 INTRODUCTION

This chapter focuses on the effects of an increase in factor productivity on gender in terms of employment, wages, earnings and household welfare. Low levels of domestic savings and a high rate of unemployment, which are partially attributed to low levels of investment, have forced the government of South Africa to promote the inflows of highly-technological foreign investment (FDI). This is done in various ways for example, by providing grants for equipment transportation and other special support programs (see Chapter 1). According to GEAR, a macroeconomic policy, FDI is a source of investment that produces spillovers resulting in job creation. GEAR assumed that FDI would register a ninefold increase to enable its employment targets to be met. FDI is also a vital external capital inflow which is needed to finance the current account deficit. However, inflow of FDI in South Africa has been modest. This is attributed to uncertainty over exchange rate movements, a mismatch between productivity and remuneration levels, and concerns over violent crime. As a result, a high unemployment rate still exists in South Africa despite efforts by the government.

FDI improves productivity through the introduction of advanced technology, adoption of better management methods, better workers' training, and other related skills. Studies show FDI to be a more comprehensive source of productivity since it packages and integrates various methods (Lim & Fong 1982; Johansson & Nilsson 1997; Klein et al. 2000:3-4; and see Chapter 3 on FDI). However, as stated before, productivity emanates from various sources, although the evidence is overwhelming that productivity is in part FDI induced.

As stated in chapter 1, productivity has been growing in the agricultural, manufacturing and service sectors of South Africa. According to the 2000 gendered SAM which is used in the current study, higher productivity is found in such sectors as machinery, plastics, print, electrical machinery, and non-ferrous. The lowest level of productivity is found in the labour-intensive sectors of textiles, furniture and in government services. The accompanying rise in productivity, however, has caused unemployment, especially that of unskilled women. As productivity has grown, labour's share of gross output has been shrinking while capital's

share has been rising (see Chapter 4). This reflects increasing wealth among owners of capital. This is rather alarming, especially in the South African case, given the high rates of unemployment and underemployment of unskilled labour. Regarding gender, the 2000 gendered SAM, shows very low shares of women participation in the high productivity sectors. Most women tend to be concentrated in low productivity sectors, which partly explain their low wages, and hence low-income earnings received by them. Does an economy-wide productivity improvement spur job creation for both men and women in South Africa? Alternatively, is productivity growth in a few state-of-the-art technological enhanced sectors the answer for employment creation?

The structure of the chapter is arranged as follows. The next section describes the model policy simulations. The third section gives the results of the simulations—where the first one examines economy-wide increases in productivity, while the second one examines productivity increases on few selected sectors. The last section comments on the implications of productivity, development prospects and policy in South Africa.

7.2 THE MODEL POLICY SIMULATIONS

The first simulation (SIM1) involves a 1% economy-wide (all sectors) rise of total factor productivity (TFP), while (SIM2) involves a TFP rise of 1% in few selected sectors. Selected sectors are: food, beverage and tobacco, textile, apparel, leather, footwear, chemical, other-chemical, metal products, electrical machinery, machinery products, communication equipment, scientific equipment, and vehicles.

The first five sectors were selected because they have attracted the most FDI into South Africa. The selection of other sectors was based on their current or potential employment for women. With both simulations, a 1% productivity (TFP) increase is modelled as an increase of an 'exogenous' source of the technological parameter of each sector. The 1% productivity increase is justifiable, given the modest inflow of FDI in South Africa and following empirical observations by Yin-Chyi and Lin (1999). The higher productivity level of 3.5 is used for sensitivity analysis in order to ascertain the robustness of the model results.

7.3 SIMULATION RESULTS OF ECONOMY-WIDE FACTOR PRODUCTIVITY RISE

7.3.1 Macroeconomic results: factor productivity rise economy-wide (SIM 1)

Following the productivity shock, output increases and domestic prices drop in all sectors, reflecting more efficiency and lower costs per unit of output. Greater efficiency increases output in all sectors resulting in increased real GDP by nearly 1.2%. Given constant real government expenditure, GDP boosts government revenue (1.4%) which raises government savings (0.8%). The higher level of real GDP allows consumers to enjoy a higher level of consumption. As a result, South Africa increases imports (1.4%) compared with the baseline level. Increased imports create a demand for foreign currency and raise the domestic currency (rand) price of foreign currency which causes a depreciation of the currency. The depreciation raises exports (1.3%), which partially finance and discourage imports. Tariff revenue, indirect taxes and the government's total revenues all improve with productivity rise.

Economy-wide productivity is expansionary as witnessed by a significant increase of more than one percent in domestic output in all sectors except in construction (0.1%) and government (0.1%) because the two sectors' products are not required as intermediates in other sectors. Imports rise mostly in the sectors with high import shares in the base year level. For example, imports rise in labour-intensive sectors (leather, 1.2%; apparel, 1.7%; scientific equipments, 1.5%) and in capital-intensive (chemical, 1.5%; vehicles, 1.4% and communication, 0.7%).

The depreciation of the real exchange rate improves exports with a significant rise in apparel (2.3%), scientific equipment (2.0%), communication equipment (2.0%), metal products (1.9%), electrical machinery (1.9%), machinery (1.5%), and vehicles (1.3%) exports. The presence of intra-industry trade in the economy allows sectors such as apparel and scientific equipment to have both export-orientation and import-competing characteristics.

7.3.2 Employment changes due to factor productivity rise

Results of economy-wide productivity rise show output having a significant positive impact on employment. The expansionary economy coupled with rising export demand raises the demand for factors of production. Figure 4 shows a general rise of sectoral employment by

skills type with skilled labour benefiting more than other skill types in all sectors. The results support observations that find productivity to raise the demand for skilled labour relative to unskilled labour in South Africa (Edwards 2001; Pretorius 2002:17). The greatest rise of unskilled employment occurs in mining (gold, coal, other-mining), other-chemicals, apparel, footwear and scientific equipment because these sectors increased exports. Slight employment rise occurs in metal products, machinery, iron and steel, non-ferrous, communication equipments, and food, because these sectors are highly capital-intensive. Unskilled labour demand holds steady in the leather sector with a slight rise of less than 0.10%. Sectoral demand for semi-skilled labour is similar to that of unskilled labour except in leather and electrical machinery where its demand falls reflecting their low output gain. As a result of productivity rise, all sectors, including those that are export-oriented, realise higher demand of skilled labour than that of semi-skilled and unskilled labour.

Figure 7-1 Percentage change labour demand: economy-wide productivity rise

7.3.3 Gender Employment changes due to economy-wide factor productivity rise

An economy-wide productivity increase raises employment of unskilled men and women in the apparel sector (unskilled women 1.2%; unskilled men 1.1%), in chemicals (unskilled women 0.78%; unskilled men 0.6%), and scientific equipment (unskilled women 1.0%; unskilled men 0.9%). The slightly increased demand for unskilled women relative to that of men is partially explained by the lower wages associated with women when compared with that of men so that more of their labour implies a cost advantage for a sector. In the short run, therefore, the expansion of firms has a trigger effect on retaining and increasing employment

of unskilled women. However, the current static model cannot predict the sustainability of increased unskilled women jobs.

The outcome of the productivity increase for semi-skilled men and semi-skilled women shows slight differences between genders, although the trend favours semi-skilled women relative to semi-skilled men. Significant differences, showing more gain for semi-skilled women, occur in women-intensive sectors of food, apparel and communication equipments.

In terms of high skills, increased productivity raises the economy-wide demand for skilled men more than for skilled women (see Figure 7.2). This happens in both traditional and non-traditional women-intensive sectors, for example, apparel (skilled women, 1.3%, skilled men 1.6%), footwear (skilled women, 0.9%; skilled men, 1.2%), textile (skilled women 0.6%; skilled men 0.9%), and in leather (skilled women, 0.2%; skilled men, 0.4%), respectively. This indicates a bias against skilled women in women-intensive sectors. The apparel sector, with a general higher concentration of women (72%) at the base level, experiences a higher increase in skilled men relative to skilled women. Gender economists term such occurrence as the 'defeminisation' through technology in both higher and in less value-added manufacturers (Elson 2000).

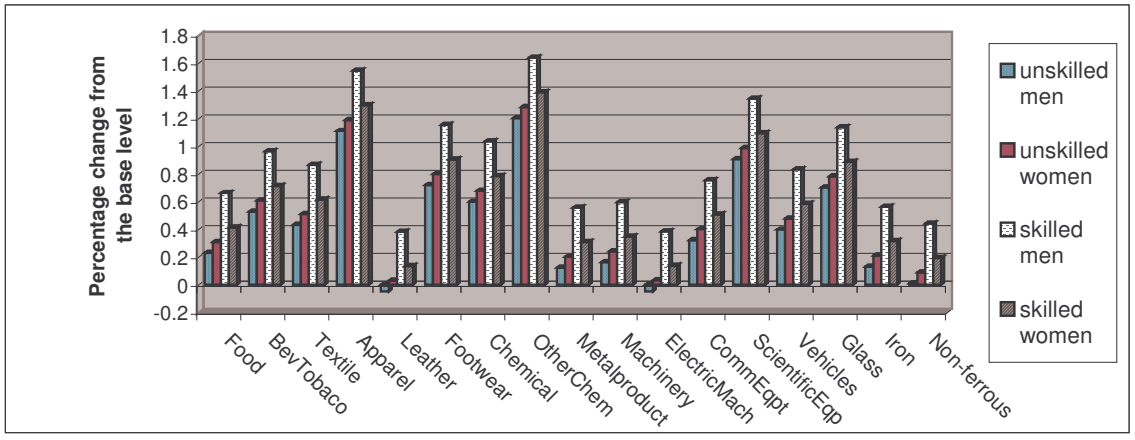

Figure 7-2 Percentage change employment by skills and gender: economy-wide productivity rise

7.3.4 Change in wages and factor earnings due to factor productivity rise

Capital's earnings rise (1.2%) more than other factors based on its higher productivity. Under the assumption of flexible supply of unskilled and semi-skilled labour (elastic supply), the

increased demand for such skills type raises their supply, while their nominal wages remain fixed at the base year level. Economy-wide rise of employment of men and women leads to an increase of their income earnings (see Figure 7.3). The income earnings of unskilled and semi-skilled women are slightly greater than that of unskilled and semi-skilled men because of higher increased demand for women's labour as compared to that of men of the same skill. On the other hand, hiring is higher for skilled men than skilled women leading to greater earnings for skilled men compared to skilled women workers. Nevertheless, there is almost equalization of skilled men and women earnings which explain higher earnings associated with skilled women.

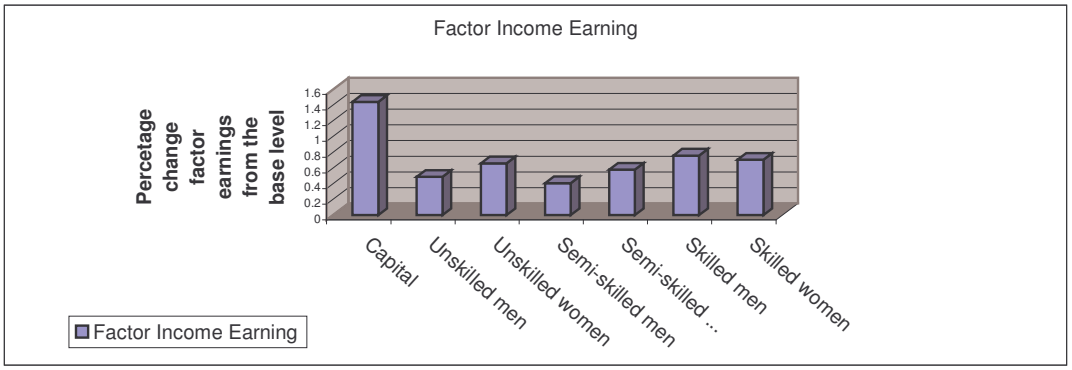

Figure 7-3 Percentage change factor income: economy-wide productivity rise

7.3.5 Results of factor productivity rise in selected sectors (SIM 2)

South Africa's productivity, which generally is concentrated in selected sectors, has been growing at the rate of 3.2% per year, but this has not led to job creation (South Africa Department of Labour 2006). This finding is consistent with other studies on employment, that find productivity to be a major factor associated with reduced levels of employment in South Africa (Jenkins and Thomas 2002; Edwards 2001). This section aims to analyse the economy-wide effects of a productivity rise in a few selected sectors.

Macroeconomic results: Factor productivity rise in selected sectors

Except for lower magnitudes, macroeconomic results for SIM 2 are similar to those for SIM 1. Increased factor earnings and increased consumption due to reduced commodity prices raise household welfare especially for low-income households.

7.3.6 Employment changes due to factor productivity rise in selected sectors

The direct effect of productivity increase in selected sectors is the reduction of employment in these sectors, albeit slightly by less than a percentage point (see Figure 7.4). Efficiency gains due to improved productivity enable sectors to switch their production process by reducing employment demand of all skill types. Skilled labour in labour-intensive sectors is mostly negatively affected because of its substantial higher wages which raises its marginal productivity, for example, skilled labour in the scientific equipment decline more than other skill types (unskilled 0.7%, semi-skilled, 0.7% and skilled, 0.9%). The negative employment outcome differs from that of SIM 1 where employment rises significantly in all sectors. The fall in employment is effected by increased efficiency which enables profit-maximising producers to expand by employing fewer resources, particularly labour, due to its risen marginal productivity. Despite shedding jobs, all productivity-raised sectors expand their output.

Sectors with initial low productivity levels, which include the women-intensive sector of apparel witness the worst of employment contraction. Sectors such as non-ferrous, metal products, transport equipment, other-industries, and furniture, which have strong linkages with policy-affected sectors, respond by slightly reducing their demand for employment as they are forced to become efficient in order to stay in business.

A certain amount of labour, which is released from the efficient sectors, relocates mostly to service sectors of trade (unskilled 0.5%; semi-skilled 0.6%) and water (unskilled 0.5 %; semi-skilled: 0.6%) (see Figure 7.4). Other service sectors such as communication, finance and business, also see a slight rise of such labour. The influx of women into the trade sector is mostly in subsectors such as retail which is due to easy entry as it relates to low skills requirements.

Despite employment downturns in sectors where a productivity rise began, the relocation of labour from such efficient sectors to other sectors has economy-wide positive employment effects. A similar outcome has been observed in South Africa. For example, using a CGE model to study the effects of productivity rise on agriculture, Punt *et al* (2003) found a productivity rise in agriculture to reduce employment sectorally while increasing it economy-wide in an expanding economy. This outcome shows that efficiency gains in few sectors have economy-wide positive employment effect based on intersectoral linkages. The direct

and indirect economy-wide employment effects are more easily captured with the use of CGE models than with partial equilibrium models which focus mostly on direct effects.

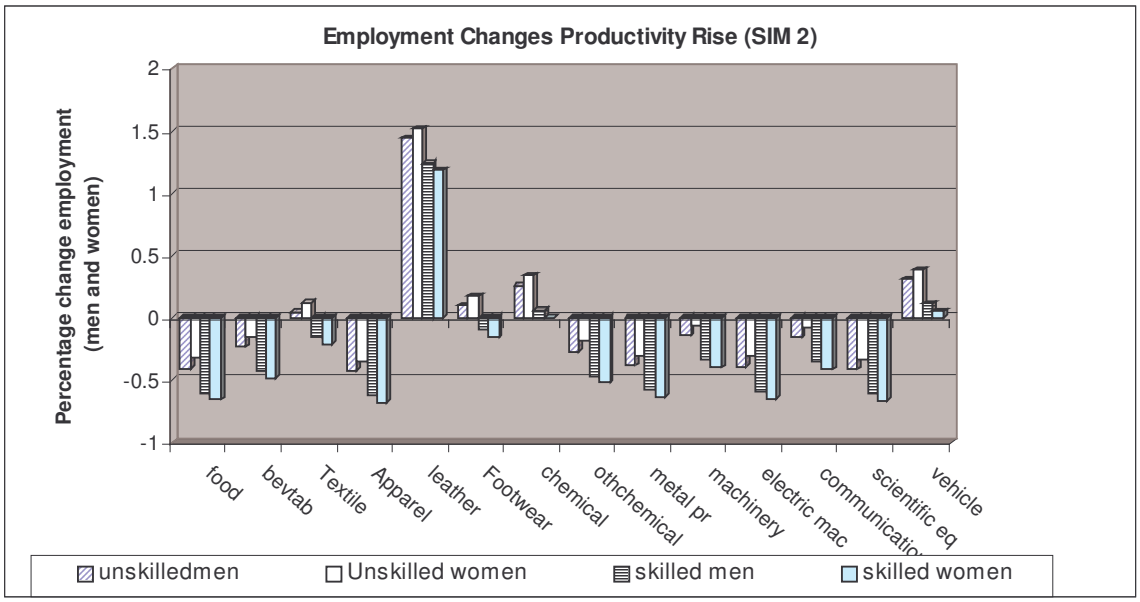

Figure 7-4 Percentage change employment due to selected productivity rise

7.3.7 Gender employment changes due to factor productivity rise in selected sectors

Figure 7.5 shows, for the shocked sectors, a decline of all skill types for men and women employment due to productivity rise in selected sectors. Unskilled men labour drops more, than unskilled women labour because of unskilled men's higher marginal productivity when compared with unskilled women who receive lower wages. However, compared to skilled men, skilled women employment declines more in all sectors that reduce employment due to efficiency rises. This is due to the higher initial levels of skilled men in such sectors. The full employment assumption associated with skilled labour requires displaced men and women to obtain employment in other sectors. As such, the results show labour increases in sectors such as trade, etc, which are sectors that were not directly affected by productivity increase. As seen in Figure 7.5, skilled men employment exceeds that of skilled women in those sectors. Sectors such as other mining, leather, paper, print and petroleum witness a fall of women labour while men labour demand rises. This is partly due to initial higher levels of men in such sectors when compared with initial levels of women. In sectors where employment rises, which are leather and vehicles, the rate of rise for skilled men exceeds that of skilled

women. These two sectors increase men and women employment because of their increased demand by other expanding sectors, for example, leather in vehicles (car seats), and vehicles in expanded transportation services.

The negative employment effects associated with skilled women when compared to skilled men supports the observation that productivity is associated with competitive skills, which are mostly possessed by men. This limits the benefits of productivity in terms of job creation, particularly for skilled women who mostly possess skills that are different from those of men in most sectors. However, in reality, there is no guarantee that all retrenched employees, particularly unskilled labour will be absorbed in other sectors. Bezuidenhout, Khunou, Mosoetsa, Sutherland, and Thoburn (2006) found most retrenched workers in the textile sector to have difficulties finding new employment in other sectors because of non-transferable skills. They found, however, that retrenched men were able to obtain employment faster than retrenched women.

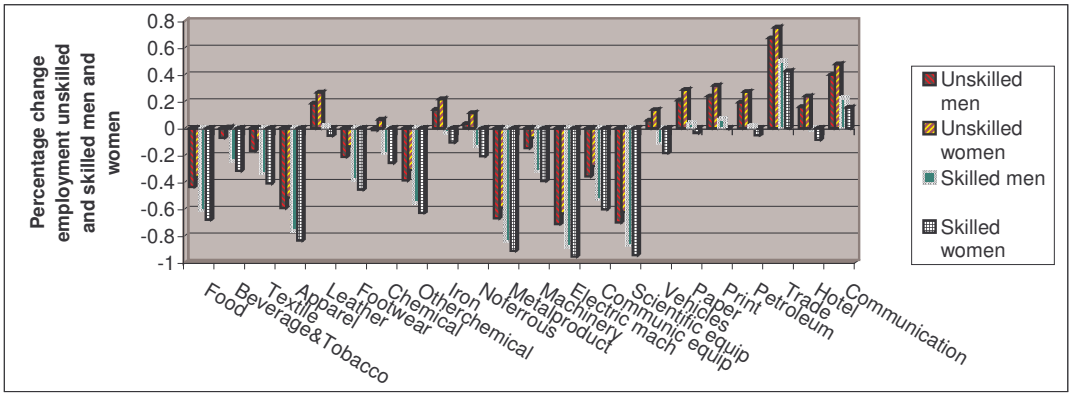

Figure 7-5 Percentage change unskilled gender: productivity rise selected sectors

7.3.8 Wages and factor earnings changes due to factor productivity rise

Figure 7.6 shows changes associated with capital rent and wages for men and women that occurred due to a selected sector productivity rise. Wages of unskilled and semi-skilled workers are fixed at their base level, and hence do not vary, while capital's rent and skilled labour wages vary in order to balance the employment requirements. Results show productivity increasing wages for skilled men and women labour.

The differing effects (expansion and contraction) in sectors of all skill types lead to an overall

rise in their labour earnings. All factors, except unskilled women and men, see an increase in their earnings, among labour, skilled men benefit the most. Semi-skilled women earnings increase more, relative to earnings of semi-skilled men because of their economy-wide increased demand. The earnings for the skilled men and women labour increase with the earning of skilled men increasing more than that of the skilled women due to men's higher initial wages. Several studies find higher wages to be associated with FDI, which is a major source of productivity (Braunstein 2000). However, economy-wide earnings of unskilled women and men decline, with that of men declining more than that of unskilled men following their employment loss in the efficient sectors, which outweighs the rate on which they are absorbed in other sectors which are mainly low paying sectors. For example, the movement of unskilled men and women workers in the service sector does not guarantee increased earnings. This is because the service sector is heterogeneous where certain work is labour intensive with low pay and other types are characterised by high productivity and technological innovation with high pay.

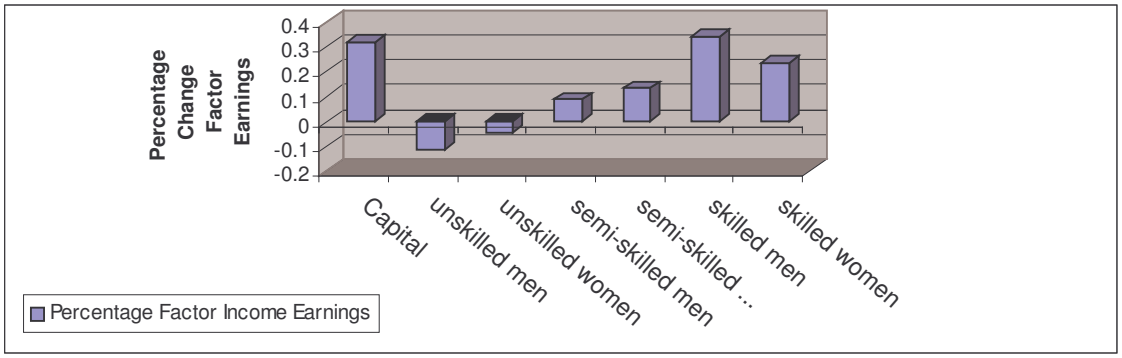

Figure 7-6 Percentage change earnings: Productivity rise selected sectors

7.4 EQUIVALENT VARIATION: FACTOR PRODUCTIVITY RISE (SIM 1 AND SIM 2)

In this study as in the previous chapter, household welfare is measured by the equivalent variation (EV) methodology. Figure 7.7 shows the improvements of welfare for all the households with higher magnitudes for SIM 1 when compared with that for SIM 2 based on higher responses for SIM 1. With both simulations, the shift in relative income across the household deciles favours high-income households. These households derive most of their income from increased capital earnings and from increased earnings of skilled labour.

The improvement in regular wages coupled with falling commodity prices due to rising cheap imports, which is induced by the efficiency rise, makes commodities affordable especially for low-income households who respond by increasing consumption. Low-income households spend a large share of their expenditure on consumables (textile, footwear etc.,) whose price has fallen. Due to concentration of men workers relative to women workers in higher-income households, a productivity rise that benefits high-income households tends to favour those men over women. Women, particularly unskilled women, are concentrated in low-income households and, as such, their welfare improves less than that of skilled men and women in high-income households.

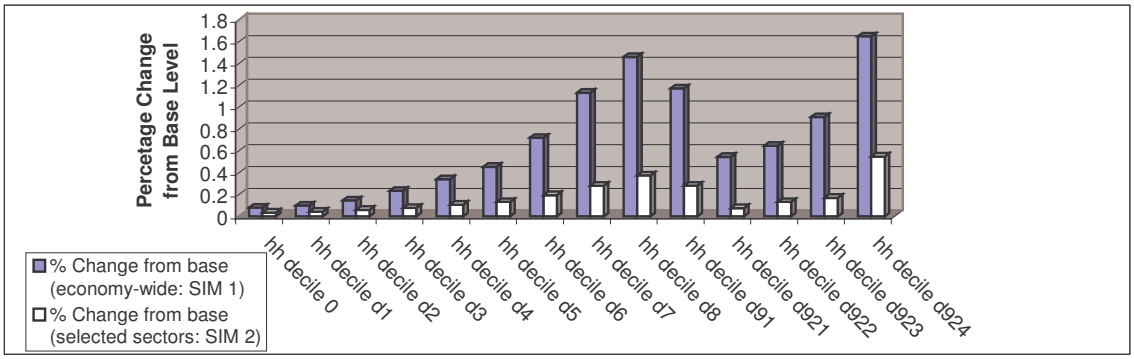

Figure 7-7 Percentage change equivalent variation (SIM 1 and SIM 2)

7.4.1 Conclusion

This chapter analysed impacts of productivity on South African economy and gender by means of a CGE model. The results show that factor productivity rise results in gains from a more efficient usage of resources, which increases GDP and improves the government budgetary position. In addition, productivity generates direct welfare benefits to households by lowering domestic commodity prices, and by increased earnings for factors, especially for skilled men and women.

An economy-wide productivity increase creates jobs for all skill types of men and women, through an economy-wide rise in output. However, productivity benefits skilled men more than other skill types of men and women. In most instances, skilled labour is preferable due to its appropriate training and expertise that enable the absorption and adaptation of technology. On the other hand, unskilled and semi-skilled women labour benefit more from

economy-wide productivity rise than unskilled and semi-skilled men because women earn lower wages than men. This outcome differs from that for skilled women who obtain higher wages from the base year level.

Unlike economy-wide productivity rise, a direct effect of a partial productivity rise is efficiency gain resulting in job losses in productivity-raised sectors and in sectors in which they have strong linkages. Unskilled women labour falls less than unskilled men while skilled women labour falls more than that of skilled men. Displaced workers, both skilled, semi-skilled and unskilled men and women, switch to export-oriented, labour-intensive and capital-intensive sectors which have expanded resulting in economy-wide job creation. This model assumes no relocation costs. However, in reality, relocation will be required to find alternative employment, increasing the time required and other costs to find new work. Adjustment costs may be severe and long lasting for the poorest member of households, particularly unskilled women due to low levels of education and skills, and limited savings that could be used to finance relocation or retraining.

The indirect effect of job creation through intersectoral linkages is overlooked in many partial equilibrium studies, which conclude that productivity leads to job losses. While partial productivity directly reduces levels of employment in the affected sectors, it also creates employment in sectors that provide goods and services to efficient sectors. This type of analysis explains the importance of looking at both direct and indirect economy-wide effects.

From a gender perspective the increase in productivity creates challenges for women seeking employment. Lack of appropriate skills for women has the potential of promoting gender inequality in South Africa by keeping women in low paying positions. Economy-wide productivity raises the employment demand and earnings of unskilled women from their baseline level. However, productivity within selected sectors sheds employment mostly in women intensive sectors. Although retrenched men and women relocate to other sectors, earnings of unskilled women drop because their job losses are outweighed by their job gains mostly in low-paying positions. This has an implication on the welfare improvement of low-income households which derive most of their income from unskilled women.

As jobs and wages improve in quality, women tend to be excluded from them, therefore, they need to acquire skills in areas of science, engineering and IT to gain from rising productivity.

Appendix 7 A

Economy-wide productivity rise

Table 7.1 (a): Employment changes due to economy-wide productivity rise

Sectors	Capital	Total Labour	Unskilled Labour	Semi-Skille Labour	Skilled labour	Unskille Men	Unskilled Women	Semi – Skilled Men	Semi-Skilled Women	Men skilled	Women Skilled
Maize	0.421	0.620	0.531	0.475	0.891	0.504	0.583	0.474	0.480	0.937	0.688
Fruit vegetables	0.152	0.800	0.790	0.729	1.143	0.757	0.837	0.728	0.734	1.192	0.942
Coal	0.021	0.730	0.660	0.632	1.065	0.661	0.741	0.632	0.638	1.096	0.846
Gold	0.175	1.180	1.150	1.122	1.568	1.151	1.231	1.122	1.128	1.588	1.337
Other mining	0.318	0.980	0.931	0.891	1.340	0.920	1	0.890	0.896	1.355	1.105
Food	0-.613	0.311	0.250	0.203	0.629	0.231	0.310	0.201	0.207	0.663	0.415
Beverage/tobacco	0-.081	0.672	0.540	0.502	0.915	0.530	0.610	0.501	0.507	0.964	0.715
Textiles	0-.172	0.501	0.450	0.407	0.809	0.433	0.512	0.403	0.409	0.866	0.617
Apparel	0-.050	1.182	1.160	1.085	1.418	1.111	1.191	1.081	1.087	1.547	1.297
Leather	-0.600	0.053	0.010	-0.074	0.275	-0.047	0.032	-.077	-0.071	0.384	0.136
Footwear	-0.190	0.812	0.780	0.694	1.041	0.720	0.800	0.691	0.697	1.155	0.905
Wood	-0.290	0.134	0.100	0.055	0.457	0.084	0.163	0.054	0.060	0.515	0.267
Paper	-0.373	1.124	1.080	1.011	1.367	1.038	1.118	1.008	1.015	1.474	1.224
Print	-0.041	1.221	1.110	1.057	1.421	1.085	1.165	1.055	1.061	1.521	1.271
Petroleum	0.003	0.681	0.520	0.477	0.915	0.505	0.585	0.476	0.482	0.939	0.690
Chemical	-0.142	0.770	0.620	0.572	1.009	0.601	0.680	0.571	0.577	1.035	0.785
Other chemical	-0.051	1.380	1.240	1.176	1.592	1.204	1.284	1.174	1.180	1.640	1.390
Rubber	-0.131	1.601	1.530	1.447	1.859	1.476	1.556	1.446	1.452	1.914	1.662
Plastic	-0.091	0.490	0.430	0.354	0.744	0.381	0.461	0.352	0.358	0.814	0.566
Glass	-0.121	0.800	0.710	0.676	1.096	0.704	0.784	0.675	0.681	1.139	0.889
Non-metal	-0.021	-0.540	-0.610	-0.669	-0.246	-0.641	-0.563	-0.671	-0.665	-0.213	-0.459
Iron	0.017	0.190	1.140	0.104	0.411	0.132	0.211	0.103	0.109	0.564	0.316
Non-ferrous	-0.022	0.110	0.020	-0.017	0.416	0.011	0.090	-0.019	-0.013	0.442	0.195
Metal products	-0.033	0.184	0.130	0.096	0.503	0.125	0.204	0.095	0.101	0.557	0.309
□onsumpti	0.027	0.273	0.180	0.136	0.556	0.164	0.243	0.135	0.141	0.596	0.348
Electric machinery	-0.020	0.092	-0.01	-0.073	0.371	-0.046	0.033	-0.075	-0.069	0.385	0.138

Sectors	Capital	Total Labour	Unskilled Labour	Semi-Skille Labour	Skilled labour	Unskilled Men	Unskilled Women	Semi – Skilled Men	Semi-Skilled Women	Men skilled	Women Skilled
Commun equipment	0.012	0.439	0.370	0.296	0.675	0.322	0.402	0.293	0.299	0.755	0.507
Scientific equipment	-0.070	1.025	0.940	0.883	1.272	0.908	0.988	0.879	0.885	1.344	1.094
Vehicles	-0.03	0.539	0.430	0.371	0.813	0.4	0.479	0.371	0.377	0.833	0.585
Transport equipment	-0.14	1.371	1.252	1.212	1.652	1.241	1.321	1.211	1.217	1.677	1.427
Furniture	-0.139	0.871	0.821	0.781	1.202	0.809	0.889	0.779	0.786	1.244	0.994
Other industry	-0.053	1.366	1.320	1.261	1.592	1.288	1.368	1.258	1.264	1.725	1.474
Electricity	-0.022	0.552	0.380	0.328	0.773	0.356	0.435	0.326	0.332	0.788	0.541
Water	-0.072	1.717	1.543	1.487	1.934	1.515	1.595	1.485	1.491	1.953	1.701
Construction	-0.032	0.026	-1.551	-1.589	-1.154	-1.561	-1.483	-1.591	-1.584	-1.136	-1.380
Trade	0.059	0.693	0.650	0.567	0.953	0.595	0.675	0.565	0.571	1.029	0.780
Hotel	-0.173	0.947	0.924	0.865	1.223	0.892	0.972	0.862	0.868	1.327	1.077
Transportation	0.218	1.071	1.022	0.983	1.394	1.012	1.092	0.982	0.988	1.448	1.198
Communication	-0.010	1.096	1.040	0.989	1.416	1.015	1.095	0.985	0.992	1.451	1.201
Finance	-0.022	1.534	1.471	1.409	1.819	1.437	1.517	1.407	1.413	1.874	1.623
Business	-0.011	1.788	1.662	1.585	1.978	1.611	1.692	1.582	1.588	2.050	1.798
Other services	-0.063	2.044	1.922	1.834	2.144	1.860	1.941	1.830	1.836	2.299	2.047
Other producers	0	0.364	1.600	1.548	1.906	1.576	1.656	1.546	1.552	2.014	1.762
Government	-0.023	0.008	-1.032	-1.591	-1.198	-1.562	-1.485	-1.591	-1.586	-1.138	-1.382

Table 7.2 Quantity and price changes due to economy-wide productivity rise (SIM)

Commodity	PD	QD	PE	QE	PQ	QQ	PM	QM	PX	QX	Sectors	PINT	QINT	PVA	QVA
Maize	0.072	1.194	-0.345	0.206	0.023	1.273	-0.348	1.875	-0.051	0.797	Maize	-0.290	0.796	0.227	0.796
Fruit vegetable	-0.163	1.334	-0.343	0.511	-0.179	1.365	-0.348	1.709	-0.164	1.223	Fruit vegetable	-0.283	1.225	-0.118	1.225
Coal	-0.489	1.225	-0.345	1.521	-0.484	1.221	-0.348	1.078	-0.434	1.339	Coal	-0.350	1.339	-0.532	1.339
Gold	-1.412	0.012	-0.346	2.187	-1.388	1.246	-0.352	-0.520	-0.493	1.885	Gold	-0.404	1.899	-0.661	1.899
Other mining	-0.453	1.345	-0.345	1.566	-0.358	1.293	-0.347	1.235	-0.352	1.555	Other mining	-0.343	1.552	-0.440	1.552
Food	0.588	1.203	-0.337	-1.350	0.468	1.447	-0.349	1.907	0.799	0.909	Food	0.150	0.905	2.771	0.905
Bev / tobacco	0.154	1.344	-0.337	-0.162	0.112	1.673	-0.349	2.539	0.317	1.155	Bevtabacco	-0.017	1.154	0.755	1.154
Textile	-0.095	1.473	-0.336	0.756	-0.165	1.871	-0.348	2.201	-0.031	1.374	Textile	-0.131	1.357	0.097	1.357
Apparel	-0.470	1.912	-0.319	2.282	-0.454	1.393	-0.350	1.607	-0.484	1.945	Apparel	-0.172	2.024	-0.985	2.024
Leather	-0.146	1.078	-0.344	0.639	-0.216	1.714	-0.347	1.983	-0.232	0.866	Leather	0.058	0.835	-0.945	0.835
Footwear	-0.238	1.455	-0.325	1.041	-0.275	1.077	-0.349	2.229	-0.132	1.432	Footwear	-0.189	1.401	0.046	1.401
Wood	-0.249	1.067	-0.341	0.841	-0.263	1.644	-0.348	1.136	-0.247	1.031	Wood	-0.121	1.010	-0.395	1.013
Paper	-0.070	1.495	-0.341	0.835	-0.112	1.867	-0.348	2.534	-0.084	1.357	Paper	-0.114	1.336	-0.047	1.336
Print	-0.393	1.895	-0.339	1.989	-0.384	1.102	-0.348	1.748	-0.382	1.901	Print	-0.207	1.928	-0.578	1.928
Petroleum	-0.386	1.108	-0.339	1.157	-0.382	1.388	-0.348	1.051	-0.358	1.122	Petrol	-0.356	1.117	-0.237	1.117
Chemical	-0.245	1.329	-0.344	1.109	-0.283	1.811	-0.347	1.488	-0.269	1.261	Chemical	-0.216	1.229	-0.437	1.229
Other-chemical	-0.383	1.825	-0.337	1.880	-0.374	2.161	-0.349	1.771	-0.361	1.831	Otherchemical	-0.300	1.914	-0.589	1.914
Rubber	-0.271	2.120	-0.339	1.925	-0.298	1.241	-0.348	2.238	-0.259	2.090	Rubber	-0.260	2.137	-0.351	2.137
Plastics	-0.806	1.374	-0.342	2.371	-0.719	1.506	-0.347	0.674	-0.797	1.436	Plastic	-0.305	1.435	-1.254	1.435
Glass	-0.448	1.519	-0.335	1.751	-0.425	0.666	-0.348	1.461	-0.439	1.537	Glass	-0.264	1.571	-0.696	0.571
Non metal	-1.008	0.733	-0.342	2.172	-0.892	1.079	-0.347	0.352	-1.003	0.822	Non metal	-0.334	0.778	-1.896	0.778
Iron	-0.382	1.082	-0.342	1.148	-0.379	1.063	-0.348	1.052	-0.361	1.111	Iron	-0.354	1.107	-0.287	1.107
Non-ferrous	-0.307	1.055	-0.345	0.971	-0.317	0.907	-0.347	1.088	-0.319	1.021	Non ferrous	-0.365	1.005	-0.179	1.005
Metal products	-0.751	1.035	-0.343	1.917	-0.679	0.830	-0.347	0.314	-0.729	1.129	Metal product	-0.360	1.117	-1.157	1.117
Machinery	-0.642	0.927	-0.342	1.668	-0.446	0.869	-0.348	0.781	0.558	1.223	Machinery	-0.351	1.228	-0.905	1.228
Elactricmac	-0.748	0.963	-0.340	1.915	-0.624	0.801	-0.348	0.659	-0.748	1.082	Electric mach	-0.379	1.041	-1.345	1.041
Comm equip	-0.763	1.044	-0.342	2.019	-0.444	1.548	-0.347	0.727	-0.678	1.331	Comm eqp	-0.383	1.335	-1.194	1.335
Scientific equip	-0.478	1.632	-0.328	2.023	-0.393	1.325	-0.349	1.506	-0.475	1.722	Science eqp	-0.301	1.773	-0.893	1.773
Vehicles	-0.335	1.303	-0.342	1.255	-0.340	1.003	-0.348	1.357	-0.323	1.293	Vehicle	-0.361	1.292	-0.148	1.292
Transport equip	-0.606	1.856	-0.343	2.430	-0.410	1.655	-0.347	0.734	-0.478	2.152	Trasport eqp	-0.343	2.252	-0.863	2.252

Commodity	PD	QD	PE	QE	PQ	QQ	PM	QM	PX	QX	Sectors	PINT	QINT	PVA	QVA
Furniture	-0.25	1.626	-0.326	1.221	-0.268	1.832	-0.349	1.847	-0.168	1.544	Furniture	-0.279	1.609	-0.047	1.609
Other industry	-0.29	1.813	-0.332	1.585	-0.314	1.162	-0.349	1.866	-0.253	1.745	Other indusry	-0.316	1.799	-0.198	1.799
Electricity	-0.68	1.164	-0.346	1.860	-0.682	1.632	-0.348	0.992	-0.674	1.190	Electricity	-0.485	1.192	-0.844	1.190
Water	0.133	1.627	-0.346	0.658	0.124	0.166	-0.349	1.873	0.129	1.620	Water	-0.086	1.623	0.604	1.621
Construction	-1.31	0.171	-0.346	2.149	-1.305	1.399	-0.347	-0.320	-1.313	0.176	Construction	-0.699	0.081	-2.469	0.081
Trade	-0.45	1.400	-0.346	1.615	-0.451	1.929	-0.348	1.347	-0.451	1.460	Trade	-0.027	1.408	-0.799	1.408
Hotel	0.734	1.791	-0.346	-0.380	0.460	1.655	-0.347	2.341	0.411	1.117	Hotel	0.095	1.113	0.378	1.111
Transportation	-0.26	1.627	-0.346	1.469	-0.284	1.472	-0.346	1.767	-0.279	1.604	Transportation	-0.186	1.604	-0.360	1.604
Communicatio	-0.13	1.464	-0.346	1.026	-0.145	1.703	-0.347	1.574	-0.141	1.441	Communicatic	-0.267	1.441	-0.033	1.441
Finance	0.438	1.689	-0.346	0.109	0.411	1.575	-0.346	2.089	0.391	1.595	Finance	0.274	1.595	0.498	1.595
Business	0.657	1.560	-0.346	-0.450	0.628	2.059	-0.347	2.071	0.638	1.521	Business	-0.046	1.552	0.931	1.552
Other business	0.154	2.051	-0.346	1.035	0.139	2.024	-0.347	2.307	0.140	2.022	Other business	-0.189	2.022	0.493	2.022
Other producer	-0.52	2.028	-0.346	2.395	-0.517	0.070	-0.347	1.937	-0.519	2.040	Other produce	-0.105	2.441	-0.885	2.441
Government	-2.02	0.071	-0.346	3.540	-2.028	-0.09	-0.350	-0.780	-2.029	0.072	Government	-0.544	0.072	-2.454	0.072

Table 7.3 Percentage change factors of production (capital and labour) selected sectors

SECTOR	Total labour	Un skille	Semi skilled	Skillec	Unskille men	Unskillec men	Semi Skille men	Semi skillec wome	Unskillec men	Unskilled women
Maize	-0.077	0.005	-0.045	-0.202	-0.016	0.063	-0.046	-0.04	-0.188	-0.263
FruitVegetables	0.159	0.185	0.127	-0.032	0.155	0.234	0.125	0.131	-0.018	-0.090
Coal	0.012	0.055	0.024	-0.128	0.053	0.132	0.024	0.030	-0.119	-0.191
Gold	0.012	0.028	-0.004	-0.152	0.025	0.104	-0.004	0.002	-0.147	-0.219
Othermining	0.200	0.231	0.197	0.051	0.226	0.305	0.197	0.203	0.054	-0.018
Food	-0.477	-0.420	-0.467	-0.62	-0.439	-0.361	-0.469	-0.463	-0.610	-0.682
Bev-tobacco	-0.143	-0.059	-0.111	-0.258	-0.072	0.007	-0.101	-0.095	-0.244	-0.316
Textile	-0.184	-0.148	-0.194	-0.356	-0.168	-0.089	-0.197	-0.191	-0.339	-0.411
Apparel	-0.595	-0.550	-0.62	-0.802	-0.594	-0.516	-0.624	-0.618	-0.765	-0.837
Leather	0.166	0.242	0.160	-0.017	0.187	0.267	0.158	0.164	0.015	-0.057
Footwear	-0.216	-0.154	-0.24	-0.419	-0.214	-0.135	-0.244	-0.238	-0.386	-0.458
Wood	0.008	0.047	0.004	-0.156	0.033	0.112	0.003	0.009	-0.139	-0.211
Paper	0.169	0.251	0.180	0.005	0.208	0.287	0.178	0.185	0.036	-0.036
Print	0.148	0.263	0.211	0.038	0.239	0.318	0.209	0.215	0.067	-0.006
Petroleum	0.112	0.210	0.163	0.012	0.192	0.271	0.162	0.168	0.019	-0.053
Chemical	-0.095	-0.009	-0.042	-0.193	-0.014	0.065	-0.043	-0.037	-0.186	-0.258
Otherchemical	-0.468	-0.355	-0.417	-0.574	-0.389	-0.310	-0.418	-0.412	-0.562	-0.632
Rubber	0.397	0.483	0.399	0.239	0.427	0.507	0.398	0.404	0.254	0.182
Plastic	0.356	0.434	0.36	0.194	0.387	0.466	0.357	0.363	0.214	0.142
Glass	0.433	0.491	0.456	0.299	0.484	0.564	0.455	0.461	0.312	0.239
Nonmetal	0.077	0.142	0.084	-0.071	0.111	0.191	0.082	0.088	-0.061	-0.133
Iron	0.079	0.142	0.111	-0.078	0.139	0.218	0.109	0.115	-0.033	-0.105
Nonferrous	-0.018	0.041	0.006	-0.145	0.034	0.114	0.005	0.011	-0.138	-0.209
Metalproduct	-0.711	-0.669	-0.699	-0.857	-0.671	-0.592	-0.700	-0.694	-0.842	-0.913
Machinery	-0.206	-0.132	-0.177	-0.333	-0.149	-0.07	-0.179	-0.173	-0.321	-0.393
Electricmach	-0.758	-0.679	-0.742	-0.889	-0.715	-0.636	-0.744	-0.738	-0.885	-0.957
Communicate eq	-0.398	-0.313	-0.386	-0.554	-0.360	-0.281	-0.389	-0.383	-0.531	-0.603
Scientific eqp	-0.75	-0.669	-0.728	-0.894	-0.703	-0.624	-0.732	-0.726	-0.874	-0.945
Vehicles	0.006	0.091	0.031	-0.119	0.059	0.138	0.030	0.036	-0.113	-0.185
Transport eqp	-0.223	-0.151	-0.190	-0.34	-0.161	-0.082	-0.190	-0.184	-0.333	-0.404
Furniture	-0.05	-0.007	-0.048	-0.203	-0.020	0.06	-0.049	-0.043	-0.191	-0.263
Other industry	-0.071	0.011	-0.051	-0.234	-0.024	0.055	-0.054	-0.048	-0.196	-0.268
Electricity	0.367	0.474	0.425	0.276	0.453	0.532	0.423	0.429	0.280	0.208
Water	0.547	0.662	0.606	0.456	0.634	0.714	0.605	0.611	0.461	0.389
Construction	0.026	0.071	0.033	-0.115	0.062	0.141	0.033	0.039	-0.11	-0.182
Trade	0.609	0.723	0.644	0.477	0.672	0.752	0.642	0.648	0.499	0.426
Hotel	0.103	0.191	0.133	-0.043	0.159	0.239	0.130	0.136	-0.013	-0.085
Transportation	0.228	0.285	0.252	0.092	0.280	0.360	0.251	0.257	0.108	0.036
Communication	0.342	0.419	0.372	0.216	0.399	0.478	0.369	0.375	0.226	0.154
Finance	0.317	0.427	0.364	0.203	0.391	0.471	0.362	0.368	0.219	0.146
Business	0.395	0.553	0.479	0.312	0.505	0.585	0.476	0.482	0.332	0.260
Other business	0.353	0.548	0.460	0.269	0.486	0.566	0.456	0.462	0.313	0.241
Other production	0.364	0.475	0.421	0.245	0.448	0.528	0.419	0.425	0.276	0.203
Government serv	0.018	0.155	0.106	-0.057	0.133	0.212	0.104	0.110	-0.039	-0.111

Table 7.4 Quantity and price changes selected sectors

Commodities	PD	QD	PE	QE	PQ	QQ	PM	QM	PX	QX	Sectors	PINT	QINT	PVA	QV
Maize	-0.231	0.512	-0.142	0.855	-0.212	0.481	-0.064	0.244	-0.243	0.650	Maize	-0.049	0.651	-0.522	0.651
FruitVegetable	-0.466	0.762	-0.162	2.312	-0.433	0.696	-0.068	-0.04	-0.491	0.969	FruitVegetable	-0.064	0.972	-0.814	0.972
Coal	0.023	0.114	-0.141	-0.190	0.019	0.117	-0.065	0.204	-0.046	-0.010	Coal	-0.017	-0.01	-0.071	-0.01
Gold	-0.166	0.002	-0.129	0.076	-0.161	-	0.043	-0.100	-0.134	0.066	Gold	0.023	0.058	-0.251	0.058
Othermining	-0.156	0.196	-0.140	0.280	-0.098	0.137	-0.092	0.130	-0.143	0.276	Othermining	0.010	0.277	-0.288	0.277
Food	-0.065	0.470	-0.221	0.433	-0.062	0.468	-0.045	0.455	-0.205	0.465	Food	-0.079	0.461	-0.534	0.461
Beverage tobbaco	-0.421	0.768	-0.223	1.832	-0.389	0.690	-0.04	-0.130	-0.680	0.902	Beveragetobbacc	-0.196	0.903	-1.236	0.903
Textile	-0.235	0.741	-0.233	1.116	-0.184	0.595	-0.048	0.210	-0.393	0.793	Textile	-0.051	0.816	-1.163	0.816
Apparel	-0.126	0.449	-0.428	0.844	-0.109	0.405	2E-04	0.132	-0.606	0.484	Apparel	-0.065	0.472	-1.316	0.472
Leather	-0.181	0.841	-0.151	0.967	-0.144	0.683	-0.078	0.388	-0.183	0.902	Leather	-0.027	0.914	-0.634	0.914
Footwear	-0.162	0.721	-0.356	0.898	-0.119	0.425	-0.033	-0.170	-0.438	0.731	Footwear	-0.066	0.793	-1.208	0.793
Wood	0.184	0.061	-0.176	-0.630	0.147	0.087	-0.07	0.236	0.113	-0.05	Wood	-0.062	-0.080	0.485	-0.080
Paper	0.212	0.054	-0.181	-0.690	0.171	0.203	-0.07	1.092	0.116	-0.100	Paper	0.028	-0.110	0.360	-0.110
Print	0.153	0.136	-0.20	-0.520	0.112	0.266	-0.065	0.833	0.105	0.094	Print	0.069	0.105	0.122	0.105
Petroleum	0.179	0.181	-0.20	-0.46	0.155	0.219	-0.051	0.535	0.042	0.025	Petroleum	-0.008	0.021	0.181	0.021
Chemical	-0.297	0.621	-0.145	0.986	-0.220	0.503	-0.09	0.303	-0.27	0.734	Chemical	-0.011	0.875	-0.958	0.875
Other-chemical	-0.293	0.581	-0.222	1.124	-0.225	0.476	-0.046	0.201	-0.462	0.639	Other chemical	-0.069	0.664	-1.286	0.664
Rubber	0.127	0.368	-0.202	-0.23	0.059	0.471	-0.071	0.667	0.048	0.275	Rubber	-0.041	0.255	0.199	0.255
Plastic	-0.006	0.369	-0.171	0.079	-0.021	0.392	-0.086	0.49	-0.035	0.351	Plastic	-0.080	0.308	-0.017	0.308
Glass	0.192	0.432	-0.251	-0.421	0.132	0.464	-0.067	0.578	0.142	0.364	Glass	0.091	0.292	0.321	0.292
Non-metal	0.011	0.102	-0.173	-0.223	-0.005	0.112	-0.083	0.156	-0.02	0.083	Non-metal	0.025	0.017	-0.019	0.017
Iron	0.234	0.402	-0.169	-0.380	0.201	0.429	-0.069	0.658	0.054	0.067	Iron	-0.009	0.048	0.287	0.048
Non-ferrous	0.156	0.222	-0.141	-0.363	0.093	0.275	-0.091	0.43	0.035	-0.01	Non-ferrous	0.101	-0.020	-0.028	-0.020
Metalproduct	-0.532	0.413	-0.162	1.300	-0.451	0.272	-0.082	-0.38	-0.554	0.507	Metal product	0.072	0.506	-1.536	0.506
Machinery	-0.477	0.368	-0.196	1.470	-0.197	0.229	-0.056	0.16	-0.522	0.809	Machinery	-0.020	0.836	-1.514	0.836
Electrical mach	-0.535	0.442	-0.194	1.471	-0.389	0.331	-0.064	0.087	-0.638	0.57	Electrical mach	-0.060	0.567	-1.742	0.567
Communic eq	-0.481	0.416	-0.171	1.334	-0.171	0.182	-0.077	0.111	-0.490	0.686	Communic eq	-0.086	0.701	-1.301	0.701
Scientific eq	-0.123	0.309	-0.328	0.971	-0.053	0.245	-0.018	0.212	-0.579	0.463	Scientific eq	-0.019	0.402	-1.396	0.402
Vehicles	-0.284	0.878	-0.174	1.301	-0.198	0.509	-0.070	-0.040	-0.340	0.963	Vehicles	-0.155	0.989	-0.979	0.989
Transport eqp	-0.036	-0.031	-0.158	-0.190	-0.071	0.120	-0.082	0.167	-0.117	-0.110	Transport eqp	-0.019	-0.200	-0.151	-0.200
Furniture	0.183	0.135	-0.346	-0.720	0.156	0.196	-0.019	0.602	-0.006	-0.040	Furniture	0.022	-0.070	-0.015	-0.070
Other-Industry	0.137	0.220	-0.286	-0.430	0.078	0.277	-0.031	0.379	-0.058	0.027	Other-Industry	-0.003	-0.060	-0.109	-0.060

Commodities	PD	QD	PE	QE	PQ	QQ	PM	QM	PX	QX	Sectors	PINT	QINT	PVA	QV
Electricity	0.329	0.156	-0.129	-0.760	0.323	0.159	-0.066	0.354	0.312	0.122	Electricity	0.039	0.122	0.474	0.122
Water	0.396	0.178	-0.129	-0.870	0.388	0.182	-0.022	0.387	0.392	0.169	Water	0.233	0.169	0.742	0.169
Construction	-0.068	0.023	-0.129	-0.100	-0.069	0.023	-0.084	0.031	-0.069	0.022	Construction	-0.047	0.005	-0.073	0.005
Trade	0.351	0.374	-0.129	-0.580	0.349	0.375	-0.074	0.587	0.348	0.371	Trade	0.233	0.358	0.438	0.358
Hotel	0.358	0.207	-0.129	-0.760	0.242	0.264	-0.099	0.435	0.206	-0.100	Hotel	0.021	-0.100	0.330	-0.100
Transportation	0.051	0.273	-0.129	-0.090	0.015	0.337	-0.129	0.595	0.025	0.222	Transportation	0.136	0.222	-0.071	0.222
Communication	0.263	0.175	-0.129	-0.610	0.237	0.188	-0.098	0.357	0.243	0.135	Communication	0.122	0.135	0.340	0.135
Finance	0.362	0.174	-0.129	-0.810	0.345	0.182	-0.129	0.420	0.333	0.115	Finance	0.312	0.115	0.365	0.115
Business	0.475	0.165	-0.129	-1.040	0.458	0.173	-0.099	0.452	0.463	0.141	Business	0.205	0.117	0.590	0.117
Other business	0.298	0.175	-0.129	-0.681	0.286	0.181	-0.087	0.368	0.286	0.151	Other business	0.105	0.151	0.483	0.151
Otherproduction	0.113	0.309	-0.129	-0.181	0.104	0.313	-0.098	0.414	0.105	0.294	Otherproduction	0.114	0.307	0.096	0.307
Government serv	0.060	0.006	-0.129	-0.372	0.060	0.006	0.001	0.036	0.060	0.006	Government	0.033	0.006	0.067	0.006

KEY to headings

Prices and output

PD: Domestic price	PE: Export Prices	PQ: Composite Good Price	PM: Import Price	PX: Domestic Price	PINT: Price of Intermediates	PVA: Price Value Added
QD: Domestic quantity	QE: Export	QQ: Composite Good	QM: Imports	QX: Domestic Output	QINT: Quantity Intermediate	QV: Value Added.

Factors of production:

CAP: Ccapital	LAB: Total labour	LAB1: skilled	LAB2 Semi- skilled	LAB3 Skilled labour	lablomn skilled men	lablofm Unskilled wome	labmedmn Semi-skilled me	labmedfm Semi-skilled wome	labhimn Skilled men	Labhifm Skilled women

Appendix 7(B)

MACROECONOMIC VARIABLES: PRODUCTIVITY RISE

Table 7.5 Macroeconomic results (base year and percentage changes from base)

Variable	Base year level	Selected sectors	Economy-wide (all sectors)
Total Real Absorption	891.2	0.2	1.4
Real household consumption	558.4	0.4	2.0
Total real export	224.2	0.2	1.2
Total real imports	275.2	0.2	1.4
Real exchange rage	91.4	-0.2	0.1
Private savings as % of GDP	16.2	-0.1	-0.7
Government savings as % of GDP	-1.9	0.1	0.5
Household Welfare (EV)			
Household decile 0	8.9	0.035	0.080
Household decile 1	12.0	0.043	0.099
Household decile 2	16.0	0.060	0.146
Household decile 3	20.4	0.077	0.234
Household decile 4	25.9	0.107	0.341
Household decile 5	32.8	0.133	0.454
Household decile 6	45.4	0.195	0.719
Household decile 7	63.8	0.280	1.131
Household decile 8	95.4	0.375	1.460
Household decile 91	74.7	0.282	1.171
Household decile 921	26.5	0.076	0.245
Household decile 922	31.0	0.132	0.647
Household decile 923	34.9	0.170	0.909
Household decile 924	70.1	0.547	3.748
GDP and national accounts			
Private Consumption	558.420	0.387	1.955
Fixed Investment	127.779	-0.116	0.761
Government consumption	205.338	0.060	2.028
GDP market prices value added	922.773	0.249	0.583
Net indirect taxes	100.477	0.335	1.171
GDP at factor cost	822.296	0.239	0.511
Percentage change Government come	217.532	0.387	1.593
Factors of production earnings			
Capital	396.042	0.383	1.44
Unskilled men	73.599	-0.127	0.485
Unskilled women	26.711	-0.106	0.659
Semiskilled men	113.619	0.098	0.407
Semiskilled women	57.550	0.156	0.579
Skilled men	114.418	0.203	0.756
Skilled women	40.357	0.328	0.706

CHAPTER 8

THE DOHA ROUND AND ITS EFFECTS ON AGRICULTURAL SUB SECTORS AND GENDER IN SOUTH AFRICA

8.1 INTRODUCTION

This chapter presents results from the 2000 gendered CGE model that was employed to explain the effects of the implementation of the Doha Round of Multilateral Trade Negotiations (referred hereafter as the Doha Round) on selected agricultural subsectors, on the macroeconomic and on gender. Specifically, this chapter examines the effects of the Doha Round on agricultural subsectors in relation to skills, employment, wages, earnings, and welfare from a gender perspective. The model was first solved without introducing any policy changes and it reproduced the base year solution of the system. This validated the model results.

The simulations performed include domestic policy and an international policy. The domestic policy change was based on the South African government's general commitment to the WTO requirement of removing agricultural trade distortations. The South African government is engaged on agricultural tariff reductions on selected agricultural commodities as per the government's commitment to fulfil the WTO requirements. The government had previously dismantled its policies of agricultural domestic support and subsidies.

The international policy follows the anticipated changes for agricultural world price following the implementation of the Doha Round, after price distorting countries remove their trade obstacles. The world price changes involve both an increase in world prices of imports and exports for selected agricultural products.

This chapter is arranged as follows: Section 2 begins by listing the different types of simulations performed for this study. Section 3 follows and gives the analysis of simulated results, while section 4 presents conclusions and recommendations of the study results.

8.2 SIMULATIONS: THE IMPLEMENTATION OF THE DOHA ROUND

Simulation 1 (Joint policies --combination of simulation 2 and 3 below)

Simulation 2 (Tariff reduction): 100% cut in tariffs with flexible government savings and

mobile labour while capital is fixed sectorally. The rate of agricultural tariff reduction was set at 100% considering the prevailing low rates of protection given to the agricultural commodities in South Africa (see chapter 2).

Simulation 3 (Changes in agricultural world price of imports and exports): Introduction of potential price changes with endogenous foreign exchange rate and fixed current account balance. This study did not calculate the predicted world price rise for agricultural commodities, but rather obtained the rates from literature search (See Table 8.1) and entered them into the model exogenously. The rate of price rise used in this study ranges from 4-16% depending on the subsector.

The combination of policies (simulation 1) reflects a country's position in which it faces simultaneous multiple policy shocks, which are both domestic and foreign oriented. For example, after joining the WTO in 1995, South Africa committed itself to the implementation of the WTO requirements of tariff reforms. The government continues to pursue the full implementation of the Doha Round (foreign) through dialogue and negotiations with the developed countries. Several analysts have predicted an increase of world prices of agricultural commodities to accompany the implementation of the Doha Round. As a 'small country' case or a price taker, South Africa is expected to face higher world prices of agricultural imports and exports following the implementation of the Doha Round.

Table 8.1 indicates agricultural subsectors selected for simulation in this study which include commodities most likely to be affected by the Doha Round. These commodities are maize, wheat, fruits and vegetables, poultry, livestock and diary, and other-agriculture (an aggregation of all other non-selected agricultural commodities).

8.3 RESULTS AND DISCUSSIONS OF MODEL SIMULATION

8.3.1 Results of a joint policy simulation (tariff reduction and rises in world prices)

The results of rise in world prices for agricultural exports lead to a slight GDP increase of less than a percentage (0.1%) point. The increase is partially due to increased imports (0.3%) and slight increases in exports (0.031%), mainly agricultural exports. Although rise in world prices for agricultural exports reduce imports, the effects of the concurrent policy of agricultural tariff reduction raise imports, which outweighs imports fall. Increased economy-

wide imports slightly raise nominal private consumption (0.006%) while real consumption and private savings drops by (-0.001%) and (-0.1%) respectively. Increased imports imply slight reduction of government revenue (-0.036%) resulting in falling government expenditure (-0.094%), and consumption (-0.114%). Fall in private savings is offset by slight rise in government savings. While agricultural exports increase based on higher export prices, economy-wide exports fall due to the appreciation of the exchange rate (-0.2%) brought about by imports. From the macroeconomic results, if the implementation of Doha Round raises world prices from 6-15% as predicted by the current model, and the country continues to liberalise agriculture, there will be minimal positive effects at the aggregate level. The results also reflect the small contributions of agriculture in the South African economy. However, the welfare of low-income households declines because of reduced commodity demand due to higher prices, particularly for maize, which is a staple food (see Table 8.7)

General results

The policy changes affect the demand and supply in the market, forcing prices to adjust in order to restore equilibrium in the related markets. While the effect of tariff reduction is to raise imports, a rise in world prices has an opposite effect on domestic production by encouraging exports and discouraging imports. The combination of these two policies induce a substantial expansion in some of the South Africa agricultural subsectors' output and exports, leading to increased employment demand.

Significant domestic production expansion occurs in the maize subsector (2.552%), followed by fruit and vegetables (2.465%). Other subsectors' production declines slightly by less than a percentage point. For example, poultry production declines by 0.510%, livestock production by -0.600%, while other agriculture declines by -0.390% (see Table 8.3 in Appendix 8). Related sectors, such as food processing, contract (-0.708%) due to rising prices of agricultural commodities which are used as intermediates in food production. In the non-agricultural sectors of manufacturing, production contracts marginally while production in the service sectors holds steady, with only marginal expansion based on the extent of linkage with agriculture. The changes in agricultural production are consistent with changes in the sectoral value added price. This follows the model assumption that producers maximise their profits based on the value added prices for their products. Table 8.3 shows a rise in value-added prices in almost all subsectors, particularly in the maize sector. However,

value-added prices of non-agricultural sectors falls, resulting in output contraction.

The domestic price of agricultural imports, which depends partly on the world prices and partly on changes in tariff, falls greatly following the policy shock, which results in imports rise. Under this scenario, the impact related to tariff reduction offsets the effect related to increase in world prices. This makes imports more attractive to domestic consumers, who respond by increasing imports demand while switching from domestic sources of supply which are now relatively expensive. The greatest import rise occurs in wheat (3.637%), other agriculture (1.966%), maize (1.591%), dairy livestock (1.492%) and modestly in poultry. The outcome reflects the greater weight of full tariff reduction which outweighs the effects of world price rise of these commodities. This outcome indicates that the level of world price changes used in the model is not big enough to counterbalance the effects of the simulated tariff reduction changes which affects producers in the maize, wheat, and other agriculture. Imports of other non-agricultural commodities rise except for other mining, iron and non-ferrous which have low import shares. This follows the depreciation of the exchange rate induced by tariff reduction coupled with lower prices relative to those of agricultural commodities. If reductions in world agricultural production and export subsidies lead to an increase in world prices, as expected in the short and medium term, South Africans will pay more for their agricultural imports. South Africa, however, is a net exporter of agricultural and food products.

As the export price of maize, fruit and vegetables rises, domestic producers see an opportunity to export in the market with relatively higher prices as seen by increased domestic price of exports, hence increased exports (see Table 8-3). Other-agricultural subsector exports increase modestly due to low export shares from the base year level. Non-agricultural sectors of manufacturing experience a drop in exports while export-oriented sectors of other-mining, non-ferrous and iron, South African biggest exporters see slight increases in their exports (see Table 8.3 Appendix 8). Food (2.652%), beverage (1.380%) and most of the labour-intensive sectors incur the greatest drop in exports based on their linkage with agriculture.

Increase in world prices under the Doha Round leads to decreased consumption of agricultural commodities while increasing consumption of non-agricultural commodities. The decline in domestic consumption of agricultural commodities, while the domestic consumption of non-agricultural commodities increases. This situation can be explained in terms of the

comparative price advantage of non-agricultural goods over goods of the agricultural sectors. Greater consumption decline is experienced in the maize and vegetables and fruits sectors while other agriculture declines less.

8.3.2 Factor of production changes

The increase in domestic agricultural production and exports following the policy shock induces an increase in demand for factors of production. Capital is sectorally fixed, rendering no mobility across sectors, while its sector specific returns adjust in order to maintain the sectoral employment level in equilibrium. Despite the substantial utilisation of labour, the agricultural sector in South Africa is largely a capital-intensive sector. Capital use is considerably higher in the maize, fruit, and vegetables, while it has a moderate use in the wheat, other agriculture, poultry, and livestock and dairy subsectors.

The policy change induces demand for employment, especially in the maize and fruit and vegetables subsectors by 15.861% and 6.888%, respectively. Employment declines significantly, however, in the wheat subsector (-1.765%), while declining slightly in the other agriculture (-0.423%), in the poultry (-0.364%), and in dairy and livestock (-0.207%) (see Table 8.4). Employment rises slightly by less than a percentage point in the non-policy affected sectors of apparel, water and in service sectors of communication, finance and business. As the agricultural subsectors expand, they require services from the above-mentioned sectors which expand, hence increasing their employment demand. Apparel is linked with agriculture through cotton (aggregated in the other agriculture subsector). If, for example, the price of cotton goes up, apparel's output rises prompting demand for labour.

The agricultural sector, which has become more profitable, attracts labour from non-agricultural sectors of mining, manufacturing and service sectors. This is facilitated by the mobility that is allowed in the model. Labour demand declines significantly in non-agricultural sectors of leather (-1.443%), transport equipment (-0.919%), food (-0.777%), paper (-0.625%), beverage and tobacco, footwear, iron, wood, and transportation services. Due to transferable skills, most workers that are released from these sectors relocate to the more productive agricultural subsectors such as maize.

Most of the non-agricultural sectors in both manufacturing and service sectors, which faced decline in exports, incur a reduction in employment demand (see Table 8.4).

According to skill types (i.e. skilled, semi-skilled and unskilled), the Doha Round leads to a rise in demand of all skill types of labour in the maize and fruit and vegetables subsectors. The maize sector sees the greatest rise followed by the fruit and vegetables sectors. Employment falls moderately in the wheat and other agricultural sector and slightly in the poultry and dairy livestock subsectors. The non-agricultural sectors that demand unskilled labour include apparel, chemical, construction, and the water utility. The service sectors of communication, finance, business and government also see rise of unskilled labour for the same reasons as explained.

The demand for semi-skilled labour is slightly less than the demand for unskilled and skilled labour in all sectors. However, the extent of semi-skilled demand is similar as that for the unskilled labour both in the agricultural and non-agricultural sectors.

Skilled labour employment rises significantly in the maize sector by 15.826%, fruit and vegetables (6.823%) while declining in the wheat (-1.795%) and other-agriculture (-0.484%) subsectors. In non-agricultural sectors, skilled labour is demanded mostly in the export-oriented sector of mining and in certain service sectors, which are the greatest employers of skilled labour from the base year level.

Other non-agricultural sectors, which were not directly subjected to policy change, incur concurrent declines in exports and skilled labour employment albeit slightly by less than a percentage point. Although the present macro-environment in South African agriculture favours unskilled labour-saving technology, which demands skilled labour to augment such technology, unskilled labour is still utilised significantly in certain areas of agriculture.

Gender Employment

Figure 8.1 presents changes in gender employment. Agricultural subsectors increase demand for skilled, semi-skilled and skilled men and women workers. The demand for unskilled and semi-skilled women exceeds that of unskilled and semi-skilled men. The employment demand increases in maize (unskilled men, 15.876%, unskilled women 15.952%), fruit and vegetables (unskilled men 6.869%; unskilled women, 6.957%), wheat (unskilled men, -

1.756%; unskilled women, -1.675%), in the dairy and livestock (unskilled men, –0.198%; unskilled women, -0.116%), in the other-agriculture (unskilled men, -0.448%; unskilled women, -0.361%), and poultry (unskilled men, -0.359%; unskilled women, -0.276%). The results show the demand for unskilled women to slightly exceed that for unskilled men in all agricultural subsectors (see Figure 8.1). This follows the high initial levels of unemployment associated with unskilled women when compared with that of unskilled men, which leads to a greater employment response (Savoulet 1995). However, the demand for skilled men exceeds that of skilled women. Historically, South African agriculture is capital-intensive sector requiring skilled men workers. However, as seen in Chapter 4, the agricultural sector is the second largest employer of unskilled men and women next only to the service sector.

All non-agricultural sectors, except the other-mining, apparel, and chemical sector's which are sectors with linkages to the agricultural subsectors, experience decline of employment of both men and women. The greatest fall occurs in the leather (men by 1.579%, women by –1.381%) and the transport equipment sectors (men by -0.963%, women by –0.802%), paper (men by 0.629%, women by –0.547%), and food (men by -0.772%, women by -0.690%) while other declines slightly generally by less than half of a percentage point. The biggest decline in the non-agricultural sectors is that of men workers who subsequently get absorbed in the agricultural subsectors, mainly in maize and fruit and vegetables (see Table 8.4. Appendix 8). The employment demand for semi-skilled men and semi-skilled women follows that of the unskilled men and women with the extent of demand being greater for the semi-skilled women in all sectors. However, the demand for skilled men exceeds that of the skilled women in all sectors. This is partially explained by the assumption of full employment of skilled men and skilled women while the assumption of unskilled men and women was that of mobility and unemployment.

Figure 8-1 Changes in employment men and women: Doha Round implementation

Factor income earnings

The overall policy scenario does not generate a higher level of demand for agricultural men and women labour of all skill types who are needed to generate further increases in total production and wage income due to general equilibrium effects. As a result, the economy-wide returns to unskilled men and women decline, with returns of men dropping more than that of unskilled women because of their higher initial levels. Through a joint policy, tariff reduction raises income of skilled men labour. However, the outcome is outweighed by the economy-wide decline of skilled men's income due to increase in world price of imports and exports. Economy-wide income of women of all skill types declines, but by less than the decline of the skill types of men. This reflects the increased demand, especially for the unskilled and semi-skilled women labour, when compared with the same skill types of men. Percentage changes in factor incomes are summarised in Table 8.7.

The increased employment demand for unskilled men and unskilled women in the agricultural subsectors leads to improved income for workers employed in such sectors. Wages for unskilled and semi skilled labour do not increase because of it abundant supply. However, economy-wide earnings of men and women fall because of declining employment in many sectors, which moves to a profitable agricultural sector (see Figure 8.1). This drives down returns to workers in those sectors. This outweighs the gains made by unskilled men and women in the agricultural sector. Therefore, the economy-wide returns to unskilled men and

women decline, with returns of women dropping more than that of men. This is due to higher levels of men employed in agriculture when compared to the levels of women.

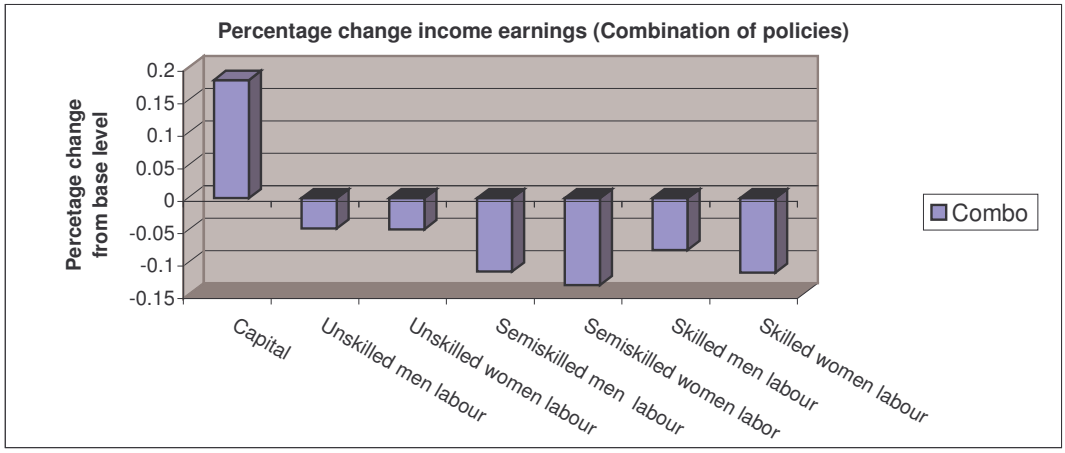

Figure 8-2 Percentage change incomes for men and women after price rises

Source: Results from the model simulation

The increased employment demand for unskilled men and unskilled women in the agricultural subsectors leads to improved income for workers employed in such sectors. Wages for unskilled and semi skilled labour do not increase because of it abundant supply. However, economy-wide earnings of men and women fall because of declining employment in many sectors, which moves to a profitable agricultural sector. This drives down returns to workers in those sectors. This outweighs the gains made by unskilled men and women in the agricultural sector. Therefore, the economy-wide returns to unskilled men and women decline, with returns of women dropping more than that of men. This is due to higher levels of men employed in agriculture when compared to the levels of women.

Household welfare measured by equivalent variation (EV)

The outcome of policy change raises the level of consumption, particularly of high-income households, because such households derive their income from capital whose economy-wide earnings has increased. Low-income households also benefit through improved earnings from supplying labour to agricultural sectors that have improved production and exports. However, increased earnings are offset by economy-wide contraction of employment following increased imports. Although non-agricultural imports improve household welfare, higher

prices of agricultural commodities counteract such improvement mainly for low-income households, which proportionally consume relatively more of such commodities than wealthier households. The combination of tariff reduction and world price rise has negligible positive implications for the welfare of low-income households as seen in Figure 8.3. This outcome suggests that suggests that the low-income households may not actually benefit from an increase in the world price of agriculture.

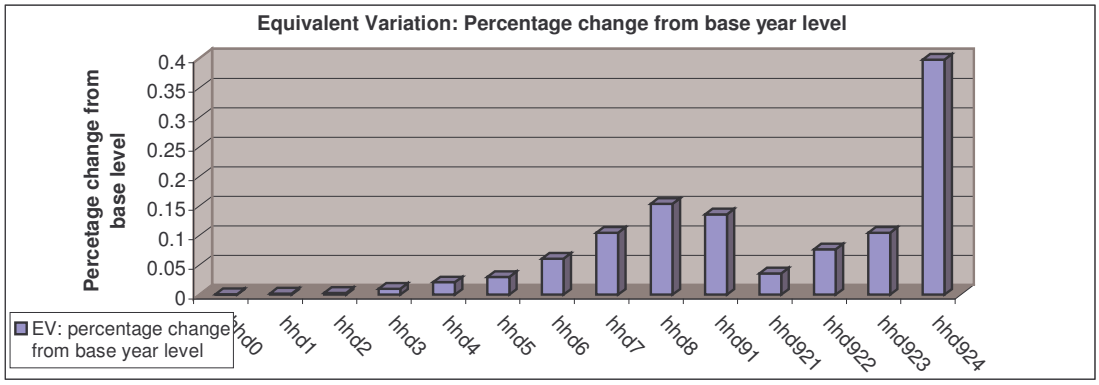

Figure 8-3 Equivalent variation : Percentage change after Doha Round policy simulation

Source: Results from the model simulation

8.4 SINGLE POLICY SIMULATION

This section considers the effects of each individual policy which differs from the first policy simulation that introduced two policies simultaneously. Under this simulation, each policy (i. tariff reduction and ii. world price (import and export) changes) is performed as before only on selected agricultural subsectors and excludes non-agricultural sectors. Each single policy is simulated separately in order to isolate its effects upon the various components of the policy changes. This is because the previous simulation, which is a combination of policies, does not give information about the partial effects of these policies.

8.4.1 The effects of tariff reduction on agricultural commodities

The overall effects of a tariff cut in agriculture leads to a slight increase in GDP which is boosted by exports generated by the exchange rate depreciation and the relatively lower prices of imported inputs. Improved GDP leads to employment demand hence growth in real returns

of capital and skilled labour. This improves savings slightly, which helps to slightly raise investment share of absorption. Increased savings reduce consumption spending of high-income households more than that of low-income households based on their low saving rates. The increase in total real household consumption stems from a combination of the increased employment demand and the growth in real returns of capital and skilled labour.

Government revenue declines slightly, which has negative implications for poor people, particularly women, who depend on government transfers. Regarding the government account, the loss of import duties implies a slight increase in the government deficit. However, the expansion of the government deficit is not balanced by an increase in foreign or private savings, because it is fixed in this model. Instead, there is a crowding-out of investment. The closure used for this simulation implies both fixed wages (unskilled and semi-skilled) and a flexible exchange rate while investment is free to adjust following the changes in savings. Trade liberalisation implies a decrease in the consumer price, which translates into more demand for unskilled and semi-skilled since their wages are fixed.

Tariff reductions on agricultural subsectors induce falls in prices of imported agricultural commodities relative to domestic commodities, which stimulates imports. The highest rise of imports occurs in poultry, dairy, and livestock by 3.89% and 3.03% respectively. Other significant import rises occur in other-agricultural (1.89%), fruits and vegetables (1.09%), and maize subsectors (1.22%) (see Table 8-5 in Appendix 6). The varying levels of change are attributable to the degree of substitution between domestic production and imports, coupled with initial tariff levels of different commodities. The prices of poultry, dairy, and livestock fall more than the prices of crops, because of their relatively higher tariff rates in the base year level. The low import associated with maize is not surprising considering low import shares and the fact that South Africa is a net exporter of maize. A policy change in the agricultural sector has indirect impact on the non-agricultural sector. For example, import rises in most non-agricultural sectors while declining slightly by less than a tenth of a percentage point in plastics, glass, chemical, food, other mining, gold, construction and trade.

In order to maintain a balanced current account, exports rise in order to compensate for the increase in imports. The exports of maize, fruit, and vegetables, however, decline due to the rise in the price of domestic intermediate goods and due to the increase in imports. Other agricultural subsectors experience no change in exports due to their low export-intensities

from the base level. Exports increase in the non-agricultural export intensive sectors of gold, other-mining, iron, coal, non-ferrous, leather, chemicals, and furniture due to increase in export price coupled with a slight depreciation of the exchange rate. Exports demand together with reduced price of imported intermediate inputs, help to increase domestic production.

Tariff reduction exposes the agricultural industry and places it under competitive pressures, thus ensuring efficiency and perfectly competitive prices. Such a pricing system leads to welfare-enhancing effects of agricultural commodity consumers. Faced with competition from imports, domestic agricultural producers respond by reducing their production, with the rate of reduction governed by the substitutability between domestic goods and imports. The most significant reduction in production occurs in wheat followed by other agriculture, while production declines slightly by less than a percentage point in the maize, dairy/livestock and poultry subsectors.

Apart from direct policy effects, the model indicates economy-wide indirect effects on sectors that were not subjected to tariff reduction. For example, due to agricultural linkages with other sectors, the tariff reduction on agricultural subsectors leads to output contraction in the food sector which utilises agricultural products in its production. Other output declines occur in water, a major agricultural input used for irrigation purposes, and in the chemical sector which provides herbicides in agricultural production. Other declines, which are related to rising imports, occur in beverage and tobacco (-0.017%), textile (-0.002%), leather (-0.350%), footwear, nonferrous (-0.009%), wood, paper (-0.107%), and chemical sectors (-0.048%). In the services sectors, output decline occurs only in the hotel services (-0.116%) while other services rise slightly or hold steady.

The rise in output in some sectors following tariffs reduction is partly due to the rise in exports, which benefit from the depreciation of the exchange rate induced by increased imports. Significant increase in production occurs mainly in gold, other mining, leather, and transport equipment, which are commodities with higher relative prices, thus higher output, and consist of large export shares in the base year levels. These sectors are mostly non-importing, particularly gold and other mining. The relocation of labour from these sectors to agriculture does not deter production because these sectors use more capital relative to labour in their production process.

Table 8.1 Percentage changes quantity and price following tariff reduction

Percentage Change Quantity and Prices (Tariff Reduction)										
Sector	Output	Price output	Import	Price imports	Domestic sales	Prices of Domestic sale	Export	Price of export	Intermediate	Price of intermediate
Maize	-0.494	-0.33	7.554	-0.33	-0.949	-0.506	0.201	0.016	-0.496	-0.662
Wheat	-2.271	-3.819	27.735	-3.819	-2.254	-3.542	0	0	-2.298	-10.197
Fruit /veg	-0.245	-0.306	6.94	-0.306	-0.436	-0.335	1.088	0.023	-0.245	-0.463
Poultry	-0.62	0.021	7.098	0.021	-0.606	0.012	0	0	-0.623	0.03
Dairy/Lvstk	-0.673	0.093	8.262	0.093	-0.66	0.079	0	0	-0.676	0.242
Other/Agricu	-1.034	-0.714	12.74	-0.714	-1.033	-0.666	0	0	-1.044	-1.642

Source: study policy simulation results

The changes in commodity production are determined by the variations in exports and domestic commodities. A further decline of the domestic commodity production is offset by the rise in the exports of non-agriculture such as other mining, gold, food, transport equipment, and leather. Except for poultry, diary and livestock, domestic consumption of other agricultural, manufacturing and services output rises with tariff cut. This follows the enhanced consumers' budget through improved real purchasing power due to rise in imports.

8.4.2 Factors of production: tariff reduction

The allocation of capital and labour follows changes in their relative prices. Producers, facing lower net prices, prefer to produce fewer import-competing goods (i.e. agriculture) and to produce more of manufacturing and services goods. The agricultural tariff cut policy reallocates resources from exports to more imports, which results in a larger composite goods supply. An improved composite goods supply (although smaller with less than a percentage point in all agricultural subsectors and non-agricultural sectors) helps the economy become more efficient in consumption and production.

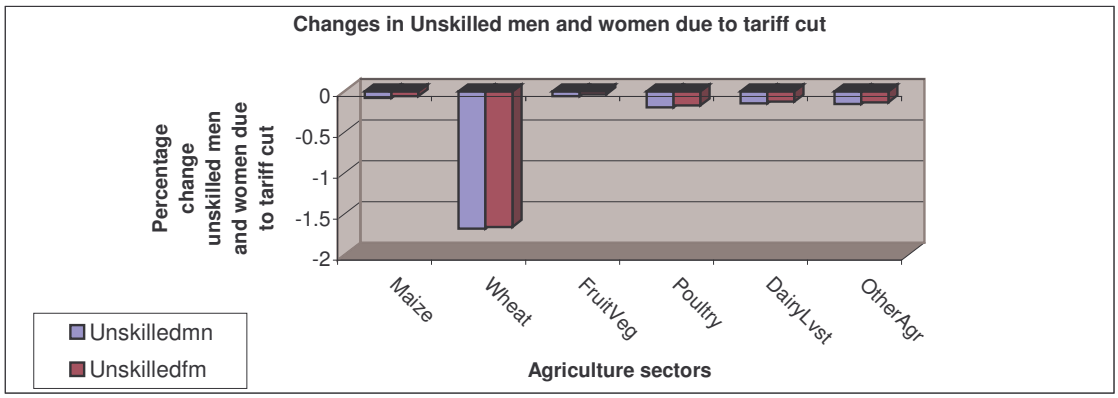

Figure 8-4 Percentage change in the unskilled men and women due to tariff cut

Source: results of model simulation

Employment in agricultural subsectors declines following a tariff cut, most notably in the wheat sector (-2.888%) and slightly by less than a tenth of a percentage point in the maize, fruits and vegetables, poultry and other agriculture sectors. The employment decline is due to the contracting sectors brought about by increased imports in the economy. The indirect effect of a tariff cut on selected agricultural subsectors is the slight reduction of employment in the non-agricultural sectors of food, textile, wood, leather, paper, non-ferrous, chemical, water, and service sectors of hotel and trade, which are sectors that have increased imports. Employment, however, increases although slightly in all other mining, manufacturing and service sectors which have increased their exports. This supports the conventional international trade theory which states that trade liberalisation shifts the structure of employment away from import-competing sectors towards export-competing sectors.

A tariff reduction induces a drop of all types of skills employed in agricultural subsectors, in particular the wheat sector (see Table 8.2), because of reduced domestic demand due to higher imports levels. All skill types of labour declines in non-agricultural sectors of food, leather and trade. However, skilled labour declines in these and in many other sectors such as food, beverage and tobacco, textile, apparel, leather, footwear, wood, paper, print, chemical, other chemical, rubber, plastic, glass, nonferrous, metal product, scientific, metals, transport, and furniture. These are mostly labour-intensive sectors that utilise more of the unskilled labour. Some of the labour that is released from agricultural sectors relocates to other sectors and results show increased labour demand of all skill types with unskilled labour benefiting more

than other types of skills in most of the non-agricultural manufacturing and service sectors. Exporting sectors especially mining, attract unskilled workers which offsets the employment decline in above-mentioned sectors.

Table 8.2 Factor of production (labour: men and women)

	Labour Total	Unskilled labour	Semi-skil labour	Skilled labour	Unskilled men	Unskilled women	Semiskille men	Semiskille women	Skilled men	Skilled women
Maize	-0.767	-0.72	-0.761	-0.823	-0.742	-0.66	-0.763	-0.751	-0.825	-0.816
Wheat	-7.355	-7.306	-7.351	-7.41	-7.335	-7.259	-7.355	-7.343	-7.412	-7.405
Fruit Vegetables	-0.377	-0.36	-0.41	-0.473	-0.392	-0.309	-0.413	-0.4	-0.474	-0.466
Poultry	-0.541	-0.505	-0.54	-0.604	-0.524	-0.442	-0.545	-0.532	-0.606	-0.598
Dairy Livestock	-0.484	-0.456	-0.492	-0.552	-0.472	-0.39	-0.493	-0.48	-0.555	-0.546
Other Agriculture	-1.763	-1.72	-1.795	-1.856	-1.776	-1.695	-1.798	-1.785	-1.858	-1.85

Source: Simulation results

With regards to gender, a tariff reduction reduces the demand for unskilled men and women in the agricultural subsectors. Women's employment, of all skill types, declines slightly relative to the decline of men's labour (see Table 8.2). This is partially due to higher initial levels of unskilled men employment relative to women in the agricultural subsectors. The greatest fall is that of skilled men followed by skilled women while the smallest fall is with the unskilled women. In the non agricultural sectors, the highest rise is that of unskilled women mostly in the mining, coal, gold, when compared with skill rises in the manufacturing and service sectors. The reduction of tariffs on agricultural goods raises the average demand of labour in most women-intensive sectors which leads to the economy-wide rise in the demand for women labour and which rises more than the demand for men labour. However, the increased participation of unskilled women workers in manufacturing and service employment is partly offset by the decline for women employment in agricultural production.

The reallocation of women employment from agriculture to the manufacturing sector, though small, is a positive effect, because the non-agricultural sectors generally provide better working conditions than the agricultural sector (Fontana & Wood 2000). The economy-wide rise of employment of unskilled women exceeds that for semi-skilled and skilled women indicating variations between different women categories. The gender impact of tariff reduction appears to be more positive for South African manufacturing and service sectors than in agriculture. Women, especially unskilled women, generally gain in terms of relatively increased employment in the manufacturing sectors.

Figure 8-5 Percentage change earning tariff reduction selected agricultural sectors

Source: Model simulation

With tariff reduction, factor returns to capital increase economy-wide. On the other hand, earnings for all skill types of men and women slightly decline with women of all skill types losing the most than men of the same skills. This follows the fact that agriculture employs a substantial number of men than women. Although both men and women obtain employment in non-agricultural sectors after job losses in the agricultural sectors, such gains do not outweigh losses incurred in the agricultural sector. The loss of income earnings incurred by men and women labour is partly explained by the contraction of their employment in the agricultural sectors, due to decreased production.

What Elson (1995) terms "*male breadwinner*" syndrome could explain the income gap between men and women with the same skills, for example, men income fall less compared with that of women due to tariff reduction. The male breadwinner syndrome justifies low pay for women, because women pays are regarded as supplement to that of men, who are widely regarded as family breadwinners.

A tariff fall leads to a decline in the relative prices of composite goods due to increased cheap imports, which benefits most households in terms of increased consumption. This is given by positive equivalent variations for households. In addition, the rise in income earnings for capital improves consumption mainly for high-income households. The price and income effects of trade liberalisation improve welfare of both low and high-income households.

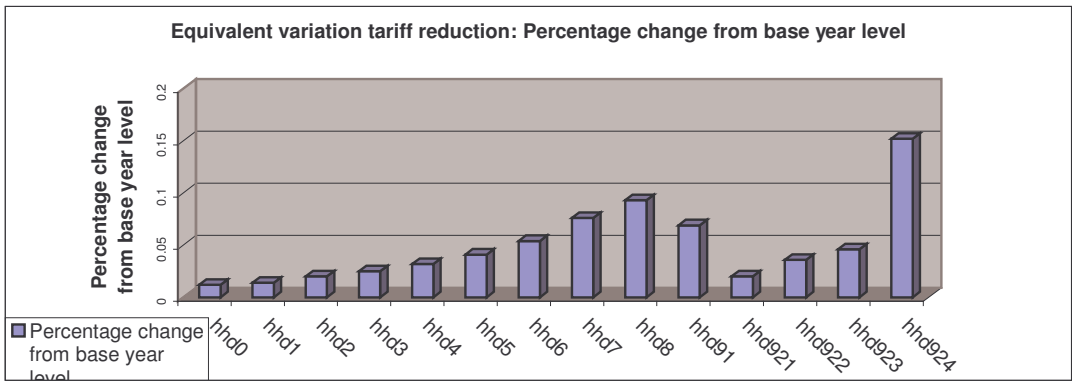

Figure 8-6 Results of equivalent variation: tariff reduction

Source: Policy simulation

8.5 EFFECTS OF WORLD PRICE OF AGRICULTURE IMPORTS RISE

The rise in the world price of agricultural imports reduces imports (-0.2%), resulting in the slight fall of GDP due to expensive imports needed in the production process and for consumption. Reduced imports, particularly consumables, lead to decrease in total household consumption (-0.1%). As imports of agricultural fall, the agricultural import bill slightly increases, forcing a slight appreciation (-0.1%) of the currency. As a result, exports also fall slightly (-0.043%). Government revenue falls slightly (-0.110%) because of exports decline which slightly reduces government expenditure (-0.111%) and consumption share of absorption (-0.002 %).

The rise in the world price of imports reduces the imports of all agricultural commodities considerably. For example, great declines occur in wheat (-18.733%), in maize (-14.243%), in fruit and vegetables (-12.996%), in other agriculture (-9.888%), in poultry (-6.916%), and in dairy and livestock (-5.995 %). The effects of agricultural world imports price rise induce indirect effects in non-agricultural sectors. For example, imports decline in food, apparel, chemicals and water which are sectors with close linkage with agriculture.

Rising prices of imports force domestic consumers to switch from agricultural imports to relatively cheaper domestically produced sources of supply. The increased demand for domestically produced products leads to an increase in domestic production which raises output. The output rises significantly in the agricultural subsector of maize (1.043%), while

rising slightly in wheat (0.645%), other-agriculture (0.632%) and fruit and vegetables (0.218%). Other subsectors such as dairy and livestock (-0.314%) and poultry (-0.075%) experience output declines. The differences reflect shifting of resources towards profitable commodities of maize and fruit and vegetables. The increase in domestic demand leads to rise of prices for maize and wheat. The rise of agricultural commodity prices, especially maize, has negative consumption effects for many households who use maize as their staple food. The indirect effects of increased prices of agricultural imports are felt in linked non-agricultural sectors. For example, domestic sales improve in petroleum and in the scientific and communication equipment sectors. Transportation is the service that experiences increased demand after the policy change. Some of these commodities are used as intermediates in the agricultural subsectors.

Exports of maize and fruits and vegetables fall by a significant amount that affects South Africa negatively because the country is a net exporter of agricultural commodities. The labour-intensive sectors of leather, footwear, wood, print, and rubber experience export falls based on their low export shares and their increased domestic demand as they are substituted for expensive agricultural imports. The increase in domestic demand leads to increase in imports in many of the non-agricultural manufacturing sectors while falling in food, apparel, chemical, plastic, glass, non-metal and all of the service sectors due to low import levels and their linkages with the agricultural sector. Export rises in the export-oriented sectors of mining and other manufacturing sectors.

The increase in the price of agricultural imports increases the relative demand for labour by stimulating import-substituting production in agriculture. However, improved employment demand in agriculture is offset by employment fall in manufacturing and services sectors as seen in sectors such as food, beverages and tobacco, textiles, leather, footwear, wood, paper, printing, rubber, plastic, glass, chemicals, vehicle, transport equipment, furniture, construction, trade services, non-ferrous, hotel and communication service. Exports fall in these sectors. In addition, these sectors tend to utilise the same type of labour as with the agricultural-subsectors and, therefore, they incur employment declines as labour relocates to agriculture. Labour increases in the export oriented sectors of mining and in other manufacturing sectors (not mentioned above) together with service sectors where output and exports have risen.

The extent of increased demand for labour in the agricultural subsectors follows the rate of output increase in such subsectors. For example, improved expansion in the wheat sector realises greater increase in labour, while labour rises by less than a percentage point in other-agriculture and in the maize sector following their moderate rise of output.

The demand for unskilled labour exceeds that of semi-skilled and skilled labour in all the agricultural subsectors. Employment demand of unskilled, semi-skilled and skilled women labour slightly exceeds that of unskilled, semi-skilled and skilled men in all of the agricultural sectors after the policy changes. Increased demand for unskilled women follows lower wages associated with such skills from the base year level. In addition, most unskilled women are employed in supporting positions which are highly sought after as production and output rise.

Economy-wide income of all factors, including returns for capital fall because of economy-wide employment fall which offsets income increase due to employment rise in the agricultural subsectors. The loss of income due to declining employment, especially in the manufacturing and service sectors, follows their declining output.

The rise of agricultural imports leads to low-income earnings for the workers, especially the unskilled women labour whose income drops more than that of other skill types. This is because women labour increase in the import substituting production is offset by economy-wide employ losses in the manufacturing and service sectors. The income for the skilled men declines less than that of other skill types indicating their higher initial wages level. This counteracts the falling income from job reductions in the manufacturing and services sectors. The rate of income fall for skilled men is similar to that of skilled women reflecting wage equalisation between skilled men and women.

8.6 EFFECTS OF WORLD PRICE OF AGRICULTURAL EXPORTS RISE

The increase in world price of agricultural exports slightly boosts GDP (0.082%), prompted by slightly increase of imports (0.342%) and rising agricultural exports although economy-wide exports drop (-0.214%) because increase in world price of agricultural exports yield a slight appreciation of the exchange rate.

Imports rise mitigates the pressure of the currency appreciation. However, as the world price of agricultural exports rises, the world price of imports rise too, thus putting downward

pressure on the domestic demand for agricultural imports which exerts more pressure for the exchange rate to appreciate.

Agricultural output improves, and domestic producers shift from production for the domestic market towards exports, which improves the trade balance, leading to exchange rate appreciation. As imports of non-agricultural commodities increase, private consumption rises (0.043%) due to the income effect. The increase of agricultural world price raises government income (0.061%), supported by increase in private consumption and declining government consumption (-0.081%) due to high commodity prices. Revenue for government rises slightly based on rising world price of exports compared with government revenue rise due to world price of import rises.

Despite the shared forces of increase in world price of exports and imports, the overall outcome related to the agricultural world trade price increase is smallest, because the real magnitude of the world price changes is quite small, as seen by a slight exchange appreciation

The outcome related to agricultural world price rises exerts pressure on demand for domestically produced commodities, as reflected by the increase in production of exportable agricultural commodities. The results show substantial increased exports for maize (9.900%) and fruit and vegetables (26.975%). These two crops have high initial export shares compared with other commodities. Non-agricultural commodities with initial high export shares such as iron, non-ferrous and other mining also witness their exports rise while the exports of other manufacturing fall significantly. For example, food export falls by –2.564% and leather –1.609%, resulting in overall economy-wide decline in exports. Imports of maize (9.426%) and fruits and vegetables (5.908%) rise, while import of other crops rise by less than a percentage point. In addition, imports for manufacturing and service sectors increase greatly and, as expected, imports in export-oriented sectors of mining, iron and non-ferrous falls or remain steady. Increased imports are partly due to increased demand as domestic demander substitute expensive agricultural commodities to cheaper imports.

An increase in the world price of exports encourages producers to shift output towards the exports and away from sale to the domestic output market. As a result, domestic market sales in the agriculture and in most of the manufacturing decline. For example, food production drops by -0.68% while leather falls significantly by –1.223%. The results show substantial improved production for commodities with higher export price such as maize (2.547%)

and fruit and vegetables (2.309%) while production of other agricultural subsectors declines. However, production increases in the other mining, non-metal, metal products, electrical machinery, communication machinery, machinery, scientific, other industry, water and in most of the service sectors, except for trade, finance and hotel which are the major labour employing service sectors. This causes the trade balance to improve, leading to an exchange rate appreciation.

The decline in domestic demand for all-agricultural subsector commodities has a negative effect on domestic consumption although this is small due to the small income effect. Domestic demand falls also in the food, beverage and tobacco, leather, wood, paper, chemical, plastic, glass, non-ferrous, electricity, water, and trade. This is partly due to the reallocation of resources from these sectors to the exportable agriculture. Increased domestic demand occurs in the other manufacturing and services sectors albeit slightly, specifically in leather, mining, apparel, petrol, non metal, irons and in service sectors. This is partly due to increased exports of these sectors based on slightly increased intermediate imports.

In general, a rise in world prices of agriculture exports reduces consumption of agricultural commodities and related sector's products such as food. However, composite commodities increases in some manufacturing and services sectors which restore consumption by households.

The growth in production affects positively on employment in the agricultural and food industries, with factor demand increasing marginally. Labour increases greatly in the agricultural subsectors of maize (15.239%), fruits and vegetable (6.454%), and slightly decline in dairy livestock, in the wheat and in the poultry sectors because of their low export shares. Factor demand in manufacturing and service either remains unchanged or decreases marginally because of the negative welfare effects associated with costly imported commodities. The non-agricultural sectors that reduce labour considerably include gold, leather and paper. This is because the type of labour they utilize the most is the most easily transferable to the agricultural sector. For example, labour declines by –0,733% in food and by –0.572% in beverage and tobacco; the only sector that witnesses labour increase is the apparel. Factor demand in other industries either remains unchanged or declines marginally as a result of the positive welfare effects associated with cheaper imported commodities. Manufacturing and service sectors lose their employment to the expanding exporting

agricultural sector. Thus, there is reallocation of resources from other sectors to the expanding agriculture sector. Employment rises in services sectors except in the hotel where it drops. This is related to increased prices of agricultural commodities, which are inputs in the hotel sector. Agriculture does not indicate high levels of demand for transportation service despite its growth, which indicates low domestic demand levels.

Rise in world prices of exports increases all type of skills in maize and fruit and vegetables, respectively, but reduces it in other sub-agricultural sectors. The unskilled labour benefits the most in terms of employment demand. Indirect employment effect occurs in the service sectors of finance, communication, business and other services due to their association with the expanding agricultural sector.

Unskilled women benefit more than unskilled and semi-skilled men. However, the growth in employment demand of skilled men exceeds that of skilled women in all sectors. This is associated with high capital use levels in the agricultural sector that need to be complemented with the use of skilled labour particularly skilled men.

Capital is sectorally fixed while its returns adjust in order to maintain the employment levels in equilibrium. Capital income rises by (0.228%) because of agricultural exports that utilises a substantial amount of capital. All skill types of labour see their income-earning decline due to an economy-wide decline of their employment demand which is not offset by their increased demand in agriculture. The income of semi-skilled and skilled men and women fall by a small margin relative to that of other skill types.

Figure 8.7 shows the well being of households as measured by equivalent variation. The figure indicates that households benefit due to tariff reduction and the increase in world export prices, while their welfare declines with the increase in world price of imports. The world price of exports rise benefits high and middle-income households while hurting low-income household which depends on agricultural commodities for their consumption. Higher prices associated with agricultural prices reduce domestic demand of agricultural prices and thus raises domestic prices particularly of the maize commodity. On the other hand, high-income households benefit from increased returns from capital coupled with improved imports of commodities and services, which takes a substantial amount of their expenditure.

In conclusion, an increase in world prices of both imports and exports has a very limited

effect on the domestic economy. Production levels in the food and agricultural sectors increase, leading to a rise in the demand for factors in these sectors. However, most of these gains are offset by decreases in production and hence factor demand in other industries. As a result, the welfare effects of the simulations are very small, with the only real benefit going to producers who can export goods at a higher price.

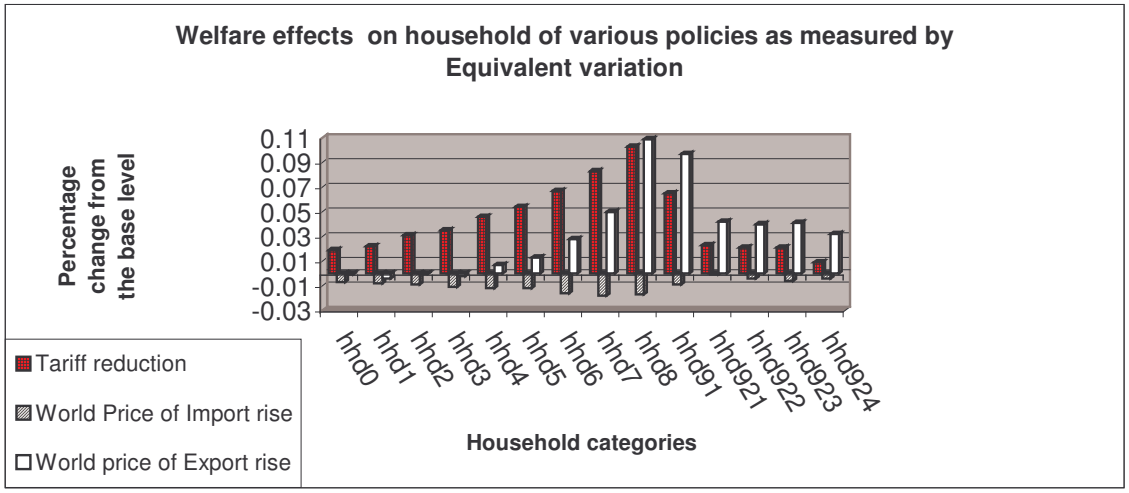

Figure 8-7 Equivalent variation (tariff cut, world price of import and export rise

Source: Simulation study results

8.7 CONCLUSION

South African agricultural producers will likely benefit from the Doha Round of Multilateral Trade Negotiations. Export subsidy reductions by major subsidising countries will raise the export prices of certain agricultural products in South Africa. However, this will have a relatively small effect at aggregate level, with small changes in GDP and exchange rates. This is because of the small contribution of agriculture to GDP. In agriculture, however, sectoral changes in output, trade and employment will be significant if world prices increase and tariffs are reduced simultaneously. In particular, the output of maize and fruits and vegetables, being supported by export growth, will increase significantly.

Expansion of these commodities will absorb workers dropped from other agricultural sectors such as poultry and livestock subsectors. However, the increase in price of maize implies that household resources would have to be diverted away from other expenditure items

towards maize commodity purchase, thus worsening their welfare. For example, low expenditure on consumable goods such as clothing but also capability-building expenditure such as health and education. Maize is the staple food for many households in South Africa and its demand is inelastic so that households cannot easily substitute it for alternative foodstuffs. The rising price of maize thus could have detrimental effects, mainly for the welfare of poor families who spend a great share of their expenditure on maize which is their staple food.

In terms of gender, the study shows that the Doha Round will have positive effects on the promotion of employment of men and women mainly in the subsectors of maize, fruit and vegetables and in the manufacturing and service sectors such as transportation. Employment of unskilled women benefits more than other type of skills of both men and women in both the manufacturing and service sectors. This is due to initial high unemployment levels of women when compared with that of men coupled with low wages from the base year level.

The expansion of fruit and vegetables (horticulture) under Doha Round is expected to benefit unskilled women because of their great concentration in the subsector, for example, a big share of women working in the grapes fields and in small-scale vegetable production. This could enhance their livelihoods.

However, in order to realise benefits, results indicate that higher world prices changes are needed in order to offset the negative effects of the domestic agricultural policy such as tariff reduction on agriculture. As a result, most consumers, especially low-income households which comprise a big percentage of women, will be negatively affected by the increase in world price of maize. These households spend a great share of their income on food, particularly maize for their household (IES 2000). This outcome could threaten the food security, especially for those who do not produce their own food.

Despite anticipated gains from the agricultural trade reforms, there remain gender-biased distortations in the agricultural market and in its distribution of benefits to women. The ability of women producers and workers in South Africa to benefit from the Doha Round depends largely on domestic agricultural policies, which often place them at a disadvantage. For example, high use of capital does not favour women workers.

There is evidence of bias towards capital-using technology with labour and intermediate

goods saving in the South African agriculture. Thus, while trade liberalisation turns agriculture into an efficient sector, the sector exhibits a bias towards capital intensity, which has negative implications for unskilled men and women workers in agriculture. Although the sector is not a greatest employer of men and women, it has multiplier effects across economy.

The limitation for this study is that it does not explicitly model the poorest men and women who are involved in subsistence farming. Since the micro and household enterprises such as subsistence farming for own household consumption are not market-oriented, they are explicitly not captured in the 2000-gendered SAM. The SAM, therefore, shows extremely low extent of women participation in agriculture because it reflects only formal agriculture. This is contrary with the known high level of women involvement in agricultural production particularly in the rural areas. The non-market work, such as subsistence production for home consumption, which is mostly performed by women, in principle could be marketed and included in the measurement of the gross national product (GNP). However, in practice, it is frequently omitted because statistical surveys do not properly count it.

APPENDIX 8

Table 8.3 Percentage change prices and quantities (combination of policies) with fixed capital; skilled labour full employed and mobile while unskilled and semi-skilled labour mobile and unemployed

Commodities	PD	QD	PE	QE	PM	QM	PQQ	QQ	PX	QX	Sectors	PIN	QIN	PV	QV
Maize	7.944	-1.963	15.102	9.100	5.562	1.591	7.660	-1.549	11.594	2.552	Maize	0.171	2.579	27.392	2.579
Wheat	-0.695	-0.993	0.000	0.000	-1.823	3.637	-0.789	-0.615	-0.732	-0.993	Wheat	-0.175	-0.997	-1.695	-0.997
Fruit vegetable	3.701	-1.227	10.545	25.702	3.698	-1.222	3.700	-1.227	5.038	2.465	Fruit vegetable	0.202	2.484	8.558	2.484
Poultry	0.079	-0.510	0.000	0.000	-0.258	0.028	0.055	-0.470	0.105	-0.510	Poultry	0.097	-0.508	0.132	-0.508
Dairy livestock	0.285	-0.600	0.000	0.000	-0.931	1.355	0.195	-0.457	0.327	-0.600	Dairy livestock	0.043	-0.599	0.638	-0.599
Other agriculture	-0.197	-0.390	0.000	0.000	-1.649	1.966	-0.319	-0.196	-0.194	-0.390	Other agriculture	-0.122	-0.386	-0.284	-0.386
Coal mining	-0.266	-0.034	-0.411	-0.323	-0.381	0.084	-0.270	-0.030	-0.322	-0.145	Coal mining	-0.190	-0.145	-0.455	-0.145
Gold mining	-0.247	-0.001	-0.406	-0.320	-0.338	0.044	-0.249	0.104	-0.384	-0.276	Gold mining	-0.130	-0.297	-0.530	-0.297
Other-Mining	-0.482	0.088	-0.411	0.257	-0.392	-0.005	-0.401	0.005	-0.415	0.248	Other-Mining	-0.234	0.253	-0.561	0.253
Food	0.380	-0.473	-0.442	-2.511	-0.373	0.083	0.283	-0.402	0.474	-0.708	Food	0.826	-0.713	-0.802	-0.713
Bev / tobacco	0.005	-0.134	-0.443	-1.231	-0.371	0.747	-0.027	-0.058	0.039	-0.272	Bev / tobacco	1.211	-0.271	-1.835	-0.271
Textiles	-0.162	-0.125	-0.447	-0.741	-0.374	0.474	-0.220	0.039	-0.181	-0.211	Textiles	-0.125	-0.219	-0.271	-0.219
Clothing	-0.165	0.039	-0.523	-0.825	-0.354	0.512	-0.191	0.104	-0.129	-0.038	Clothing	-0.104	-0.001	-0.200	-0.001
Leather	-0.078	-0.810	-0.415	-1.497	-0.386	0.548	-0.186	-0.337	-0.236	-1.142	Leather	0.016	-1.172	-0.755	-1.172
Footwear	-0.189	-0.261	-0.495	-0.920	-0.368	0.961	-0.249	0.147	-0.182	-0.298	Footwear	-0.019	-0.316	-0.505	-0.316
Wood	0.165	-0.103	-0.425	-1.353	-0.383	0.274	0.085	-0.048	0.103	-0.305	Wood	0.276	-0.316	-0.284	-0.316
Paper	-0.078	-0.321	-0.427	-1.059	-0.383	0.800	-0.122	-0.160	-0.133	-0.475	Paper	-0.003	-0.489	-0.404	-0.489
Print	-0.139	-0.113	-0.434	-0.729	-0.381	0.661	-0.185	0.031	-0.145	-0.153	Print	-0.102	-0.137	-0.212	-0.137
Petroleum	-0.259	0.073	-0.434	-0.259	-0.375	0.252	-0.271	0.092	-0.309	-0.008	Petroleum	-0.290	-0.007	-0.293	-0.007
Chemicals	-0.268	-0.088	-0.413	-0.375	-0.391	0.100	-0.313	-0.019	-0.314	-0.177	Chemicals	-0.214	-0.213	-0.345	-0.213
Other -chem	-0.141	-0.009	-0.443	-0.671	-0.373	0.348	-0.205	0.090	-0.147	-0.079	Other -chem	-0.168	-0.055	-0.135	-0.055
Rubber	-0.041	-0.077	-0.435	-0.924	-0.383	0.438	-0.159	0.100	-0.077	-0.210	Rubber	-0.001	-0.218	-0.267	-0.218
Plastic	-0.175	-0.140	-0.423	-0.641	-0.389	0.181	-0.216	-0.079	-0.188	-0.171	Plastic	-0.169	-0.159	-0.213	-0.159
Glass	-0.188	-0.082	-0.454	-0.624	-0.381	0.029	-0.232	-0.056	-0.203	-0.124	Glass	-0.200	-0.136	-0.166	-0.136
Non-metal	0.008	0.199	-0.423	-0.696	-0.388	0.426	-0.062	0.239	-0.003	0.145	Non-metal	-0.163	0.178	0.211	0.178
Iron/steel	-0.392	0.008	-0.422	-0.013	-0.382	0.000	-0.391	0.007	-0.416	-0.001	Iron/steel	-0.289	0.000	-0.687	0.000
Non-ferrous	-0.415	-0.017	-0.411	0.003	-0.391	-0.038	-0.409	-0.022	-0.417	-0.009	Non-ferrous	-0.272	-0.009	-0.617	-0.009

Commodities	PD	QD	PE	QE	PM	QM	PQQ	QQ	PX	QX	Sectors	PIN	QIN	PV	QV
Metal product	-0.211	0.044	-0.419	-0.376	-0.388	0.358	-0.242	0.100	-0.232	0.000	Metal product	-0.282	0.004	-0.147	0.004
Machinery	-0.157	0.260	-0.432	-0.340	-0.377	0.369	-0.304	0.333	-0.252	0.021	Machinery	-0.235	0.026	-0.281	0.026
Electrical Machine	-0.124	0.172	-0.432	-0.486	-0.380	0.366	-0.204	0.232	-0.144	0.091	Electrical Machine	-0.207	0.112	-0.039	0.112
Comm.Equipment	-0.189	0.203	-0.423	-0.280	-0.386	0.351	-0.340	0.317	-0.253	0.061	Comm.Equipment	-0.255	0.067	-0.183	0.067
Scientific equipment	-0.108	0.097	-0.484	-0.947	-0.362	0.338	-0.276	0.256	-0.082	-0.146	Scientific equipment	-0.014	-0.191	-0.258	-0.191
Vehicles	-0.276	-0.028	-0.424	-0.311	-0.383	0.429	-0.319	0.156	-0.311	-0.085	Vehicles	-0.262	-0.084	-0.414	-0.084
Transport Equipmet	-0.179	-0.504	-0.418	-0.991	-0.387	0.385	-0.338	0.171	-0.299	-0.755	Transport equipmet	-0.149	-0.834	-0.514	-0.834
Furniture	-0.074	0.020	-0.491	-1.026	-0.363	0.687	-0.112	0.107	-0.072	-0.193	Furniture	-0.019	-0.183	-0.227	-0.183
Other /Manufacture	-0.173	0.025	-0.468	-0.626	-0.367	0.210	-0.242	0.091	-0.239	-0.168	Other /Manufacture	-0.195	-0.166	-0.314	-0.166
Electricity	-0.187	-0.022	-0.406	-0.460	-0.381	0.076	-0.190	-0.020	-0.196	-0.038	Electricity	-0.135	-0.038	-0.215	-0.038
Water	-0.090	-0.017	-0.406	-0.649	-0.364	0.121	-0.095	-0.014	-0.092	-0.022	Water	-0.151	-0.022	0.036	-0.022
Construction	0.081	0.461	-0.406	-0.515	-0.389	0.698	0.076	0.464	0.080	0.459	Construction	-0.078	0.483	0.393	0.483
Trade	-0.227	-0.043	-0.406	-0.402	-0.384	0.035	-0.228	-0.043	-0.228	-0.045	Trade	-0.131	-0.037	-0.305	-0.037
Hotels	-0.026	0.037	-0.406	-0.723	-0.394	0.222	-0.119	0.083	-0.144	-0.200	Hotels	0.112	-0.202	-0.269	-0.202
Transport service	-0.326	0.106	-0.406	-0.056	-0.406	0.250	-0.342	0.134	-0.337	0.083	Transport service	-0.180	0.083	-0.473	0.083
Communicate.service	-0.114	0.024	-0.406	-0.501	-0.394	0.150	-0.162	0.033	-0.157	-0.003	Communicate.servi	-0.217	-0.003	-0.111	-0.003
Financial service	-0.068	0.030	-0.406	-0.646	-0.406	0.200	-0.080	0.036	-0.089	-0.011	Financial service	-0.095	-0.011	-0.074	-0.011
Business service	-0.006	0.015	-0.406	-0.785	-0.394	0.210	-0.017	0.021	-0.013	0.000	Business service	-0.111	0.016	0.027	0.016
Other service	-0.038	0.021	-0.406	-0.716	-0.390	0.197	-0.049	0.026	-0.049	-0.001	Other service	-0.112	-0.001	0.021	-0.001
Other producers	-0.079	0.017	-0.406	-0.637	-0.394	0.175	-0.093	0.024	-0.089	-0.003	Other producers	-0.122	0.078	-0.103	0.078
Government	-0.107	0.001	-0.406	-0.598	-0.354	0.125	-0.107	0.001	-0.107	0.001	Government	-0.157	0.001	-0.093	0.001

Table 8.4 Percentage change of employment (combination policies): fixed capital; mobile, fully employed skilled while unskilled and semi-skilled mobile with unemployment

Sectors	Total labour	Unskilled labour	Semiskilled labour	Skilled Labour	Unskilled men	Unskilled women	Semiskilled men	Semiskilled women	Skilled men	Skilled women
Maize	15.861	15.902	15.854	15.826	15.876	15.972	15.851	15.866	15.821	15.848
Wheat	-1.765	-1.725	-1.773	-1.795	-1.756	-1.675	-1.778	-1.765	-1.804	-1.780
Fruit Vegetables	6.888	6.903	6.849	6.823	6.869	6.957	6.846	6.860	6.818	6.843
Poultry	-0.364	-0.339	-0.375	-0.399	-0.359	-0.276	-0.380	-0.367	-0.406	-0.383

Sectors	Total labour	Unskilled labour	Semiskilled labour	Skilled Labour	Unskilled men	Unskilled women	Semiskilled men	Semiskilled women	Skilled men	Skilled women
Dairy Livestock	-0.207	-0.182	-0.218	-0.238	-0.198	-0.116	-0.220	-0.207	-0.246	-0.222
Other Agriculture	-0.423	-0.387	-0.462	-0.484	-0.443	-0.361	-0.465	-0.452	-0.491	-0.468
Coal mining	-0.302	-0.287	-0.309	-0.334	-0.289	-0.206	-0.310	-0.297	-0.337	-0.313
Gold mining	-0.481	-0.474	-0.498	-0.523	-0.477	-0.395	-0.499	-0.486	-0.525	-0.501
Other mining	0.049	0.061	0.035	0.009	0.056	0.139	0.034	0.047	0.008	0.032
Food processing	-0.777	-0.752	-0.790	-0.816	-0.772	-0.690	-0.793	-0.780	-0.819	-0.796
Beverage / tobacco	-0.667	-0.638	-0.669	-0.694	-0.651	-0.569	-0.673	-0.660	-0.699	-0.675
Textiles	-0.228	-0.214	-0.249	-0.277	-0.234	-0.152	-0.256	-0.243	-0.282	-0.258
Clothing	0.009	0.030	-0.030	-0.053	-0.017	0.066	-0.038	-0.026	-0.065	-0.041
Leather product	-1.443	-1.407	-1.478	-1.500	-1.463	-1.381	-1.484	-1.471	-1.510	-1.487
Footwear	-0.396	-0.365	-0.442	-0.465	-0.428	-0.346	-0.449	-0.437	-0.476	-0.452
Wood prod	-0.332	-0.315	-0.349	-0.372	-0.330	-0.248	-0.351	-0.339	-0.378	-0.354
Paper prod	-0.625	-0.584	-0.647	-0.666	-0.629	-0.547	-0.650	-0.637	-0.676	-0.653
Printing	-0.165	-0.120	-0.164	-0.184	-0.146	-0.063	-0.167	-0.155	-0.194	-0.170
Petroleum	-0.078	-0.040	-0.079	-0.105	-0.059	0.024	-0.080	-0.068	-0.107	-0.083
Chemicals	-0.322	-0.287	-0.321	-0.347	-0.301	-0.219	-0.323	-0.310	-0.349	-0.325
Other chemical	-0.052	-0.003	-0.057	-0.082	-0.039	0.044	-0.060	-0.047	-0.087	-0.063
Rubber product	-0.250	-0.205	-0.282	-0.305	-0.263	-0.180	-0.284	-0.271	-0.311	-0.287
Plastic prod	-0.169	-0.130	-0.196	-0.221	-0.180	-0.098	-0.202	-0.189	-0.228	-0.204
Glass product	-0.144	-0.124	-0.150	-0.176	-0.132	-0.049	-0.153	-0.140	-0.180	-0.156
Non-metal	0.412	0.443	0.393	0.366	0.411	0.494	0.389	0.402	0.363	0.386
Iron & steel	-0.047	-0.031	-0.054	-0.068	-0.035	0.048	-0.056	-0.043	-0.083	-0.059
Non-ferrous	-0.051	-0.030	-0.054	-0.081	-0.036	0.047	-0.057	-0.044	-0.084	-0.060
Metal product	0.003	0.017	-0.005	-0.028	0.015	0.098	-0.007	0.006	-0.033	-0.009
Machinery	0.013	0.044	0.007	-0.018	0.026	0.108	0.004	0.017	-0.022	0.001
Electrical machinery	0.176	0.214	0.160	0.130	0.177	0.260	0.155	0.168	0.129	0.153
Communication. equipmen	0.069	0.109	0.044	0.019	0.060	0.142	0.038	0.051	0.012	0.035
Scientific equipment	-0.234	-0.199	-0.247	-0.276	-0.235	-0.152	-0.256	-0.244	-0.283	-0.259
Vehicles	-0.134	-0.095	-0.147	-0.173	-0.127	-0.044	-0.148	-0.136	-0.175	-0.151
Transport equi	-0.919	-0.893	-0.923	-0.949	-0.903	-0.822	-0.925	-0.912	-0.951	-0.927
Furniture	-0.198	-0.18	-0.212	-0.237	-0.193	-0.111	-0.215	-0.202	-0.241	-0.217

Sectors	Total labour	Unskilled labour	Semiskilled labour	Skilled Labour	Unskilled men	Unskilled women	Semiskilled men	Semiskilled women	Skilled men	Skilled women
Other manufacture	-0.239	-0.204	-0.255	-0.275	-0.239	-0.157	-0.261	-0.248	-0.287	-0.263
Electricity; gas	-0.082	-0.039	-0.079	-0.108	-0.061	0.021	-0.083	-0.070	-0.109	-0.085
Water	0.060	0.109	0.063	0.034	0.081	0.163	0.059	0.072	0.033	0.056
Construction	0.758	0.775	0.745	0.719	0.766	0.849	0.744	0.757	0.717	0.741
Trade services	-0.117	-0.052	-0.122	-0.146	-0.105	-0.022	-0.127	-0.114	-0.153	-0.129
Hotels	-0.266	-0.220	-0.267	-0.29	-0.252	-0.169	-0.273	-0.260	-0.300	-0.276
Transport service	-0.089	-0.065	-0.090	-0.113	-0.070	0.013	-0.091	-0.079	-0.118	-0.094
Comm. service	0.010	0.048	0.012	-0.018	0.026	0.109	0.005	0.018	-0.022	0.002
Financial service	0.014	0.074	0.021	-0.006	0.037	0.120	0.015	0.028	-0.011	0.013
Business service	0.087	0.163	0.099	0.073	0.114	0.197	0.092	0.105	0.066	0.090
Other services	0.080	0.159	0.081	0.061	0.094	0.177	0.073	0.085	0.046	0.070
Other producer	0.095	0.138	0.094	0.073	0.111	0.193	0.089	0.102	0.062	0.086
Government	0.010	0.076	0.021	-0.003	0.039	0.122	0.017	0.030	-0.009	0.015

Table 8.5 Percentage change quantities and prices due to tariff cut: fixed capital;mobile skilled men and women

Unskilled and semi-skilled mobile with unemployment

Commodities	PD	QD	PE	QE	PM	QM	PQQ	QQ	PX	QX	Sectors	PINT	QINT	PVA	QVA
Maize	-0.506	-0.949	0.016	0.201	-5.516	7.554	-1.116	0.017	-0.330	-0.494	Maize	-0.084	-0.496	-0.662	-0.496
Wheat	-3.542	-2.254	0.000	0.000	-9.787	27.735	-4.121	0.113	-3.819	-2.271	Wheat	-0.286	-2.298	-10.197	-2.298
Fruit vegetable	-0.335	-0.436	0.023	1.088	-3.839	6.940	-0.633	0.149	-0.306	-0.245	FruitVegetable	-0.088	-0.245	-0.463	-0.245
Poultry	0.012	-0.606	0.000	0.000	-4.567	7.098	-0.337	-0.064	0.021	-0.620	Poultry	0.02	-0.623	0.03	-0.623
Dairy lvst	0.079	-0.660	0.000	0.000	-5.179	8.262	0.583	-0.033	0.093	-0.673	DairyLvst	-0.04	-0.676	0.242	-0.676
Other agr	-0.666	-1.033	0.000	0.000	-8.454	12.740	-1.351	0.066	-0.714	-1.034	OtherAgriculture	-0.094	-1.044	-1.642	-1.044
Coal mining	-0.030	0.033	0.016	0.121	-0.006	0.018	-0.029	0.043	-0.011	0.078	Coal Mining	-0.072	0.078	0.058	0.078
Gold mining	-0.187	0.002	0.012	0.424	-0.037	-0.073	-0.183	0.013	-0.015	0.345	Gold Mining	-0.033	0.342	-0.007	0.342
Other-Ming	-0.121	0.127	0.016	0.391	0.002	0.027	-0.011	0.040	0.009	0.418	Other-Mining	-0.062	0.418	0.065	0.418
Food	0.164	-0.171	0.042	-0.600	-0.012	-0.060	0.142	-0.173	0.230	-0.239	Food	-0.575	-0.241	2.944	-0.241
Bev / tobacco	0.024	-0.008	0.043	-0.082	-0.013	0.063	0.021	-0.016	0.072	-0.032	Bev / Tobbaco	-0.19	-0.032	0.465	-0.032
Textiles	0.018	0.000	0.046	-0.018	-0.011	0.071	0.010	0.013	0.053	-0.012	Textiles	-0.043	-0.019	0.262	-0.019

Commodities	PD	QD	PE	QE	PM	QM	PQQ	QQ	PX	QX	Sectors	PINT	QINT	PVA	QVA
Clothing	-0.088	0.115	0.110	0.492	-0.025	-0.059	-0.080	0.077	-0.063	0.133	Clothing	-0.02	0.154	-0.141	0.154
Leather	0.109	-0.181	0.019	-0.388	-0.002	0.305	0.070	-0.014	0.072	-0.283	Leather	0.066	-0.295	0.11	-0.295
Footwear	-0.004	0.010	0.087	0.082	-0.015	0.073	-0.008	0.024	0.050	0.004	Footwear	-0.035	-0.011	0.239	-0.011
Wood	0.059	0.025	0.028	-0.062	-0.005	0.084	0.050	0.046	0.067	0.025	Wood	-0.287	0.022	0.728	0.022
Paper	0.046	-0.027	0.029	-0.108	-0.005	0.155	0.039	-0.005	0.059	-0.048	Paper	-0.099	-0.052	0.43	-0.052
Print/pub	-0.027	0.053	0.035	0.151	-0.006	-0.023	-0.023	0.031	-0.013	0.050	Print/pub	-0.014	0.055	-0.007	0.055
Petroleum	-0.012	0.014	0.036	0.039	-0.010	0.015	-0.011	0.017	0.024	0.024	Petroleum	-0.024	0.024	0.097	0.024
Chemicals	-0.001	-0.056	0.018	-0.031	0.001	-0.058	0.000	-0.055	0.008	-0.045	Chemicals	-0.027	-0.069	0.109	-0.069
Other Chemic	-0.038	0.044	0.043	0.162	-0.011	-0.007	-0.031	0.022	-0.013	0.047	OtherChem	-0.029	0.06	0.01	0.06
Rubber	-0.090	0.145	0.036	0.392	-0.004	0.008	-0.061	0.093	-0.070	0.177	Rubber	-0.134	0.183	0.096	0.183
Plastic	-0.102	0.042	0.026	0.300	0.000	-0.106	-0.083	0.018	-0.095	0.063	Plastic	-0.04	0.08	-0.128	0.08
Glass	-0.022	0.000	0.052	0.129	-0.006	-0.005	-0.018	0.003	-0.008	0.015	Glass	-0.008	0.008	-0.005	0.008
Non-metal	-0.034	0.023	0.027	0.144	-0.001	0.053	-0.028	0.069	-0.026	0.079	Non-metal	-0.044	0.09	-0.002	0.09
Iron/steel	0.019	0.050	0.025	0.037	-0.005	0.101	0.016	0.083	0.030	0.074	Iron/steel	-0.021	0.073	0.163	0.073
Non-ferrous	0.039	0.014	0.016	-0.045	0.001	0.069	0.029	0.046	0.033	0.016	Non-Ferro	0.001	0.007	0.086	0.007
Metal prod	-0.040	0.041	0.023	0.162	-0.001	0.003	-0.033	0.059	-0.029	0.083	Metal prod	-0.003	0.083	-0.058	0.083
Machinery	-0.035	0.037	0.034	0.151	-0.008	0.083	-0.017	0.087	0.004	0.135	Machinery	-0.016	0.143	0.027	0.143
Electrical Ma	-0.040	0.042	0.034	0.174	-0.006	0.070	-0.029	0.087	-0.021	0.110	ElectricaM	-0.023	0.111	-0.018	0.111
Comm.Equipt	-0.066	0.069	0.026	0.247	-0.002	0.070	-0.017	0.081	-0.035	0.169	Comm.Equ	-0.014	0.173	-0.09	0.173
Scientific Equi	-0.080	0.096	0.077	0.375	-0.019	0.057	-0.040	0.076	-0.029	0.179	ScienceEq	-0.07	0.211	0.012	0.211
Vehicles	-0.004	0.033	0.027	0.064	-0.004	0.049	-0.004	0.047	0.014	0.052	Vehicles	-0.024	0.05	0.146	0.05
Transport Eq	-0.045	0.237	0.022	0.364	-0.001	0.075	-0.012	0.119	-0.008	0.323	TranspoEq	-0.042	0.348	0.037	0.348
Furniture	-0.022	0.046	0.083	0.151	-0.019	0.038	-0.021	0.044	0.040	0.066	Furniture	-0.045	0.069	0.21	0.069
Other /Manuf	-0.048	0.080	0.064	0.243	-0.016	0.039	-0.036	0.058	0.002	0.121	Other //Manuf	-0.038	0.131	0.107	0.131
Electricity / gas	0.037	0.035	0.012	-0.020	-0.006	0.057	0.037	0.036	0.036	0.034	Electricity /	-0.026	0.034	0.075	0.034
Water	0.039	-0.008	0.012	-0.067	-0.018	0.014	0.038	-0.015	0.039	-0.015	Water	0.016	-0.015	0.091	-0.015
Construction	-0.050	0.004	0.012	0.144	0.000	0.069	-0.050	0.094	-0.050	0.095	Construction	-0.027	0.097	-0.099	0.097
Trade	-0.096	0.031	0.012	0.241	-0.003	-0.014	-0.096	0.032	-0.096	0.033	Trade	-0.009	0.034	-0.165	0.034
Hotels / Cater	0.124	-0.042	0.012	-0.280	0.004	-0.002	0.094	-0.047	0.089	-0.131	Hotels	-0.03	-0.137	0.139	-0.137
Transport serv	-0.120	0.155	0.012	0.414	0.012	-0.076	-0.093	0.112	-0.101	0.196	TransportSe	-0.008	0.196	-0.181	0.196
Comm. servi	-0.009	0.034	0.012	0.069	0.004	0.021	-0.008	0.027	-0.008	0.030	Comm.Service	-0.023	0.03	0.003	0.03

Commodities	PD	QD	PE	QE	PM	QM	PQQ	QQ	PX	QX	Sectors	PINT	QINT	PVA	QVA
Financial servi	0.028	0.032	0.012	-0.011	0.012	0.027	0.027	0.019	0.027	0.017	Finance serv	0.02	0.017	0.035	0.017
Business serv	0.050	0.028	0.012	-0.059	0.004	0.043	0.048	0.021	0.049	0.019	Business	-0.007	0.018	0.075	0.018
Other serv	0.019	0.014	0.012	-0.009	0.000	0.000	0.018	-0.009	0.019	-0.010	Other serv	-0.02	-0.01	0.06	-0.01
Other proders	-0.035	0.073	0.012	0.158	0.003	0.041	-0.033	0.060	-0.033	0.063	Ot/produce	-0.015	0.107	-0.06	0.107
Government	-0.043	0.001	0.012	0.106	-0.025	-0.008	-0.043	0.001	-0.043	0.001	Governent	-0.021	0.001	-0.049	0.001

Table 8.6 Percentage change employment due tariff cut, fixed capital; skilled labour mobile, fully employed; other labour mobile and unemployed

Sector	Total Labour	Unskilled labour	Semi-skilled labour	Skilled labour	Unskilled Men	Unskilled women	Semiskilled men	Semiskilled women	Skilled men	Skilled women
Maize	-0.767	-0.720	-0.761	-0.823	-0.742	-0.660	-0.763	-0.751	-0.825	-0.816
Wheat	-7.355	-7.306	-7.351	-7.410	-7.335	-7.259	-7.355	-7.343	-7.412	-7.405
Fruit Vegetables	-0.377	-0.360	-0.410	-0.473	-0.392	-0.309	-0.413	-0.400	-0.474	-0.466
Poultry	-0.541	-0.505	-0.540	-0.604	-0.524	-0.442	-0.545	-0.532	-0.606	-0.598
Dairy Livestock	-0.484	-0.456	-0.492	-0.552	-0.472	-0.390	-0.493	-0.480	-0.555	-0.546
Other Agriculture	-1.763	-1.720	-1.795	-1.856	-1.776	-1.695	-1.798	-1.785	-1.858	-1.850
Coal mining	0.170	0.193	0.170	0.109	0.191	0.274	0.169	0.182	0.108	0.116
Gold mining	0.417	0.426	0.403	0.341	0.424	0.507	0.402	0.415	0.340	0.349
Other mining	0.524	0.541	0.515	0.453	0.536	0.619	0.514	0.527	0.452	0.461
Food processing	0.063	0.097	0.058	-0.005	0.077	0.159	0.055	0.068	-0.007	0.002
Beverage / tobacco	0.102	0.145	0.113	0.050	0.132	0.214	0.110	0.123	0.048	0.057
Textiles	0.025	0.045	0.009	-0.057	0.024	0.106	0.002	0.015	-0.059	-0.051
Clothing	0.188	0.215	0.155	0.089	0.168	0.251	0.146	0.159	0.085	0.093
Leather product	-0.145	-0.099	-0.172	-0.235	-0.156	-0.073	-0.177	-0.165	-0.239	-0.230
Footwear	0.123	0.162	0.084	0.019	0.099	0.181	0.077	0.090	0.015	0.024
Wood product	0.144	0.167	0.132	0.071	0.152	0.235	0.130	0.143	0.069	0.077
Paper product	0.302	0.353	0.289	0.228	0.307	0.390	0.286	0.299	0.224	0.232
Printing	0.085	0.147	0.104	0.042	0.121	0.204	0.100	0.113	0.038	0.047
Petroleum	0.109	0.163	0.124	0.062	0.145	0.227	0.123	0.136	0.061	0.070
Chemicals	0.033	0.084	0.050	-0.013	0.070	0.152	0.048	0.061	-0.013	-0.005

Sector	Total Labour	Unskilled labour	Semi-skilled labour	Skilled labour	Unskilled Men	Unskilled women	Semiskilled men	Semiskilled women	Skilled men	Skilled women
Other chemical	0.119	0.185	0.131	0.067	0.149	0.232	0.128	0.140	0.066	0.074
Rubber product	0.300	0.357	0.279	0.217	0.298	0.381	0.277	0.289	0.215	0.223
Plastic product	0.099	0.147	0.081	0.017	0.098	0.180	0.076	0.089	0.014	0.023
Glass product	0.050	0.079	0.053	-0.010	0.072	0.154	0.050	0.063	-0.011	-0.003
Non-metal	0.183	0.222	0.172	0.108	0.190	0.273	0.169	0.182	0.107	0.115
Iron & steel	0.097	0.124	0.101	0.042	0.121	0.203	0.099	0.112	0.037	0.046
Non-ferrous	0.025	0.055	0.030	-0.033	0.049	0.132	0.028	0.040	-0.034	-0.026
Metal product	0.120	0.141	0.119	0.057	0.139	0.222	0.117	0.130	0.056	0.064
Machinery	0.157	0.199	0.163	0.099	0.181	0.264	0.160	0.173	0.098	0.106
Electrical machine	0.174	0.224	0.169	0.104	0.186	0.269	0.165	0.178	0.103	0.111
Comm. Equipment	0.210	0.262	0.197	0.132	0.213	0.295	0.191	0.204	0.129	0.138
Scientific equipment	0.291	0.338	0.289	0.221	0.302	0.385	0.280	0.293	0.218	0.227
Vehicles	0.102	0.153	0.101	0.039	0.121	0.204	0.100	0.112	0.038	0.046
Transport equipment	0.382	0.421	0.390	0.328	0.410	0.493	0.389	0.401	0.327	0.335
Furniture	0.145	0.169	0.137	0.074	0.156	0.239	0.134	0.147	0.073	0.081
Other manufacture	0.259	0.305	0.254	0.191	0.270	0.352	0.248	0.261	0.186	0.195
Water	0.077	0.143	0.097	0.032	0.115	0.197	0.093	0.106	0.031	0.040
Construction	0.117	0.141	0.112	0.049	0.132	0.215	0.110	0.123	0.049	0.057
Trade services	0.013	0.089	0.019	-0.044	0.036	0.119	0.015	0.027	-0.047	-0.039
Hotels	-0.007	0.048	0.001	-0.063	0.016	0.099	-0.005	0.008	-0.067	-0.058
Transport service	0.164	0.195	0.170	0.109	0.190	0.273	0.169	0.181	0.107	0.115
Comm. service	0.091	0.137	0.101	0.034	0.116	0.199	0.095	0.107	0.033	0.041
Financial service	0.084	0.156	0.103	0.038	0.119	0.202	0.097	0.110	0.036	0.044
Business service	0.093	0.189	0.125	0.059	0.140	0.223	0.118	0.131	0.057	0.065
Other services	0.063	0.170	0.092	0.027	0.105	0.188	0.083	0.096	0.022	0.030
Other produce	0.130	0.190	0.146	0.082	0.162	0.245	0.140	0.153	0.079	0.087
Government	0.010	0.083	0.044	-0.020	0.061	0.144	0.039	0.052	-0.022	-0.014

APPENDIX 8 (B) MACROECONOMIC VARIABLES

Table 8.7 Percentage changes (macroeconomic variables)

Variable	Base level	Tariff cut	Price world import	Price world exports	COMBO
Total Real Absorption	891.2		-0.1	0.1	0.1
Real Consumption	558.4		-0.1	0.2	0.1
Total Real Export	127.7	0.2		-0.1	0.1
Total Real Import	205.1	0.2	-0.2	0.4	0.3
Real Exchange Rate	224.2		-0.1	-0.3	-0.1
Exchange rate	275.2	0.1	-0.1.2	-0.4	-0.4
Investment GDP	13.8		0.2	0.1	0.1
Private Savings GDP	16.2			-0.1	-0.1
Terms of trade	100.0		-0.1	0.3	0.2
Government Savings	-1.9				0.3
Import tax	109.5		-0.1		0.1
Household Welfare (Equivalent variation)					
Household hhd0	0.018	0.018	-0.004	0.004	-0.004
Household hhd1	0.023	0.011	-0.005	0.005	-0.004
Household hhd2	0.030	0.015	-0.006	0.009	0.003
Household hhd3	0.035	0.020	-0.005	0.014	0.006
Household hhd4	0.046	0.025	-0.007	0.024	0.014
Household hhd5	0.053	0.033	-0.006	0.033	0.021
Household hhd6	0.070	0.070	-0.007	0.056	0.039
Household hhd7	0.087	0.094	-0.006	0.089	0.065
Household hhd8	0.109	0.117	-0.009	0.131	0.097
Household hhd91	0.074	0.085	-0.004	0.112	0.086
Household hhd921	0.025	0.028	-0.002	0.036	0.027
Household hhd922	0.027	0.029	0.0000	0.057	0.046
Household hhd923	0.030	0.049	0.001	0.073	0.060
Household hhd924	0.048	0.129	0.016	0.222	0.196
GDP and national accounts					
Real GDP	900.106	0.015	-0.125	0.082	0.007
Private Consumption	558.539	0.021	-0.128	0.043	0.006
Investment	127.642	0.083	0.098	0.729	0.442
Stock change	8.587	-0.007	-3.195	-3.057	-3.648
Govt Consumption	205.339	-0.043	-0.127	-0.081	-0.107
Export	245.219	0.189	-0.119	-0.057	0.018
Imports	-222.571	0.207	-0.121	-0.018	0.061
GDP Market prices	922.754	0.015	-0.124	0.069	-0.003
Net Income Tax	100.474	-0.267	-0.123	-0.017	-0.356
GDP factor cost	822.280	0.049	-0.124	0.080	0.040
Percentage Change Government Income					
DPI	1.001	0.015	-0.064	0.007	0.113
Government savings	-17.210	0.660	0.046	-1.741	0.255,
Investment share of absorption	0.151	0.063	0.015	0.407	0.178
Government income	217.536	-0.016	-0.123	0.061	-0.121
Government expenditure	234.728	-0.038	-0.111	-0.071	-0.094
Percentage Change Factor Income					
Capital	396.041	0.142	0.046	0.228	0.182
Unskilled men labour	73.588	-0.009	-0.035	-0.024	-0.047
Unskilled women labour	26.679	-0.202	-0.209	-0.024	-0.048
Semiskilled men labour	113.642	-0.050	-0.092	-0.087	-0.113
Semiskilled women labor	57.557	-0.072	-0.117	-0.106	-0.134
Skilled men labour	114.435	0.006	-0.048	-0.028	-0.080
Skilled women labour	40.363	-0.011	-0.072	-0.066	-0.115

Source: Study simulation results