

The effects of trade liberalization on household poverty in South African between 1996 and 2001



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ABSTRACT

Since South Africa entered the international markets and opened its borders to international trade, the economy has undergone a gradual process of trade reforms ensuring that the South African economy becomes competitive. It is recognized globally that trade liberalization is a key factor to enhancing economic welfare, trade, and efficiency. Trade liberalization aims to reduce import protection and enable easy flow of resources from sectors that are less competitive to sectors with a comparative advantage. Hence, trade liberalization is believed to play an important role in spurring growth and improving household welfare through various channels.

This study analyses the impact of South Africa's trade liberalization on household poverty between 1996 and 2001 at a local level using regional level indicators of trade exposure. The study uses household income as a proxy for household poverty. The results using the simple OLS estimator leads to some interesting findings. We find that there is a positive relationship between household income and sectorial weighted average tariff in region, that is, trade liberalization led to a reduction in household income in the region. We also find that increased exposure to tariff reductions translates to an increase in the number of individuals employed in a household. However, this does not appear to be the case with employment in the manufacturing sector. We find that tariffs reductions reduced employment opportunities in the manufacturing sector, leading to reductions in individuals employed in the manufacturing sector. Lastly, we find that household income of households that have a high share of family in the manufacturing sector are negatively affected by tariff exposure. These results illustrate structural changes in response to tariff liberalization led to varied impacts across households and regions in South Africa.

Keywords: Poverty, Trade liberalization, Employment, South Africa

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CHAPTER ONE: Background and introduction

Recent decades have seen concerted efforts to reducing trade barriers in an attempt to promote economic growth and reduce poverty across the global economy. Trade liberalization is defined as a reduction of trade barriers to promote free movement of goods and services between countries. This is one of the mechanisms that has been used globally to reduce poverty. For example, Winters et.al (2004) asserts that relatively open economies contribute significantly to economic development and reduction in poverty. Mitra (2016) attributes China and India's reduction in poverty between 1980 and early 2000s to increased trade. Moreover, he argues that trade liberalization led to higher wages in Poland across industries, after controlling for time effects and individual worker characteristics.

Trade liberalization directly affects the determinants of poverty such as employment, consumption of goods and services, and household income. McCulloch et al (2001) investigated the relationship between trade liberalization and poverty and found that one way in which trade liberalization affects poverty is through economic effects on price changes of goods traded, labor markets and government revenue. Nicita (2009) in a study on the price effects of tariff liberalization on household welfare found positive effects of tariff liberalization for both households as consumers and as owners of factors of production across income and regional levels. Moreover, the study found that richer households benefited relatively more. Artuc et al (2019) studying the impact of tariffs on households in agriculture sector found that removal of agricultural tariffs would increase household income by approximately 2 percent across 54 low and middle-income countries. Comprehensively, the impact of trade liberalization on welfare is contested as the relationship between trade liberalization and poverty is multi-faceted involving several channels that may give rise to conflicting outcomes. As a result, the effects will vary across households depending on their consumption, income, and endowment patterns.

South Africa has made significant efforts to promote trade liberalization and reduce poverty in the economy. Given that resources in South Africa are not equally distributed across the country, economic activities in certain regions within the country are more closely related to international trade. Some regions have a dense concentration of industries subject to import competition, while others specialize in export-oriented industries or industries that gain market access abroad. This suggests, either that trade liberalization may lead to economic prosperity in the form of increased job opportunities and higher wages in other regions, or job losses and lower wages in other parts of the economy. For example, majority of manufacturing employment is centralized in three

provinces. In 2013, 44 percent of the national manufacturing workforce was recorded in the Gauteng province, Western Cape representing 19 percent and the Eastern Cape 7 percent of the manufacturing employment, (Makgetla, 2014). All the other provinces represented approximately 5 percent each. Therefore, these provinces are likely to benefit from higher wages and greater employment opportunities.

Existing literature in South Africa shows the effects of trade liberalization on poverty at a national level. These studies look at a wide range of topics including effects of trade liberalization on employment, consumption, welfare, and effects on wages. Studies include those of Bell and Cattaneo (1997), Mabugu (2007), and Thurlow (2006). They find that a complete removal of tariffs on imports has a negative impact on welfare and poverty reduction in the short run, and positive effects on both welfare and poverty reduction in the long run. Furthermore, they find that while male and female workers have benefited from trade induced growth, male-led households have benefited more from rising factor incomes.

The South African empirical literature provides some insight into the effects of trade liberalization on household poverty but at a national level. Given that South African resources are not evenly distributed across the country, a national study on the effects of liberalization on poverty may not reflect the true effects on household poverty across different regions of the country. This study aims to fill this gap in the literature by investigating the effects of trade liberalization in South Africa on household poverty at a regional level from 1996 to 2001, a period which saw drastic reductions in tariffs and the highest manufacturing contribution of over 20 percent. The study further sought to investigate the channels in which trade liberalization affects household poverty at a regional level. The primary research question is what are the effects of trade liberalization on poverty in South Africa? The research is guided by the following secondary research questions:

1. Through what/ which channels does trade liberalization affect poverty?
2. How have different regions across the country benefited from trade liberalization?

This study will help understand how trade liberalization affects the different individuals across regions in South Africa. Knowledge of the effects of trade liberalization on the different households is important to understand the poverty implications of trade liberalization. This study will also contribute towards the literature which investigates whether trade liberalization helps the poor or leaves them worse-off in South Africa. By using the National Census data from 1996

and 2001 and the constructed magisterial tariff data, the study employs the OLS method of estimation to investigate the relationship between trade liberalization and poverty in South Africa through the employment and earnings channel. The study examines the effects on households in the manufacturing sector and those outside the manufacturing sector. This is because tariffs are directly linked to the manufacturing sector thus, we would expect stronger correlation between tariff liberalization and the manufacturing sector employment and earnings.

The study has five chapters. Chapter two is the literature review wherein the theoretical framework of the study outlines channels through which trade liberalization affects poverty. The chapter also discusses the empirical literature and provides a review of the South African literature on trade and poverty. Chapter three outlines the strategy and design, the methodology and the methods of data collection. In addition, it introduces the techniques and data analysis and concludes with limitations and issues of reliability and validity of the data. Chapter four presents the estimation results. Chapter five concludes the study and provides recommendations.

CHAPTER TWO: Overview of South Africa's trade liberalization

Over the decades, the South African economy has had several trade regimes under which various trade policy instruments were adopted to achieve trade liberalization. From 1925 to early 1970s, the economy focused on import substitution industrialization. Under this era, the country discouraged imports and encouraged consumption of domestic goods, this was done to protect the infant industries, promote growth and equip them with the necessary skills to be globally competitive. When import substitution failed to promote growth in the economy and diversify the economy away from gold, this led to the adoption of stabilization policies that included trade liberalization. In the 1980s, quantitative trade restrictions were removed while some were replaced.

South Africa has made significant progress towards trade liberalization since the end of apartheid where it was readmitted to the international community. Responsible monetary and fiscal management have been the core drivers of trade liberalization in South Africa. According to Mussa (1987) it is important for monetary policy to be consistent with exchange rate policy to avoid both restrictiveness, that might induce recession, and excessive ease that may fuel inflation. Since trade liberalization can induce a deterioration of the government's budget position in the short run, fiscal policy needs to remain restrained to limit the dangers posed by large government deficits and promote economic growth.

In the period 1995 to 2005, growth in real domestic product (GDP) averaged 3.3 percent and 1.35 percent in per capita terms. This growth compares with the rates of the period 1985 to 1994, where real GDP was 0.8 and per capita terms for the period was -1.3, (Mabugu et al, 2007). The improved growth performance is largely attributed to strong domestic demand and large inflow of foreign capital in the presence of low interest rates and inflation (Fedderke, 2001). Effects of this 1995-2005 growth on poverty were investigated by Borat and Kanbur (2006). Their study shows that household poverty measured by the headcount rate computed using poverty line of R322 in 2000 prices declined in the period 1995 to 2005 by approximately 8 percent, from 53 percent in 1995 to 48 percent in 2005. Furthermore, they find a similar decline in poverty levels when using a lower poverty line of R174. This indicates a decline in overall poverty gap in the 10-year period.

2 South Africa's trade reform and policy evolution

South Africa's trade policy has played a significant role in the composition of trade growth as asserted by the Department of Trade and Industry (DTI). A study by Bell (1992) shows that between 1925 and the early 1970s the South African trade policy largely pursued and supported an import substitution policy to help stimulate domestic manufacturing and state investment in key sectors. Since the late 1970s however, manufacturing growth has been gradually declining because of the structural problems such as lack of skills. In addition, the economy had been heavily reliant on gold for foreign exchange reserves. As a result of the failure of import substitution to promote economic growth and diversify the economy away from gold, the South African trade policy changed from import substitution to promoting greater openness, initially through export stimulation during the apartheid regime, and then later focusing on a more concentrated attempt at trade liberalization.

Despite the attempts at trade liberalization, the South African economy entered the 1990s with high and complex tariff systems of quantitative restrictions (Devarajan et al., 2000). During this regime of trade reform, South Africa became an economy with the highest tariff rates and the widest tariff range as tariff dispersion enlarged. Unlike many other African developing economies, the economy imposed high tariffs on consumer products and imposed considerably lower tariffs on capital and machinery goods that were imported. As a result, this protection structure led to the economy to heavily depend on exports as a method of financing imported investment goods.

Nonetheless, in 1990 South Africa re-attempted to promote exports. This was achieved using the General Export Incentive Schemes (GEIS). Towards the mid-1990s, while South Africa was undergoing a political change, there was a review of macroeconomic and industrial policy systems that marked the start of a process of complete trade liberalization (Cassim et al. 2004). South Africa's re-entry into the international sphere and the reduction in tariffs and other non-tariff trade barriers has increased exports and imports as a share of GDP. Openness to trade has led to the increase in manufacturing exports as a share of GDP over the years. According to Stats SA, manufactured exports had increased to 15 percent by the end of 2000.

In the effort to promote trade liberalization post-apartheid, most of the quantitative restrictions on imports had been removed except for quantitative restrictions on agricultural produce. According to Tsikata (1999), additional charges to imports were removed on capital goods in 1994 followed by removal of additional charges on consumer goods in 1995. South Africa joined

the World Trade Organization (WTO) in 1994. South Africa also entered into the Marrakesh Agreement under the Uruguay Round of the GATT. South Africa also made a commitment to the WTO consisting of a five-year tariff reduction and rationalization program (Cassim et al., 2004). This is when the pace of liberalization accelerated. In this agreement, the country committed to reducing tariff lines and applied tariff rates. Noticeably, the agreement required agricultural quantitative restrictions to be replaced by tariff equivalents. The South African government honored the agreement through the means of reformation and tariff structure simplifications.

Since the transition from the apartheid regime to a democratic government in 1994, South Africa has accelerated trade liberalization supported by tariff liberalization and export-oriented policies. In an attempt to mass poverty and inequality reduction, South Africa introduced the Reconstruction and Development Program (RDP), which focused on reducing poverty and improving standard of living. This plan was soon replaced by the Growth, Employment and Redistribution (GEAR) macroeconomic strategy in 1996. The policy was designed to promote fiscal stability through the reduction of budget deficits, inflation, reduced barriers to trade and establishment of stable exchange rates. By 2006, the economy introduced the Accelerated Shared Growth Initiative for South Africa (ASGISA) which was aimed at promoting economic development and boosting economic growth.

2.1 Trade liberalization and employment in South Africa

Given South Africa's high levels of unemployment and the economy's abundance of labour, the Heckscher-Ohlin framework suggests that South Africa has a comparative advantage in unskilled labour-intensive goods. According to the Heckscher-Ohlin theory, trade liberalization is expected to increase demand for unskilled labour-intensive goods which leads to possible increases in wages and employment for unskilled labour. This results in reduction in poverty and income inequality. However, this has not been the case in South Africa as unemployment levels remain a concern (Fedderke, 2001). A study conducted by Bell et.al (1997) investigating the relationship between trade and employment in South Africa in the period 1972 and 1993, finds that despite export-induced increases in employment in the manufacturing sector in this period, the reduction in the labour coefficient of exports relative to manufacturing and imports reduced the growth rate of employment resulting from export expansion. This points to a structural shift in net trade away from the labour-intensive sector.

Post 1994, South Africa's secondary industry which includes the manufacturing sector was the second largest employer in the economy. However, employment in this sector has since been trending downwards. This could be attributed to skills bias in the labour market. A study conducted by Edwards (2001) on the skills bias of occupational employment in South Africa shows technological changes brought about by trade liberalization led to a significant shift away from low skilled employment. The study shows a skill bias in the manufacturing trade which indicates that firms in South Africa are upgrading their skills levels to be effectively competitive in the global markets.

CHAPTER THREE: Literature Review

South Africa has substantially changed its regime over the last few decades. Initially, the economy invested in import substitution policies to promote industrialization and has since shifted its trade policies to promote openness through trade liberalization (Thurlow, 2006). This section reviews past studies that investigated the relationship between trade liberalization and poverty that are of significant relevance to this paper. First, the section provides a theoretical review which outlines the channels through which trade affects poverty as described in the McCulloch et al. (2001) framework. The authors describe the different linkages through which trade reform affects prices, consumption, production, and employment. Thereafter, followed by an empirical review of past relevant literature on the effects of trade on poverty. Lastly, this section seeks to provide country specific literature review on how South Africa's poverty has been impacted by trade.

3 Brief conceptual and theoretical reviews

The South African Treasury (2007) define poverty as a situation in which an individual is not able to afford basic needs of shelter, food, and clothing for themselves. This is in addition to the individual's inability to meet social and economic obligations given a lack of employable skills, assets, and limited access to socio-economic infrastructure which includes basic education, health care, water, and sanitation. Poverty comprises many dimensions and is easily noticeable in one's well-being. These dimensions include low income which in turn results in the inability to acquire necessities. This broad definition of poverty brings together both relative and absolute definitions of poverty.

Trade liberalization refers to the removal or reduction of trade barriers between a country and the rest of the world. These trade barriers include tariffs, quotas, duties, and other non-tariff barriers. The degree of openness to trade varies from country to country. This is measured as a ratio of a country's imports and exports to its GDP. Helpman (2004) highlights growth as an important channel in which the economy can grow. According to the endogenous growth theory, trade openness is one of the sources for aiding faster and sustainable growth.

In addressing the relationship between trade and poverty, Cicowiez et al (2008) identifies poverty as a public policy challenge, while trade liberalization is part of a policy package that can be used to promote growth in the economy and in-turn lead to poverty alleviation. Furthermore, Cloutier et al (2008) addresses this from the perspective of income. They show

that trade liberalization affects allocation of resources in the economy, as a result, this tends to affect income because changes in factor remunerations affect household incomes. Consequently, if the factors that are abundantly used by households are affected positively, then it is expected that income should increase. Moreover, trade liberalization through prices affects household consumption. Consumption tends to increase if prices of goods decrease. As a result, income and consumption effects will determine the level of poverty whether it rises or falls. As a result, consumption, income, and endowment is affected at the household level.

Frankel and Romer (1999) in their study on the impact of trade on income adopted data for 150 countries in 1985. They employed the instrumental variable technique to correct for issues of endogeneity of trade. For the instruments for trade, the paper uses country specific geographical characteristics such as the distance from their trading partners. In their results, they show that trade is significantly related to income across countries. However, results by Frankel and Romer were refuted by Rodriguez and Rodrik (2001) who studied the impact of trade policies on economic growth in North America and Europe. This was based on the fact that the geographical instruments adopted may be correlated with other geography variables that have an impact on income but through other channels other than trade. In their results, they show that trade coefficient is not statistically significant when geography indicators are controlled for.

The relationship between trade and income was again examined by Noguer and Siscart (2003) in 97 countries for the years 1980, 1990 and 1995. The study showed that the trade estimate remained positively significant even after incorporating the geographical controls proposed by Rodriguez and Rodrik. Their results were statistically robust to a wide array of geographical and institutional controls. Moreover, their results introduce the importance of capital accumulation in boosting productivity.

3.1 Channels through which trade affects poverty

3.1.1 Price transmission

The first channel in which trade liberalization affects poverty is through price transmission in the product market. Trade liberalization influences the prices of traded goods, both imports and exports as it includes the cost of transportation of the goods. This refers to how price changes induced by trade liberalization get transmitted down to households. There are two ways in which this can take place. Firstly, this occurs through the distribution sector which involves household consumption and production, and secondly, this may be due to the domain of trade which includes the transmission of border prices to these households.

The effects of a price change on households depends on whether the household is a net consumer of the good or a net producer (Edwards and Stern, 2006). For example, an increase in a tariff for rice will result in an increase in the price of rice in the importing country. This will benefit rice producers because there will be less competition in the economy and thus increase the welfare in those households. However, tariff increases will have a negative impact on the welfare of the local consumers because they will have to pay more for the rice. This heterogeneous effect of tariff increases on producers and consumers indicates that consumption and production patterns at household level are crucial in understanding how trade may affect poverty.

McCulloch et al. (2001) consider the transmission of price shocks in accounting terms. This is the second way through which price changes are influenced by liberalization. This is important to assess whether border price shocks arising from liberalization or changes in exchange rate are translated through to consumers and producers. There are many factors that influence the transmission of price shocks. These include, domestic and foreign taxes, costs associated with distribution, regulatory price controls, market institutions, market power, and market structures. It is important to understand these transmission channels and the behavior of its institutions to examine the effects liberalization has on poor households.

3.1.2 Labour market: Employment, wages, and salaries

Trade liberalization influences firm decisions on what should be produced and in what quantities, thus having an impact on employment and wages of the households. Insight of trade theory and Stolper-Samuelson theorem assumes fixed factor supply and flexible wages and argues that an increase in the price of a labour-intensive good or product increases its production and thus increases real wages. This is supported by Krueger (1983) who asserts that trade openness stimulates output and increases employment. However, as robust as this insight may be, it is not sufficient to practically answer the effects of trade on poverty. This is largely because the theorem does not consider multi-factor and multi-commodity models.

The Stolper-Samuelson theory is based on the Heckscher-Ohlin classical theory. One limitation of the trade theory is that it is a long run model. It assumes full mobility of labour and capital across industries and regions. In the short run, we may anticipate rigidities in this mobility. The implication is that workers will be affected by industry specific shocks. For

instance, if tariffs were to fall in the textile industry, the workers that lose their jobs due to industry-specific skills requirements may not be able to find work in alternative sectors and hence

they will be adversely affected through the lower wages or unemployment (Lepelle and Edwards, 2020). Moreover, if industries are concentrated in different regions, we can anticipate regional variations in the impact of trade liberalization on factor incomes. This means that, in regions where textile constitute a high proportion of employment, these will experience relatively large declines in wages and employment.

3.1.3 Taxes and government spending

The last channel through which trade openness influences poverty is an indirect one. In this case, household incomes are adjusted by taxes imposed by the government and government expenditure on transfers and social programs. Trade reforms may reduce government revenues by lowering customs revenue. The effect this decline in revenue has on poverty primarily depends on the significance of these revenues from customs to the fiscus and how the government responds to these changes in revenue. In response to declines in revenues, the government may reduce transfers to the poor households, or it may increase taxes to compensate for the lost revenues. If the taxes are imposed on consumption, mostly by the poor, this may have an adverse impact (Winters, 2000).

However, there is no evidence which suggests a direct link between trade reforms and government revenues. Even though vast literature argues an inverse relationship between trade openness and government revenues, some authors have argued otherwise. Greenaway and Milner (1991) theoretically argue that given tariffs, government revenue is expected to increase as the country becomes more open only if the initial tariff level is greater than its revenue maximizing level. Revenue can also increase if tariffs are replaced with non-quantitative restrictions provided that the government did not previously capture the quota rent associated with the restriction.

3.2 Empirical review

One of the key factors that influence poverty is economic growth. If trade liberalization leads to an increase in economic growth, then this may lead to reduction in poverty. Pavallion et.al (2009) studied the effects of economic growth in China in the 1970s using the simple OLS method of estimation. Their results show that China has had great success in reducing poverty through economic growth. The role of economic growth on poverty reduction has also been supported by Agrawal (2015) in the case of India. Furthermore, Dollar et.al (2004) provide

individual cases and cross-country analysis in the post 1980 of the relationship between trade, growth and poverty using the system generalized method of moments estimator. In their study,

they find that increases in trade lead to increased economic growth in developing countries. The fact that higher trade leads to higher economic growth and no systematic changes in household income, then this means increased trade generally leads to reduction in poverty.

Nonetheless, the robustness of the results that argue that there is a significant correlation between trade liberalization and economic growth is criticized by Rodrik et al. (2000) who investigated whether economies that exhibit limited barriers to trade are influenced by policy grow faster. Rodrik et al. (2000) find that in most cases, researchers use poor indicators of openness to measure trade barriers. These indicators are often highly correlated with other sources of bad economic performance. They also find persistent flaws in the methods used to investigate the relationship between trade policy and growth. Rodrik and Rodrigues found little evidence that trade liberalization leads to economic growth.

As mentioned in the previous section, trade liberalization has a significant effect on income and prices of goods and services. Ravallion and Walle (1991) study the trade reforms of Indonesian rice. The study makes use of household level data and household demand equations and applies the assumed changes in income and prices. The paper shows that to some extent, the results are dependent on government responses to budgetary shocks implied by changes in price of rice on consumers and the measurement of poverty that is adopted. In developing economies, the poor households can change their consumption and production behaviors to policy reforms that affect the prices they face. Since the poor households are the net consumers of rice, their welfare decreases as prices increase. On the other hand, farmers just below the standard poverty line are the net producers, and thus, they benefit from increased prices of rice by increased welfare.

Lastly, trade liberalization has a significant effect on poverty through government taxes and spending. A study by Deaton (1988) analyzing the implications of tax reforms in India and Pakistan shows that the unit values of reported individual household purchases will reflect quality, which is endogenous and correlated with income as well as with prices, which are exogenous. In the case of Pakistan, the burden of export taxes on rice relatively falls on the poor who are the highest consumers of these goods and have a relatively inflexible expenditure. Adopting Deaton's approach to analyze the effects of the 1997 crisis in Indonesia, Friedman and Levinsohn (2002) find that welfare losses are not as severe when allowing for household responses.

Erten et al. (2019) investigates the causal effects of trade liberalization in South Africa in the period 1994 to 2004 on labour market outcomes at the individual level using a local labour

market approach. The identification strategy used in this study relies on the relative regional tariff exposure to estimate the causal effect of trade reform. In their findings, they found that workers in some districts were more exposed to tariff reductions than others and these experienced a significant decline in employment in the manufacturing sector. Moreover, Lepelle and Edwards (2020) also conducted a regional analysis investigating the effects of South Africa's tariff liberalization on the service sector employment in the period 1996 to 2011 and found that employment significantly decreased in the regions that were more exposed to tariff reductions driven by a decline in manufacturing from tariff reductions. One limitation of these studies is that Erten et al. (2019) examines the causal effects at an individual level and Lepelle and Edwards (2020) aggregate employment to a regional level, but they do not consider the household as the unit of analysis, thus providing limited insight into the poverty effects of liberalization. Another concern for using regional data is that it does not consider heterogeneity of households.

3.3 Summary

Chapter 3.2 presented a review of literature which examined the relationship between poverty and trade liberalization. The literature review revealed that even though the datasets and methods of analysis differed for each study, the general finding was that trade liberalization leads to higher economic growth, increased employment, higher spending and in turn leading to reduction in poverty. However, a few studies explore the effects trade liberalization has on household poverty at a regional level in South Africa. This study will contribute to the literature by analyzing the effects of trade liberalization on household poverty through the employment and earnings channel and at a regional level. I focus on earnings and employment opportunities because they are likely the most relevant for most individuals living below or close to the poverty line in South Africa.

CHAPTER FOUR: Methodology and Model Specification

The dissertation follows a quantitative approach to analyze the effects of trade liberalization on household welfare in South Africa between 1996 and 2001. The South African trade liberalization is the main variable of interest in this study. The unit of analysis is the household, given the structure of the data, and the dependent variable is household poverty proxied by household income. The focus is on tariff exposure on household poverty. Predictors for household poverty are controlled for and are drawn from the National Census data (1996 and 2001). These include access to infrastructure such as toilet facilities used, whether households have piped water, access to landlines etc. Some of these explanatory variables are directly affected by tariff exposure while some are domestically driven. However, it is important to note that none of these variables solely explain household poverty.

The analysis of the effects of trade liberalization on poverty and the channels through which trade affects poverty in the previous chapter serves as an important starting point for a thorough econometric investigation into the link between the two. In this chapter, we first derive the econometric models that will be used to investigate the relationship between trade liberalization and poverty, followed by a discussion of some of the econometric challenges associated with the model. Thereafter, the section discusses the data used in this study and concludes with some data limitations.

4 Model Specification

This section discusses three models: the household welfare model, employment model and the earnings model using OLS estimation technique. First, we derive the model for the relationship between regional tariff exposure and household outcome of poverty. Following Topalova (2007 and 2010), we construct a regional level measure of trade protection which varies by region and time. This measure reflects the region-specific composition of employment and time and is thus the region-specific tariff rates. As indicated above, household income is used as a measure of household poverty. Trade liberalization effects are estimated separately for households employed in the manufacturing sector and those not in the manufacturing sector, one of the biggest employment sectors in South Africa.

To measure a household's regional exposure to trade protection, we estimate a baseline specification as follows:

$$Y_{hrt} = \alpha + \beta TP_{manrt} + \gamma hrt + \varepsilon \quad (1)$$

Where Y_{ht} is the household level outcome at time t , such as household poverty and we use household income as a proxy for household poverty. It is difficult to collect income and expenditure data that can be used as direct measures of household poverty. As a result, I use household income as an alternative measure of welfare. Many studies have adopted income as proxy for welfare. These include studies by Adeyemi et al (2009) who study the determinants of poverty in Sub-Saharan Africa and Borat (2007) who investigates the welfare shifts in the post-apartheid South Africa. To generate household income variable, I use midpoints of individual household earnings. TP_{manrt} is the level of manufacturing tariff protection for region r at time t . TP_{man} is scaled in such a way that a high value of TP_{man} indicates higher levels of protection. The coefficient of interest, β , captures the average effect of trade protection levels on household outcomes. This measures how household income in region r is affected by tariff level in that region at a specific point in time and is used to infer how a change in tariff will affect the level of the outcome variable. The positive coefficient shows that reduction in tariffs level will lead to reduction in poverty.

However, there are other relevant variables that explain household welfare. Influences on the dependent variable which are not captured in the model are collected in the error term. In this model, we assumed thus far to be uncorrelated with the regressor. However, excluding these determinants of the dependent variable which vary with the regressor violates this assumption. As a result, this may be a bias in our estimate leading to omitted variable bias in our estimate. For this reason, we incorporate other explanatory variables that affect household poverty levels such as the type of dwelling in which the household lives, the nature of ownership of the dwelling place, source of water supply, type of toilet facility used, gender of the household head, household head level of education which indicates the employable skills they possess, together with the way refuse is disposed. It is also important to include the number of rooms in a household because a household with many individuals and few rooms would indicate poor household welfare. This phenomenon is called household crowding and defined by Gove et al. (1983) as a condition whereby the number of individuals occupying the household exceeds the dwelling space capacity that is available leading to adverse physical and mental health outcomes, and this can be measured by the number of rooms in the house.

After including other explanatory variables, the specification becomes:

$$Y_{hrt} = \alpha + \beta TP_{manrt} - \beta_2 gender + \beta_3 pipedwater + \beta_4 toilet + \beta_5 dwelling +$$

$$\beta_6 refuse + \beta_7 electricity + \beta_8 rooms + \beta_9 educ - \beta_{10} employment + \varepsilon \quad (2)$$

These variables were chosen mainly because they were reported in both censuses 1996 and 2001 and are commonly used in poverty estimation economic literature. It is important to note that this model does not identify the overall impact of trade liberalization on poverty, but rather measures whether some households benefited or suffered more than others.

Moreover, we estimate whether trade liberalization pushes households below the poverty line. The estimation is illustrated as follows:

$$Poor_{hrt} = \alpha - \beta TPman_{rt} + \varepsilon \quad (3)$$

Where poor is a dummy variable which indicates households below the poverty line. This measures how tariff exposure in a region at a point in time affects households that are near the poverty line.

4.1 Employment Model

After establishing a relationship between trade liberalization and poverty, we investigate other channels through which trade liberalization affects poverty mainly the employment and earnings channels. In most economies, labour markets are an important factor in reducing poverty. Thus, the effects of trade reform on wages and employment are important especially in countries with high numbers of unskilled works such as South Africa. If regional tariff exposure increases the demand for labour intensive products, then this will either increase wages or employment in that region, or both (Winters et al, 2004). However, if the poor are mostly in the unskilled households, while tariff exposure increases demand for semi-skilled workers, then poverty will either not be affected or would be worse-off. We therefore look at how regional tariff exposure affects household employment and wages in those regions. The manufacturing sector employment and income are estimated separately because our estimate of protection is tariffs on goods, hence we expect a direct significant relationship between trade liberalization and labour market changes in the manufacturing sector.

The relationship between employment and trade liberalization will be examined in two ways. The first will look at how tariff exposure, TPman, affects the number of employed in a household

given by $Employedhhrt$. Thereafter, we examine how trade liberalization affects the number of households employed in the manufacturing sector given by $employedh_f$. The first relationship is specified as:

$$Employedhhrt = \alpha - \beta TPmanrt - \beta_2 gender + \beta_3 educ + \beta_4 Durban + \beta_5 Age + \varepsilon \quad (4)$$

Where $Employedhhrt$ is the number of individuals employed in household h at time t . The explanation for the explanatory variable $TPmanrt$ remains the same as in equation (1). In the model above, we include other relevant variables that influence whether the household head is employed in any sector at time t . These include the gender of household head, age, the level of education obtained as it indicates skills of the household head, and lastly whether the individual resides in an urban area as represented by the $Durban$ variable. Gender is a binary variable where 1 indicates female and 0 indicates male. The model shows a negative coefficient of

regional tariff exposure which indicates a negative relationship between tariff exposure and number of employed in a household. In essence, an increase in regional tariffs will lead to a decrease in the number of employed in a household in that region. This is consistent with a study conducted by Edwards and Behar (2005). Gender plays a vital role in labour markets. An empirical study on the impact of trade liberalization on gender differences in labour markets showed that a reduction in trade protection is associated with a decline in the labour force participation of women hence leading to a low income for women (Gaddis and Pieters, 2017). As a result, our model expects a negative gender coefficient in both employment and earnings.

Next, we estimate the effects of trade liberalization on the number of employed household head s in the manufacturing sector. This model is specified as:

$$Man_employedhhrt = \alpha + \beta TPmanrt - \beta_2 gender + \beta_3 educ + \beta_4 Durban + \beta_5 Age + \varepsilon$$

(5)

Where $Man_employedhhrt$ is the number of individuals in a household employed in the manufacturing sector. In this model, we include other relevant variables that influence the chances of the household head to be employed in the manufacturing sector. These include the gender classification of the head of household, education attainment which indicates skills sets of

the head, and whether the household is situated in a rural or urban area. Skills possession of the household head is important as it influences the income of the household and whether the individual is employed in the manufacturing sector. The model expects regional tariff exposure at time t , to have a positive effect on the number of employed household heads in that region. If the household head has high education attainment, resides in an urban area, then the model expects an increase in the number of household heads employed in manufacturing. In South Africa, Stats SA assert that labour participation is much higher in urban areas compared to rural areas, thus it is important to control for urban area labour participation.

4.2 Earnings model

Trade liberalization also affects individuals as wage earners. The relationship between trade liberalization and earnings has been subject to intense scrutiny in the academic literature. According to Winters (2001), trade liberalization leads to increased competition and efficiency. As a result, the economy generates higher consumption from the same inputs endowment. In the long run, this is expected to lead to increased household welfare. In this section, we examine how trade liberalization, through earnings, affects household welfare. First, we look at how trade liberalization affects the earnings of individuals in a household and then the effect it has on the earnings of those in the manufacturing sector. This relationship is expressed as follows:

$$Earnings_khrt = \alpha - \beta TPmanrt - \beta_2 gender + \beta_3 educ + \beta_4 Durban + \beta_5 Age + \varepsilon \quad (6)$$

Where $earnings_khrt$ is the earnings of employed individuals outside the manufacturing sector. The model includes the gender of the household head, the level of education attained, and whether the household is situated in a rural or urban area. The coefficient of regional tariff exposure is negative, and this is consistent with literature (Townsend, 2007).

The relationship between trade liberalization and earnings of those employed in the manufacturing sector is expressed as follows:

$$Man_earnings_shhrt = \alpha + \beta TPmanrt - \beta_2 gender + \beta_3 educ + \beta_4 Durban + \beta_5 Age + \varepsilon$$

(7)

4.3 Econometric challenges

In the previous section, we have specified that the paper adopts the OLS method of estimation. Since the general relationship of interest in this study is the relationship between trade liberalization and household income, a continuous variable, the OLS method of estimation is adopted since it is a powerful technique for modelling continuous data. However, this method of estimation has some limitations. Adopting the OLS methods of estimation sometimes leads to biased and inconsistent estimates of the parameters (Bond, 2002). This technique does not account for fixed effects and random effects. Fixed effects assume that the individual specific effects are correlated with the explanatory variables, while random effects assumption is that these specific effects are not correlated with the regressors (Fosu, 2010). The simple OLS regression model assumes one independent variable. However, in this study, there are more than one independent variable that explain our dependent variable. This then leads to issues of multicollinearity. To correct for this problem in the estimates, we impose fixed effects to deal with unobserved time-invariant municipal characteristics that could bias the results. Another econometric concern is the endogeneity of tariffs. However, the tariff variable may not suffer severe endogeneity problems firstly because of the large quantitative evidence that suggest the major drive for liberalization arises from the post-apartheid government and not from the private sector. Secondly, 1995 tariff reductions were driven primarily by the offer that South Africa made to the WTO in 1994 (Erten et. al, 2019).

4.4 Data

The study uses national census data (1996 and 2001) together with magisterial tariff data as provided by Edwards and Lepelle (2020). To derive household measures of poverty, the study makes use of the household level data for 10 percent of the population from Stats SA. This is because most of South Africa's trade reforms were implemented in the period 1996 to 2001. This study uses individual household data.

4.4.1 Descriptive Stats

This section presents the descriptive statistics. Statistical results presented in table 1 show that at least more than 50 percent of the sample population of household's data used has access to flush toilets, piped water, and electricity, refuse facilities, and dwell in urban areas. About 26 percent of households have no access to landlines. The data shows no evidence of any significant variations in the trends of the variables over the period of consideration. The results based on the

statistical distribution show that the series are negatively skewed. The values for all the variables are platykurtic in nature since their kurtosis values are less than 3. Therefore, this indicates a higher-than-normal distribution.

Table 1: Poverty indicators

	Piped	Flush				Urban
Statistics	water	toilet	Electricity	Refuse	Landline	Dwellin
Mean	.612	.515	.645	.554	.262	.610
Maximum	1	1	1	1	1	1
Minimum	0	0	0	0	0	0
Std. Dev	0.487	0.5	0.478	0.496	0.44	0.488
Skewness	-0.460	-0.061	-0.607	-0.220	1.080	-0.451
Kurtosis	1.211	1.004	1.368	1.049	2.167	1.204
Variance	0.237	0.25	0.229	0.247	0.194	0.238
Observation	1,795,002	1,795,002	1,795,002	1,795,002	1,795,002	1,795,00

Source: Owner's computation using Stata15

The average tariff protection in 1996 was approximately 17 percent and in 2001 it was approximately 10 percent. The average tariff in 1996 was higher mainly because most of the trade protection policies were only abandoned in that period and South Africa adopted policies that were aimed at reducing barriers to international trade. The 1996 period experienced excessive liberalization policies.

Table 2: Average tariff exposure 1996 and 2001

Year	mean (TPman)	sd (TPman)	max (TPman)	min (TPman)	N(TPman)
1996	0,169	0,046	0,409	0	626,568
2001	0,104	0,026	0,226	0	710,265

Source: Owner's computation using Stata15

4.5 Limitations

While the theoretical question is how trade liberalization affects poverty in South Africa, there is no plausible generalized response within the scope of this study. As discussed in Chapter two, there are three main channels through which trade liberalization affects poverty: price transmission, employment, and government taxes. However, this study only focuses on the effects of trade liberalization on household income and employment. This is because of unavailability of prices and taxation data in the census data sets used in this study. The census data does not provide pricing information or information on taxes. As a result, these two channels will not be explored empirically as we are not able to test for their effects. Moreover, the study uses two waves, 1996 and 2001. This limits the aspect of capturing changes in tariff levels. However, even though the study focuses on a short period, the study covers a 5-year period following sharp reductions in tariffs in early 1990s which is a period of the most substantial tariff reductions.

CHAPTER FIVE: Empirical analysis

The empirical analysis is conducted in four parts. First, we look at how tariff exposure is associated with household income. Second, we look at the poverty effects of tariff liberalization on households near the poverty line. Thereafter, we investigate the impact of tariff exposure on employment. Lastly, we present estimates of the effects of tariff exposure on worker's earnings. Lastly, we analyze how household income in household with more than one member in the manufacturing sector is affected by tariff exposure.

5.1 Effects of trade liberalization on welfare

Table 3 below presents the OLS regression results on the impact of regional tariff exposure on household welfare at a regional level using 1,094,136 number of observations. The baseline results in column (1) are estimated using OLS, and the extended regression results controlling for the indicators of poverty are presented in column (2). Overall, the baseline equation estimated for the household welfare measured by household income was found to be statistically insignificant meaning that tariff exposure does not have a significant effect on poverty. However, in the extended model, all the explanatory variables appeared to be statistically significant explaining approximately 35 percent of the variations in poverty. In the extended model, 1 percent reduction in tariff level will lead to a 23.9 unit increase in household income. In addition, the effect of income growth is greater than the change in tariff.

Table 3: Household welfare results OLS Regression Results

	(1) Baseline Household Income	(2) Extended Household Income
VARIABLES		
TPman	0.132 (0.115)	0.239*** (0.036)
hhead_gender		-0.493*** (0.004)
pipewater		-0.026*** (0.006)
flushtoilet		0.651***
Dinformal_dwell		-0.019*** (0.005)
refuse		0.317*** (0.005)
electlight		0.348*** (0.005)
rooms		0.182*** (0.001)
hhead_education		0.009*** 0
hhead_employment		-0.007*** 0
Year 2001	0.283*** (0.008)	
Constant	7.272*** (0.019)	6.312*** (0.009)
Observations	1,094,136	510,822
R-squared	0.156	0.348
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		

Source: Owner's computations using Stata15

Moreover, there are other relevant independent variables that explain household income. The variables positively influence household income except for informal dwelling, gender, and unemployed household head. Results show that household income is likely to be less by 0.019 units if household head resides in the informal settlements. Moreover, female led household

income will be approximately 0.49 units less than male led household income, on average. Lastly, if the household head is unemployed, then household income would be 0.007 units less than that of a household with an employed head. Overall, all the additional explanatory variables were found to be statistically significant.

5.2 Poverty effects of trade on households near the poverty line

It is also important to estimate whether trade liberalization pushes households into poverty. The below table shows the effects of tariff exposure on poverty for households near the poverty line. We use the household income 25th percentile p-value to generate the poverty line. A household is considered poor if their household income lies below the p-value. Results indicate that there is a negative but significant relationship between tariff exposure and households near the poverty line. The coefficient for tariff exposure in manufacturing, TPman, is negative. This implies that a reduction in tariff levels lead to an increase in poor households. On average, a 10 percent reduction in tariff levels lead to a 20 percent increase in poor households. Therefore, trade liberalization pushes households near the poverty line into poverty.

Table 4: Poverty effects of trade on households near the poverty line

VARIABLES	Poor
TPman	-0.2038*** (0.0364)
2001.year	0.0342*** (0.0024)
Constant	0.2686*** (0.0061)
Observations	1,094,136
R-squared	0.0989
Standard errors in parentheses	
*** p<0.01, ** p<0.05, * p<0.1	

Source: Owner's computation using Stata15

5.3 Effects of trade liberalization on poverty through other channels

5.3.1 Employment channel

The estimation results for the employment outcomes are presented in table 5 below with 1,336,833 observations. The baseline results in column (1) and (3) are estimated using OLS. These only control for the regional tariff exposure. Column (1) represents the results of estimating the effects of trade exposure on the number of individuals in a household who are employed in other sectors, other than the manufacturing sector. Column (3) represents the results of estimating the effects of trade exposure specifically on the number of individuals employed in the manufacturing sector. Column (2) and (4) include other control variables such as household head gender, age, level of educational attainment, and whether the individual resides in an urban area. Note that the variable *headh* represents the head of the household.

We can observe that households in a magisterial district that face greater exposure to tariffs experience a decrease in the probability of employment relative to those households in regions that are less exposed to tariffs. The tariff coefficient of (-0.3035) implies that on average, a 1 percent increase in regional tariff level will result in a decline of approximately 0.30 percent in the number of individuals employed in a household in that region. Overall, about 15.85 percent of the variations in the number of individuals employed in a household is explained by the independent variables. The explanatory variables were found to be statistically significant at five percent level.

Moreover, when estimating the effects of liberalization on the number of individuals employed in the manufacturing sector, we find that the number of individuals in a household employed in the manufacturing sector increases when tariff exposure increases in that region. In column (3), we anticipate a positive coefficient of tariff variable, signaling that an increase in tariffs leads to higher employment of individuals in a household towards the manufacturing sector. The magisterial tariff coefficient of (0.5232) indicates that on average, 1 percent increase in regional tariff levels increases household employment in the manufacturing sector by approximately 0.52 percent in that region. This effect is statistically significant. Tariff exposure has a positive impact on manufacturing employment and yet decreases employment in other sectors.

Table 5: Effects of tariff exposure on the number individuals in a household employed in and outside of the manufacturing sector OLS Results.

VARIABLES	(1) Baseline Employed Household head	(2) Extended employed Household head	(3) Baseline Man_ Employed Household head	(4) Extended Man_ Employed Household head
TPman	-0.303*** (0.084)	-0.262*** (0.023)	0.523*** (0.032)	0.698*** (0.012)
hhead_gender		-0.339*** (0.002)		-0.067*** (0.001)
hhead_education		0.003*** 0		0.000*** 0
Urban Dwelling		0.371*** (0.002)		0.135*** (0.001)
hhead_age		-0.001*** 0		0.000*** 0
Year 1996		-		-
Year 2001	-0.134*** (0.006)		0.014*** (0.002)	
Constant	1.139*** (0.014)	1.323*** (0.006)	0.068*** (0.005)	0.024*** (0.003)
Observations	1,336,833	624,354	1,336,833	624,354
R-squared	0.077	0.088	0.049	0.033
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1				

Source: Author's calculation

Furthermore, we examine how other factors as described above affect the number of individuals in a household employed both in and outside the manufacturing sector. The regression looks at the log of employment in relation to tariff liberalization. We find that the level of education attainment and urban dwelling have a positive influence on the number of employed household heads in a region, both in the manufacturing and outside the manufacturing sector. The independent variables appear to be statistically significant except for the level of education which is statistically insignificant. The results show that the number of household heads in the region employed increases by approximately 0.03 percent if the household head holds an educational attainment, by 0.371 percent if the household is in the urban areas. With regards to the manufacturing sector, we find that if the household head is female, then the probability of the household head to be employed in the manufacturing sector decreases by 0.067 on average and increases by 0.135 percent if the household is in the urban areas. Moreover, we find a negative relationship between gender and employment of household heads.

These results imply that the manufacturing sector absorbs labour in the presence of tariffs. Employment in the manufacturing sector therefore decreases because of liberalization. Regions that are more exposed to tariffs experience decline in employment in the manufacturing sector. On the contrary, employment in other sectors benefits from liberalization. Individuals in other sectors other than manufacturing who reside in regions that face greater tariff liberalization would enjoy more employment towards those sectors.

5.3.2 Effects of tariff exposure on earnings

In addition to shifts along the household employment margin in a region because of regional tariff exposure, earnings conditional on employment may also respond to changes in regional employment induced by trade liberalization. In a local labour market framework, it is assumed that workers have full mobility across industries, but immobile across regions. As a result, we do not expect tariff exposure to have a positive impact on household earnings. However, this may not hold in manufacturing sector earnings. Firstly, we test this prediction by analyzing the effects of trade liberalization at a regional level on household earnings. The sample data for this analysis is restricted to employed household individuals who report the bracket range of their earnings.

Table 6 reports the results of estimating for earnings outcomes with 970,803 observations. The baseline results in column (3) are also estimated using OLS. These only control for the regional tariff exposure. Column (1) represents the results of estimating the effects of trade exposure on

the earnings of individuals in a household who are employed in other sectors, other than the manufacturing sector. Column (3) represents the results of estimating the effects of trade exposure specifically on the earnings of individuals employed in the manufacturing sector. Column (2) and (4) include other control variables such as household head gender, age, level of educational attainment, and whether the individual resides in an urban area.

In estimating for households not in manufacturing, we find that there is a negative relationship between tariff reductions and household earnings. The dependent variables included in the equation explain 14 percent and 23 percent of the variations in household earnings of individuals working outside the manufacturing sector in the baseline and extended regression, respectively. The coefficient for regional tariff is (-0.4311) in the baseline model estimate. This implies that on average, liberalization is associated with a 0.43 unit decline in household income. This is consistent with the theoretical prediction. Since trade liberalization resulted in decline in regional employment, then it is expected that earnings also decline. The estimated coefficient is statistically significant. However, there are other factors that may affect household earnings such as the area in which the household is situated, the level of educational attainment, and gender of household head. When testing for these effects, we find that household earnings increase if the household is situated in the urban areas and the household head holds educational qualifications. However, we find that earnings decline if the household head is female. This is consistent with a study conducted by Gaddis and Pieters (2017).

Table 6: Impact of tariff exposure on earnings OLS regression results

	(1)	(2)	(3)	(4)
	Baseline log	Extended log	Baseline log	Extended log
	Household head earnings_k	Household head earnings_k	Household head earnings_Manufacturing	Household head earnings_Manufacturing
VARIABLES				
TPman	-0.431***	0.048	0.727***	-1.791***
	(0.121)	(0.04)	(0.229)	(0.076)
Household Head gender		-0.591***		-0.436***
		(0.004)		(0.009)
Household Head education		0.015***		0.011***
		0		0
Urban dwelling		0.918***		0.750***
		(0.004)		(0.011)
Household Head age		0.005***		0.003***
		0		0
Year 1996		-		-
Year 2001	0.192***		0.254***	
	(0.008)		(0.016)	
Constant	7.412***	7.021***	7.278***	7.324***
	(0.02)	(0.011)	(0.04)	(0.023)
Observations	970,803	458,983	165,212	80,287
R-squared	0.145	0.177	0.17	0.126
Standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

Source: Author’s calculation using Stata15

In addition, we also test how regional tariff exposure affects earnings of individuals in the manufacturing sector. 17 percent and 21 percent of the variation in individual household earnings in the manufacturing sector is captured by the variables included in the equation in the baseline and extended estimation, respectively. We find that there is a positive relationship between magisterial tariff exposure in region and earnings of households in manufacturing. The positive coefficient of (0.7266) indicates that 1 percent increase in regional tariff will lead to an increase in earnings of individuals in the manufacturing sector of 0.73 percent, on average. This may be because of the increased demand for manufacturing labour. The explanatory variables included

in the equations were found to be statistically significant. However, gender was found to have a statistically insignificant effect on the household earnings on individuals working in and out the manufacturing sector.

5.4 Households with high share of family in manufacturing sector employment

Table 7 below shows the OLS regression results of the relationship between trade liberalization and household income of households that have more than one individual in the manufacturing sector. The baseline results in column (1) are estimated using OLS and the extended regression results controlling for additional explanatory variables that affect household employment are presented in column (2). Amongst the previously explained explanatory variables, these regressions include an additional interaction between tariff and a dummy whether households have more than one employee in the manufacturing sector. This is because we want to examine whether tariffs have a significant difference on the manufacturing employee household.

Results from both the baseline and extended model in column (1) and (2) show some anomalies. They show that tariff reduction was found to have a negative and statistically insignificant effect on households that have a high share of family in manufacturing sector employment. 15.78 percent and 19 percent of the variations in the employment of households with a high share of employment in manufacturing is explained by our explanatory variables in the baseline and extended model, respectively. All the other explanatory variables were found to be statistically significant. Additionally, the interaction variable indicates that if a household has more than one employee in the manufacturing sector, then liberalization will lead to 2.507 unit decrease in household income.

The evidence indicates that tariff reduction has negatively affected income of households with a high share of family in the manufacturing sector. Given that we showed earlier that tariff exposure leads to higher income for individuals in the manufacturing sector, we would then expect these household to have higher household income. As a result, we deduce that trade liberalization has not been successful in influencing income and employment for households with a high share if family in the manufacturing sector as predicted by theory and advocates. Given that increases in tariffs in a region lead to increased income for individuals in the manufacturing sector, we would then expect that households with a higher share of family in the manufacturing sector have higher household income. Rather, households with a high share of family in the manufacturing sector employment seem to have been penalized by trade liberalization. This may be attributed to the changes in skills structure of employment induced

by trade liberalization. According to Edwards and Behar (2005), trade liberalization induces defensive innovation which requires skilled labour hence increasing the employment skill structure.

Table 7: Households with high share of family in manufacturing sector employment OLS regression results.

	(1)	(2)
VARIABLES	Baseline Household Income	Extended Household income
TPman	-0.163 (0.115)	-0.037 (0.041)
Interaction dummy	2.775*** (0.054)	2.507*** (0.065)
Household Head gender		-0.622*** (0.004)
Household Head education		0.015*** (0.000)
Urban dwelling		0.957*** (0.004)
Household Head age		0.007*** (0.000)
Year 1996		-
Year 2001	0.275*** (0.008)	
Constant	7.296*** (0.019)	6.942*** (0.011)
Observations	1,094,136	514,728

Source: Owner's computation using Stata15

CHAPTER SIX: Concluding remarks and recommendations

6 Conclusion and recommendations

This paper analyses the effects of trade liberalization on poverty in South Africa from 1996 to 2001. The focus of this dissertation is to understand the effects tariff liberalization has on poverty as well as understanding the channels through which this effect occurs. Since poverty is a complex phenomenon, this study utilized individual household income as the measure for poverty. The channels explored are the employment and earnings channel. These channels are investigated in two parts. First, we look at the tariff effects in other sectors other than the manufacturing sector, then we look at the tariff effects on employment and earnings in the manufacturing sector.

We find that the reduction in tariffs leads to a reduction in poverty. These findings support those from the international literature, Dix-Carneiro et.al (2015) who find similar evidence in their study in Brazil. On the other hand, we find the relationship between tariffs and household income to be insignificant. Contrary to the expectations of this study, we find that magisterial tariff exposure has a negative and statistically insignificant effect on households that have a high share of family in manufacturing sector employment. These households experience lower income because of tariffs. This does not conform to theory.

The implication is that the shocks that affect the manufacturing sector such as trade liberalization, do not have the same effects across all workers and across all regions. As indicated, some regions are more exposed to tariff liberalization than others. One of the challenges for developing economies such as South Africa that exhibit high unemployment and inequality, is that these impacts may intensify these distributional gaps across individuals and regions. Given that our results show that trade liberalization has not been successful in influencing employment and income for households with a high share of family in the manufacturing sector, future research can expand on this study by considering other measures of poverty and income variables and performing a robustness check to ensure that these results are robust.

When interpreting and using these results, it is important to take note of the number of limitations inherent in the approach that is used in this paper which remain areas for future research. Firstly, it is important to note that the study used only two waves, 1996 and 2001. This limits the aspects of capturing the changes in the tariff levels. Future research can expand the data timeline and analyze a larger sample size to mitigate bias in results. This study is also important from a policy

perspective. A growing number of developing economies are pursuing trade liberalization to achieve economic growth, improve standard of living and reduce poverty. However, this study showed in South Africa, trade liberalization pushes the pushes households close to the poverty line into poverty. Therefore, implementation of additional policies to redistribute some of the gains of liberalization from winners to losers may mitigate the effects on poverty and increase feasibility of liberalization.

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