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Growth, Employment and Redistribution, the solution for income inequality originating from Apartheid?

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Abstract

When Nelson Mandela took office in 1994, he wanted to improve living conditions for all South-Africans after the Apartheid era. After decades of discrimination and prejudice, the aim was to create a South-Africa where everyone is treated similar. To make sure the country of South Africa became more equal for everyone, the Growth, Employment and Redistribution (GEAR) policy was introduced in 1996. This policy aimed to not only reduce the income inequality between different ethnic groups, but also provide basic human needs to the Black African population that was oppressed for a long time. By means of an event study this paper investigates what the effect of this policy is on the between-race income inequality. This results in the finding that mostly males are benefitting from a policy where collective bargaining is used to set wages. Due to the strictness of negotiated wages between employers and workers unions, everyone will get the same pay for the same job. This causes earnings between ethnic groups to be closer together and thus reducing the gap in income inequality.

Table of contents

Acknowledgments

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1. Introduction

In recent years, more and more focus has been placed on the fight against discrimination. One example is the Black Lives Matter movement that started in 2013. Since then, many countries have implemented policies that aim to drive back discrimination in society. Although, according to Banks, Eberhardt and Ross (2006), most people in society condemn discrimination and racism, they find that in more practical situations people tend to have racist tendencies.

This finding is nothing new if we look back in history. One of the most prominent examples of discrimination is Apartheid in South-Africa. In this specific period in history, the minority White population was in power and denied Black Africans access to certain basic human rights (Clark & Worger, 2011). Moreover, Black Africans were forced to live in townships that needed to be far away from white townships (Christopher, 2001). This was one of the main ways of segregating races. Another way in which the races were separated is financially. Black Africans got the worst paying jobs and owned a small proportion of the land (Christopher, 2001).

After living segregated for more than 40 years, the Apartheid regime was confronted by the strong voice of the Anti-Apartheid Movement. When in 1990 Nelson Mandela was released from prison, his political party, the African National Congress (ANC), negotiated with the regime to get rid of the Apartheid ruling. The actual ending of Apartheid is marked in 1994 when there were free and fair elections in which everyone was able to vote. Nelson Mandela was voted to become president and this marked the beginning of a new era in the history of South Africa and the world (Mandela, 2008).

To counter inequality, the ANC introduced the Growth, Employment and Redistribution (GEAR) program in 1996, which aimed to reduce income inequality and the welfare gap. These inequalities originated form the Apartheid period. One of the main ways through which this policy aimed to complete this goal was by redistributing income through job creation and creating opportunities for the poor. The GEAR program consists of six main pillars on which the ANC tried to complete their goals (Treasury of South Africa, 1996).

To get a better view of the effect of the Growth, Employment and Redistribution program on the inequality in South Africa, I will be taking a closer look at the effects of this policy on an intermediate timeframe. One of the aims of GEAR 1996 was to lessen the income inequality originating from the Apartheid period. To investigate if this policy actually had an effect on closing the income inequality in South-Africa, I will try to answer the following research question:

How did GEAR impact the between-race income inequality between individuals among the working population in South-Africa from 1996 onwards?

The timeframe of this research is 1993 until 1999, which is right around the time Apartheid ended and GEAR was implemented. This specific period creates an opportunity to investigate the effects of policy on reversing the income differences between ethnic groups. It is very well possible that the effects of this policy are only visible at a later date purely because inequality cannot be changed by the push of a button. Policy and new regulations can only be implemented sometime after presenting the plans of what the changes will look like. On that note it is important to not write off the policy because we do not see any results after a few years.

Similar to the research I would like to execute is the work of Leibbrandt, Finn and Woolard (2012). By making use of income data of 1993 and 2008, they compare the income inequality in post-Apartheid South-Africa. They found that the general income inequality increased when they compare these specific years. However, when looking specifically at the between-race inequality, they found that there has been a decline. One downfall of their research is that they were not able to look at the changes that happened over time. This is something that I would like to add to the current literature. By looking at the trend of inequality year by year, the difference in inequality between two points in time can be better explained. This would help to better educate ourselves on policy implications, to decrease the income inequality between different ethnic groups.

The ending of the Apartheid period was a colossal turning point in the history of South-Africa. The implementation of GEAR 1996 is one of the first major economic plans that the new government implemented to strive for a more equal South Africa. The short-term effects of this policy have been examined before by Michie and Padayachee (1998). They found that in the short-term GEAR was unable to create a lot of jobs and reduce inequality. They thought this was mainly due to the lack of focus on industrial policy. A suggestion by Michie and Padayachee (1998) is that the government should focus more on moving towards the production of intermediate goods and capital.

One of the pillars of the GEAR 1996 policy was to make the country more favourable to foreign investors and make use of their investments to increase the welfare in South-Africa. However, Kaulihowa and Adjasi (2018) find that foreign investment does result in overall growth, but that there are negative effects for the distribution of income. It is important to investigate ways of policy intervention to create a society where people have the same means to live their lives. This is exactly what the paper aims to do.

Although income inequality is easily visible when comparing the difference between people's lives, the consequences of this inequality are often not that easy to grasp. Research by Buttrick and Oishi (2017) shows that there are also negative psychological effects of being on the wrong side of the earnings gap. By feeling less valuable, these people have a lower life satisfaction. Moreover, they are more

distrustful and generally less happy. This shows that it is important to further investigate not only what the consequences of inequality are, but also how we could be able to lessen the gap in equality.

An important factor to decide the priority of closing the welfare gap is related to the historical background of a country. Alesina, Di Tella and MacCulloch (2004) show that historical heritage and the beliefs of people on the social mobility in their country are important factors to determine the importance of solving inequality. When looking at their results, they find that poor Europeans are far more concerned with the inequality gap than poor Americans. According to Alesina et al. (2004) this has everything to do with the perception of the social mobility in their respective countries. Telzak (2012) adds to this by finding that among Black Africans living in Cape Town (South-Africa), there is an all-embracing perception that the top incomes are earned by White Africans and that the bottom of the income distribution is entirely black. Although some ways for upward mobility are given by the Black African interviewees, these are mostly not accessible for them. This lack of belief in moving up the social ladder constitutes to the fact that no action is being taken to resolve the problem. It is therefore important to take a look into ways to reduce income inequality, to help people who are stuck in this social situation and are clueless on what to do to get a better future.

In this paper, an event study methodology will be used to investigate the between-race income differences. By making use of an event study, the impact of the GEAR program can be measured. Not only the year of implementation is considered, but a comparison between the years surrounding the implementation of GEAR can also be made. This event study entails different individuals over the years. This is due to the cross-sectional dataset that is used. In an attempt to control for the differences between individuals over the years, control variables will be added to make sure these differences are minimized. Although the cross-sectional dataset could pose problems, it also gives opportunities for this research. By having different individuals for every year, that are representative for the nation, changes in the composition of the workforce can be controlled for.

Moreover, the event study will be completed separately for workers that are a member of a worker's union. This will be done to check if the effect of GEAR is stronger for workers that are part of a union. The reason for this separate inquiry is that these workers are represented more strongly in wage negotiations through collective bargaining. Since one of the priorities of GEAR was raising wages through collective bargaining, union workers would benefit from this strategy the most since they are represented by a union in wage negotiations.

This paper finds positive effects of the GEAR policy for males. Specifically for union workers, the income inequality is smaller. This is mainly due to the collective bargaining strategy implemented with the

policy. By setting strict rules and negotiating wages, everyone will get the same wage, regardless of social background. Collective bargaining is therefore a useful measure to reduce income inequality.

This paper adds to the work of Leibbrandt, Finn and Woolard (2012) by showing positive policy effects over an intermediate timeframe. Mainly by creating workers unions and collectively setting wages, the wage difference between Black and White African workers is minimized.

In the rest of the paper, I will first have a closer look at the literature on income inequality and worker unions. Furthermore, the most important pillars of the Growth, Employment and Redistribution 1996 policy will also be explained in section 2. Thereafter the data and methodology will be discussed in sections 3 and 4. After the methodology there will be two results sections. One for all the individuals in my sample and one for individuals that are part of the workers union. Lastly, the paper will discuss limitations of the research method, present its findings and give advice for further research.

2. Theoretical framework

Income inequality is not a recent issue. In 1955, Simon Kuznets already described the possibility of inequality due to wages (Kuznets, 1955). His famous inequality curve describes the story of how a small group of fortunate individuals accumulate equity through the industrialisation of a nation. This inverted U-shaped curve shows that it takes time of higher inequality before the inequality between people can go down again. When the income is rising for a certain group, these people are able to save money. This will accumulate wealth for these people which will later be divided by political choices of the government. Through government intervention and levying higher taxes on the ones with a higher income, the government is able to provide better circumstances for the least advantaged.

The ending of Apartheid was a notorious moment in the history of South-Africa and a wakeup call with respect to the inequal situation in the country (Mandela, 2008). With a Black African president for the first time, the solutions for racial inequality were coming from the main governmental body instead of from activism groups. Powell, Branscombe and Schmitt (2005) found that when privilege is framed by showing ingroup advantages over another group of people, racism tends to be lower than when the disadvantages of another population group are shown with respect to someone's own population group.

The GEAR policy was presented to parliament on June 14, 1996 and consists of six different pillars (Michie & Padayachee, 1998). The first pillar is concerned with the fiscal policy. The fiscal stance is one of making sure that government dissaving is going to be eliminated. The government investment will be adjusted in such a way that spending will be eliminated or lowered for activities that cannot be provided for all or could be organised via the private sector. By saving money through cutting government expenditures, the government wants to invest in the other pillars. One of the main points of attention are improving the basic human needs of the poor. The second and third pillar were focused on controlling the interest rates and improving trade. These pillars do not directly influence the inequality gap between races and are therefore of less importance.

The fourth pillar is the social and sectoral policy. With the savings made from the fiscal policy, the government aims to invest more money into education, health, infrastructure, and housing. As concluded by Mahedea (1998), South-Africa is facing gigantic backlogs of education, employment, and other socio-economic needs due to the Apartheid period. By investing more money into public schooling available for the poor, the government aims to increase the quality of education by building and refurbishing better classrooms and making sure that teachers are well educated themselves.

Closely related to the fourth pillar is the fifth pillar, which is aimed at public investment and asset restructuring. This pillar mainly focuses on solving the infrastructural backlog worth 170 billion Rand

(ANC, 1997). By mainly focussing on household infrastructural projects like water supplies, sanitation and setting up an electrical grid, these public interventions are aimed to favour the poor. Moreover, by creating roads and railways, the underlying idea is that the poor should be able to commute to work more easily. This is one of the ideas of the government to actively try and reduce income inequality by increasing opportunities and supporting people's basic human needs. These improvements cause individuals to also be more valuable for employers on the job-market. This is backed up by the finding of Jones (2006) that people who are more satisfied with their life are better performing at their jobs.

Based on the focus of the first five pillars of this policy to reduce inequality between population groups, combined with the raised awareness of inequality in the years of implementation, I expect that the income inequality between the Black and White African population groups will decrease. Moreover, I expect the earnings gap to decrease because of an increase in the wages of Black Africans. They are seen as the poor population group, which are specifically targeted in the policy. Another reason might be that due to wage rigidity, because of longer term contracts, the wages of Whites were not able to come down. This could of course also be because White Africans are not willing to lower their income voluntarily. This results into the following hypothesis:

The reduction of income inequality will be initiated through the increase in wages for the Black African working population

If, however, the real wages of Whites would decrease after the policy was introduced, this could originate from a higher tax on income. One of the main points in the GEAR policy was that they would like to redistribute income to the poor people. This option is however less likely because the redistribution would mainly take place by job creation and not via a higher tax rate.

GEAR is also aimed at getting more Black Africans into the labour market and into a job, which possibly would cause the income inequality to widen. The reason for this is that Black Africans, compared to White Africans, are less well educated and are therefore more likely to fill lower paying jobs. By looking at the average income per ethnic group, this could result in the finding that the income inequality is increasing while more poor people are entering the labour force.

Moreover, it could be very well possible that companies do not invest the money they will receive from the GEAR policy in improving the wages or working conditions of the poor. No guarantee can be given that these firms will actually do what they are given the subsidy or investment for. If they use the investment to implement technological changes, they are more likely to need higher skilled workers. This finding of Shupp (2002) could therefore, as he concludes, cause a situation where income inequality is increased instead of decreased.

The sixth pillar is directly aimed at employment, wages, and workers training (ANC, 1997). The strategy for increasing employment is, next to the points in the beforementioned pillars, to support a less flexible labour market where minimum wages are implemented by means of collective bargaining. This would ensure that wages are not set above productivity but still attract enough people into the workforce. According to Hayter (2015), unions are able to stop the rising inequality due to the balancing of the unequal relationship between employees and employers. By levelling the playing field when it comes to negotiating wages, individuals are better off. Also, Hayter (2015) concludes that collective bargaining strategy is effective. This results in employers being more likely to stick to the negotiated wages.

Another way to create more job opportunities is to promote productivity improvements for firms as well as for workers. Previously, the wages of people would go up in economic boom and down with recessions (Adelzadeh, 1996). Often, the poorest people tended to be most affected by these wage changes. By special campaigns to increase human capital via training, specifically for the new entrants to the workforce, they should be able to increase their own productivity and be more valuable for firms. The Adult Basic Education and Training (ABET) programmes must provide training. In these programs, adults can learn skills to increase their productivity or learn new skills that are useful for employers. This problem is stemming from the fact that only 40% of kids complete secondary school (Treasury of South Africa, 1996). One of the planned improvements is to restructure and decentralise schooling. Moreover, a curriculum for all students will be put in place to guarantee that all students have a basic understanding of multiple subjects. By increasing their own productivity, the poor are in better shape to negotiate a better position and a better wage accordingly. In this way, income inequality can be reduced by making sure more people of the historically disadvantaged population are better equipped to work.

As proposed in the GEAR 1996 policy, one way to uniformly set wages is by making use of workers unions. By means of collective bargaining agreements, workers unions can directly negotiate wages with employers. Hayter (2015) finds that unions are a good measure to make sure that the market power that employers have over the employees is minimized. Card (1996) states that unions are mostly responsible for the increase of income for the low wage earners and therefore minimize inequality. Moreover, Card, Lemieux and Riddell (2004) find that in absence of unions, the wage inequality is higher than in situations where unions are playing a factor in bargaining for wages. This results in the second hypothesis:

The between-race income inequality for union workers will be narrower due to the collective bargaining strategy used in negotiating wages

Based on the beforementioned research I expect that unions can play a major role in creating a level playing field with regards to setting fair and higher wages. Due to the reduction of market power of firms with respect to the average employee, the firms are unable to lower wages to maximize their profits. Instead, wages will be set that are not only fair but also upheld for every individual, regardless of their ethnic origin.

Although each pillar has its own specific aim, the main goal of this policy is twofold. For one, it is looking to invest in basic human needs. By means of investment, the government is aiming to make sure that all people have access to water, sanitation, and electricity. Furthermore, investments for education and healthcare are planned to make sure people are able to live healthy and boost their human capital. Second, by collective bargaining, investing in firms and supporting training for the workforce, the government aims to create better working conditions and create opportunities for more people to work. Not only that, investing in training can enable every individual to grow and accumulate skills valuable to firms causing their wage to increase.

To conclude, the plan of the South African government is mostly aimed at the poor. A lot of investment is needed to let this plan succeed and create enough jobs. This is needed to make sure the status quo created by Apartheid is overturned and inequality between ethnic groups is put to an end. Not only the job creation plays a role, also closing the welfare gap is an important priority of the new government. By making the poor more appealing for employers through job training and better living conditions, the income gap between the historically poor and rich is targeted.

3. Data

The Post-Apartheid Labour Market Series (PALMS) dataset will be used for this research (Kerr, Lam & Wittenberg, 2019). This dataset is a stacked cross-sectional dataset created by DataFirst at the University of Cape Town. The dataset contains data of 69 household surveys conducted by Statistics South Africa between 1994 and 2019. In addition, it also contains the 1993 Project for Statistics on Living Standards and Development conducted by SALDRU. I will be using the October Household Surveys (OHS) from 1993 to 1999 of Statistics South Africa because this period includes the 1996 GEAR reform and a few years before and after the implementation of the policy. The surveys were held by means of face-to-face conversations through the whole nation of South-Africa and are representative for the specific years the survey was conducted (Kerr & Wittenberg, 2020). The selection of households is based on setting up a representative sample and is therefore non-random. As a result of different amounts of funding between years, the sample sizes are dissimilar over the years. This difference might impact the outcomes found in this paper due to the lower number of observations for some groups in specific years. The averages gathered from these groups are more vulnerable for outliers.

The surveys are conducted on individual level. This makes it possible to estimate the earnings between the two population groups. Not only the monthly real earnings are gathered, also a lot of personal characteristics are collected in the interviews. The net earnings are requested in the survey interviews as one of the questions. However, it would be more accurate if the gross labour earnings would be collected from the states administration. One of the most important variables is ethnicity. This is one of the main variables of interest because I would like to investigate the between-race income inequality. Moreover, this dataset contains information about age, gender, years of education, marital status, and the province in which someone is living. Also, the place of residence is further specified by indicating if someone is living in an urban or rural area. The last variable that will be used is the indicator variable that shows if a particular individual is a member of the labour union. This particular information will be used in the event study for union workers to check if there are stronger effects of GEAR due to collective bargaining.

Below in Table 1 the descriptive statistics are shown. It concerns the averages for all the observed years, being 1993 until 1999. The descriptive statistics table includes every observation of every year split up by ethnicity. For a more extensive overview of the descriptive statistics, Table A.1 in the appendix shows the averages for all variables separated per year. Based on Table 1 it is clear that both groups are on average the same age. The different population groups are more or less similar with respect to the gender distribution. A difference occurs when looking at the fraction of people that are married if we compare the two population groups. The White African population is way more likely than the Black African population to be married. Black Africans are, however, slightly more likely to be

part of a labour union. On the contrary, the White African population is mostly living in urban areas whereas for Black Africans this is about half of the population. Major differences occur when looking at the years of education and the real monthly earnings per month. The White African population is following education for approximately 5 years longer than the Black African population. Moreover, on average over all the years, the earnings of Whites are a lot higher than the earnings of the Black African population.

Table 1: Average descriptive statistics over the years 1993-1999

	White African	Black African	Combined
Age	38.464	38.214	38.271
Female	0.408	0.419	0.417
Married	0.757	0.590	0.628
Union	0.214	0.304	0.282
Urban	0.875	0.533	0.612
Years of education	12.05	7.387	8.464
Real earnings per month			
25% percentiles	6,287.83	677.07	1,666.36
50% percentiles	10,982.59	3,001.29	4,093.23
75% percentiles	18,054.10	5,554.52	8,381.83
99% percentiles	129,741.70	23,749.18	58,094.78
Province			
Eastern Cape	2,446	9,900	12,346
Free State	2,438	10,792	13,230
Gauteng	8,211	16,806	25,017
KwaZulu-Natal	3,314	16,509	19,823
Limpopo	1,276	9,418	10,694
Mpumalanga	2,081	10,633	12,714
Northern Cape	1,716	2,872	4,588
North West	1,475	10,709	12,184
Western Cape	4,502	4,168	8,670
Number of observations	27,459	91,807	119,266

Note: Age and years of education are presented in years. Real earnings are presented in Rands. The percentiles show the earnings amount of a person at that rank of the given population groups. All other variables are shown in fractions apart from the province variable, this variable is showing absolute numbers.

Proportionately the largest part of the White African population is living in the Western Cape, Northern Cape and Gauteng province. According to Paumgarten and Shackleton (2011), Eastern Cape and Limpopo are the two poorest provinces of South Africa. This is not a strange finding when combining the ratio of White Africans to Black Africans in these provinces and the average earnings of the population groups.

When taking a closer look at Table A.1, the enlarged overview of descriptive statistics per year, it is clear that on average the real earnings of White Africans in 1994 is a lot lower in comparison to other years. This can be explained by the difference in people that are interviewed. In the other years relatively more White Africans living in the richer provinces like Gauteng and Western Cape (SAfacts Co. Ltd, 2021) are interviewed. In 1994, however, the number of White Africans interviewed out of every province is more evenly divided. This causes more people to be interviewed out of the poorer provinces like KwaZulu-Natal and Limpopo (SAfacts Co. Ltd, 2021). This causes the real earnings of this specific year to be a lot lower than in the other years.

4. Methodology

An event study will be implemented to investigate the differences between income for the two most important population groups during Apartheid, White and Black Africans. To make a more equal comparison, I would like to look at the differences between the two groups by doing an event study for males and one for females. The main reason is that in this research the main focus is on the differences in income based on ethnicity and not on the gender pay gap. Furthermore, based on the works of Horn (1991) and Albertyn (1994) with regard to the emancipation of women in the period after Apartheid, it is likely that there will be more positive time trends for females than for males with respect to the wages. It is therefore important to make a distinction between race due to the different external factors that have nothing to do with the GEAR policy.

An event study creates the opportunity to look at the effects of the GEAR policy at a later time than right after implementation. This is useful because it takes time before the effects of a policy change are noticeable. There are two main assumptions regarding the event study methodology. These are the assumption of the absence of anticipation effects and the assumption that there are no changes over time that are different for the two groups aside from the effect of the GEAR policy. It is likely that the first assumption will hold because of wage rigidity. It is very unlikely that employers will voluntarily increase wages of black African workers without any incentive. People will hold onto the status quo as much as possible (Samuelson & Zeckhauser, 1988). The GEAR policy was introduced in June of 1996, so if there were anticipation effects, they would occur for the first time in 1996. However, when getting a hold of the GEAR policy before the implementation, there is no financial incentive for employers themselves to increase wages. These employers will try to increase wages at the latest possible date because of their own financial gain.

The second assumption is more difficult to check for and will probably be impossible to control for. This is because it is very difficult to control for every single difference between the two groups over time. However, by controlling for some important factors that determine income it is possible to filter a small part of these confounding effects away from the actual difference in income.

To answer the research question, the estimated regression used for the event study will look like:

$$Income_{it}^{G} = \beta_1 * Year_t * BlackAfrican_i + \beta_2 * Year_t + \beta_3 * BlackAfrican_i + \varphi X_{it} + \varepsilon_{it}$$

On the left-hand side, the outcome is the income of individual i at time t for gender G. On the right-hand side there is an interaction term between the year and the population group of a certain individual in a certain year. The effect of this interaction term is caught in beta one (β1) and is the coefficient of interest. It captures the year effects of being a Black African in a certain year. If this coefficient increases, it means that the Black African population is earning more. This is the coefficient

that shows if the GEAR policy is working or not. The other beta's (β2 and β3) respectively capture the year effects and the effect of being a Black African compared to a White African.

1996, the year GEAR was implemented, will be marked as t=1 and 1995, the year before the implementation will be marked as t=0. This year will be excluded so all periods will be relative to the year prior to implementation. Moreover, the population group will be marked as 1 if the individual has a Black African descent and zero if the individual is of White African descent. Thereafter, the interaction term will be split into the two variables for year and population group separately. Because the dataset contains cross-sectional data, I will use a number of control variables to minimize the effect of personal characteristics on the outcome. These control variables are caught in the vector X, which contains control variables for age, years of education, marital status, the province someone lives in and if the town they live in is in an urban or rural area.

As mentioned before, to check if the found results are stronger for union workers, the same methodology will be applied for people who are members of the workers union. One of the priorities of the GEAR program was to increase wages through collective bargaining. This would mainly happen through worker unions since they have more power in negotiations against employers in comparison to a single worker.

It is important to look at the possible differences between the event study including all individuals and the one with only union workers. If in the situation where only the union workers are considered the income inequality is narrower, this could be an indicator that collective bargaining might be a solution for the phenomenon of wage discrimination based on race.

One of the problems that I am unable to tackle is that in the given dataset people are only interviewed once. This means that the data is cross-sectional and is not a panel dataset. This could cause problems when the people that are interviewed in a given year are substantially different from people in other years. By including control variables these effects are tried to be kept to a minimum. However, this will not solve all the problems. Unobserved personal characteristics will not be caught and could therefore impact the measured effect of the GEAR policy.

5. Results

Following the era of discrimination in South-Africa, the government made a swing in policy to undo the outcomes created by Apartheid. One of the main policy ideas was the Growth Employment and Redistribution policy. The effect of the GEAR policy of 1996 is investigated by means of an event study for the years 1993 until 1999. In Table 2 the results of this event study are shown. In this Table, there are three types of coefficients that are estimated. Firstly, the interaction term between year and the dummy for being a Black African. It is important to mention that only Black Africans will encounter this effect. Therefore, this variable can be seen as the policy factor that measures the increase of the wage of a Black African compared to their wage in 1995. Secondly, there is a year indicator that measures the year specific effects that are felt by everyone. Lastly, there is an indicator for being a Black African. This coefficient shows the difference of being a Black African compared to being a White African.

For the first years after the implementation of the new policy, the wages of Black African males increased significantly. When looking at Column 1 of Table 2 it is clear that, compared to 1995, Black African men are increasing their income if we look at the policy factor. With increases of 6.000 to almost 7.000 Rand per month, the policy seems succeed in increasing wages for Black African men in the first years of implementing. The effect is almost cut in half by 1998 but is still significantly increasing wages. When adding multiple control variables in column 2, the wage increases tend to be a bit smaller, but they would still significantly increase the wages when looking at the policy indicator.

There is one problem with this finding, which becomes clear when looking at the year effects. The positive effects on wage, shown by the policy factor, are largely if not totally offset due to the decrease in wage because of the year effects. This means that although the policy is working to specifically increase the wages of the ones it is meant for, everyone in society is having a big decrease in their real monthly wages. This means that the real wages of Black African males are not increasing in real terms.

One positive that can be taken from this finding is that the wage gap between ethnic groups is therefore closing. This trend can also be seen in Figure 1 below. This figure shows that the wages of Black African males are growing ever so slightly over the years. However, White Africans are having a few major negative shocks when it comes to their earnings. These shocks are slowly overcome so that after a few years the wages of White Africans are almost back at their original level of 1995.

This closing of the earnings gap disproves the first hypothesis that income inequality would decrease as a result of the increasing earnings of the Black African population. Instead, the earnings gap seems to be decreasing due to a decrease in earnings for the White African population.

Table 2: Event study results of the whole sample

	Males		Females	
	(1)	(2)	(3)	(4)
Year × Black African				
1993	-188.128	288.866	-2893.253***	-3012.453***
	(1172.122)	(1161.295)	(455.981)	(445.370)
1994	8210.027***	7956.367***	2113.920***	1934.731***
	(686.300)	(673.846)	(323.760)	(317.414)
1996	6295.410***	5896.872***	-877.617	-1162.204
	(990.788)	(976.087)	(839.876)	(831.150)
1997	6823.649***	6644.412***	-1061.429**	-1195.056***
	(787.063)	(772.636)	(467.356)	(458.349)
1998	3873.262***	3748.94***	-2243.245***	-2191.214***
	(985.770)	(967.226)	(757.883)	(748.592)
1999	1256.044	1254.989	-2105.716***	-2015.188***
	(1040.996)	(1031.456)	(586.401)	(578.721)
Year				
1993	-146.314	317.304	1843.752***	2451.332***
	(1167.792)	(1158.995)	(445.219)	(438.698)
1994	-9125.25***	-8729.12***	-2987.365***	-2822.452***
	(679.568)	(666.586)	(315.877)	(309.600)
1996	-6130.333***	-5949.796***	978.952	905.695
	(986.211)	(966.892)	(834.535)	(825.580)
1997	-6473.214***	-6421.808***	970.737**	880.372*
	(778.652)	(760.690)	(460.818)	(452.464)
1998	-3367.923***	-3202.469***	2262.921***	2134.020***
	(976.839)	(954.389)	(748.348)	(738.687)
1999	-696.068	-634.256	1995.061	1836.907***
	(1032.834)	(1019.828)	(576.724)	(566.220)
Black African	-20847.43***	-16715.44***	-6916.48***	-4129.576***
	(588.748)	(583.505)	(274.854)	(274.001)
Controls		✓		✓
Number of observations	69,569	69,205	49,698	49,443

*Note: In column 2 and 4 control variables are added. These controls consist of the following variables: age, years of education, marital status, the province someone lives in and if the town they live in is in an urban or rural area. Significance is shown by adding stars to the coefficient in the following manner: *** p<0.01 ** p<0.05 * p<0.1. Standard errors are shown between parentheses.*

Also, the results of Table 2 show clearly that there is an enormous gap between both White and Black Africans in terms of real earnings. This finding is represented in the variable that shows if someone is a Black African or not.

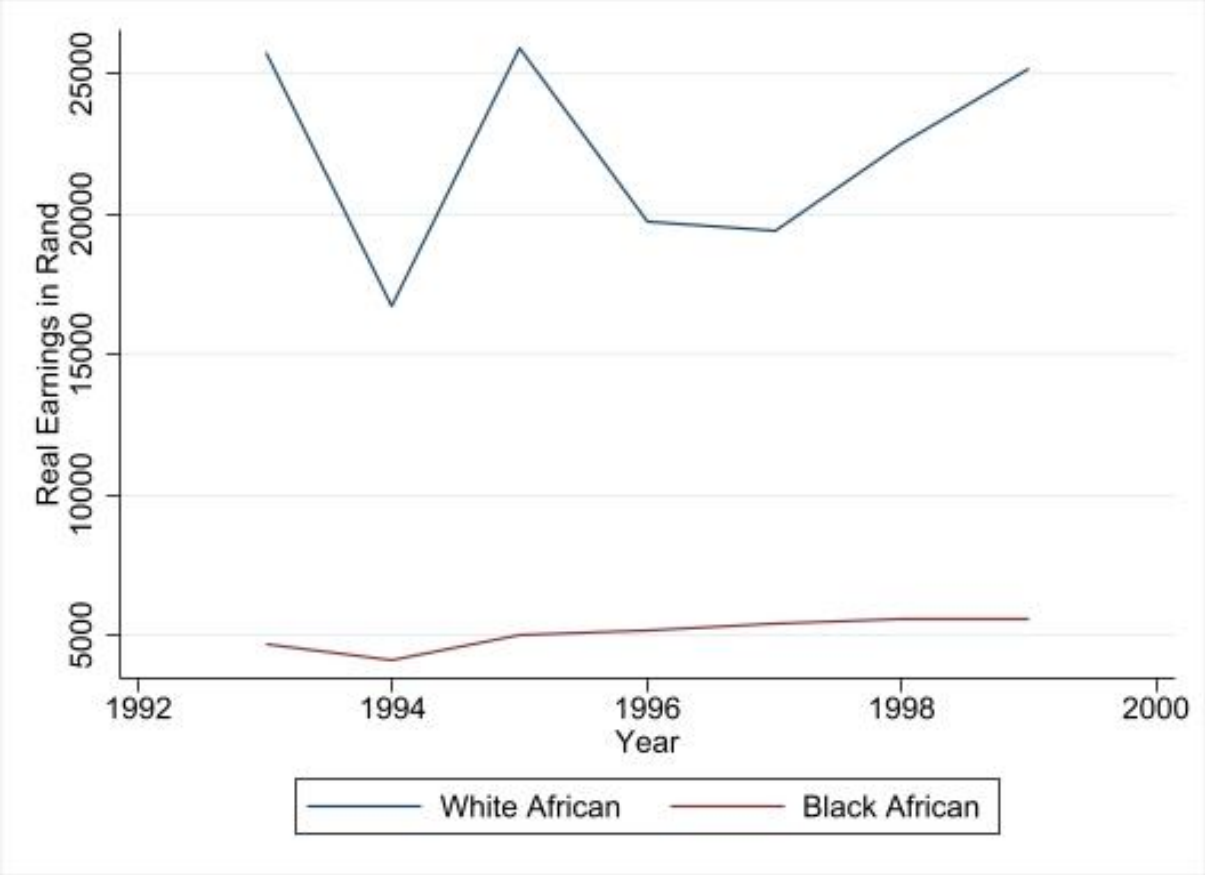

Figure 1: Trend of real earnings for males.

The negative shock found in 1994 is mainly due to the difference in type of people that were interviewed in that specific year. In 1994 specifically, the number of White Africans individuals that were interviewed per province was more equally distributed than in other years. Mainly in the surrounding years, the White African individuals were mainly living in the richer provinces. This causes a major shock when it comes to the observations in 1994 since in this year relatively more individuals out of poorer provinces were interviewed. This is also found in column 1 and 2 of Table 2 if we look at the year effects. In 1994 there is a larger negative drop compared to other years.

When looking at the results for females in Column 3 and 4 of Table 2 we can see an opposite outcome compared to the outcome for males. The table shows that the policy indicator is not significant in 1996, but significantly negative the years after. This means that due to the policy implications Black African women are losing money. Both with and without control variables the estimated effects are more or less the same. This negative effect of the policy of around a 1000 to 2000 Rands per month impacts the poorer females in society. In contrast to the findings for Black African males, females seem to be

worse off due to the policy implication. The negative effect almost doubles from the year 1997 to 1998. This shows that the impact on female earnings is stronger a few years after the implementation of the GEAR policy.

Similar to the results for males there is also a catch here. The year effects for women are significantly positive. This means that all women are earning more in the years after the implementation of the GEAR 1996 policy. A conclusion that can be drawn based on these two measures is that the between-race income gap for women is increasing. This result is also visible in Figure 2. After a similar year effect in 1994 to the year effect for males, the wages of White African women are increasing more rapidly than the wages of Black African women. This results in an increase in the between-race earnings gap for females.

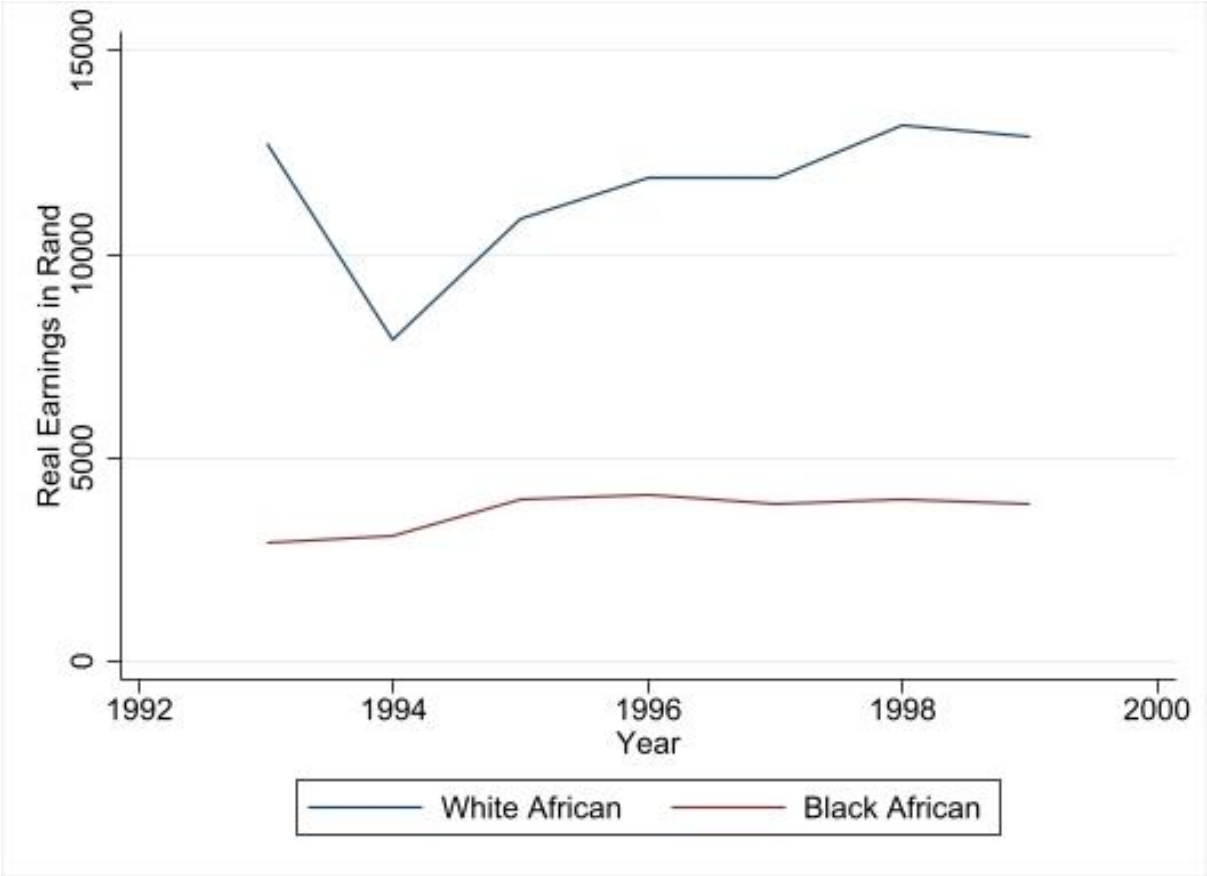

Figure 2: Trend of real earnings for females.

Similar to the finding in 1994 for the male individuals, the same applies to the female individuals. Due to a more evenly distributed selection of females per province, the average real earnings were quite a bit lower than the surrounding years.

The difference in findings for the year coefficient between males and females is remarkable. Why do females increasingly get more money when looking at the specific years compared to males? One reason might be that in May of the year 1990 the ANC, the then sitting political party, already started

to investigate the emancipation of women in South Africa by publishing a statement on how they would like to tackle the gender gap (Horn, 1991). This statement entailed that woman of the ANC's Women's League should take the floor and create a national debate on how to make sure the emancipation of women is embedded into the political strategy (Albertyn, 1994).

Moreover, as Horn (1991) states, women are not included in some employment sectors and are traditionally expected to stay at home and care for children. Horn (1991) states that this is the primary reason for the lacking female participation on the labour market. This gender division in the labour market could therefore also be a factor in the results. Since the GEAR policy is mainly focused on increasing wages for the working population through creating better working environments and collective bargaining, the population group that is mostly benefiting from this policy is therefore the male population. In that frame of mind, it can also be explained that for males the results of the policy coefficient are largely and significantly positive where women have significantly negative coefficients.

At first sight it looks peculiar that there are significant positive effects in 1994 for both Black African males and females. Where the income of males increases with around 8000 Rand per month, females have an income increase of around 2000 Rand per month. One explanation for this significant effect is the ending of the Apartheid era as a result of the first free elections in South-Africa. When Nelson Mandela took office in 1994, the Black African population was no longer the oppressed majority. Needless to say, discrimination and prejudice did not change from one day to the other. However, a lot of rules regarding the oppression of Black Africans were abolished. This gave the Black African population the opportunity to work in higher paying jobs, which might be the explanation for the positive effects found in 1994.

To sum up, the income gaps between males and females is differently impacted by the GEAR policy and other external factors. Due to the policy, the gap in earnings between ethnic groups of males is decreasing, where it is negatively impacting the women's earnings gap. However, women tend to benefit from the increasing earnings that are associated with the specific year and the emancipation movement.

6. Union workers

One of the main points of focus of the GEAR policy was to improve the wages through collective bargaining with the help of worker unions. To investigate if the beforementioned effects are different, I completed the same event study as in the section before. However, now only the people that are part of the workers union are included. If the findings are more strongly positive in this instance, this would be an argument for the effectiveness of collective bargaining.

One of the imperfections of this strategy is that the wages that are set by collective bargaining are set for whole sectors. This could cause non-union workers to benefit from the higher wages set by the union, as long as the employer does not differentiate wages between workers based on being part of the workers union or not. If all workers in a certain sector get the same wages, this would underestimate the total effect that is captured in this event-study because the benefits for non-union workers are not considered.

The results of this event-study are shown below in Table 3. The build-up of this table is similar to the structure used in Table 2. The results for males are shown in column 1 and 2 and columns 3 and 4 show the results for females. The same control variables as before are added in the even columns. With regards to the build-up, firstly the policy indicating coefficients are shown. Thereafter, the year specific effects and lastly the coefficient that shows the difference between being of Black African descent compared to being of White African descent are shown.

Due to collective bargaining, one might expect the policy impact for workers that are part of the workers union to be stronger. However, compared to the results of males before, the impact of GEAR on male union workers shown in columns 1 and 2 of Table 3 is less strong but still significant. Nevertheless, there are still significant positive impacts on the real earnings of the policy coefficients. This shows that the policy is working in a positive manner when it comes to closing the earnings gap between ethnic groups.

As found before, the year effects are causing large offsets when it comes to the actual real earnings of an individual. Also, for the union workers, the 1994 selection of interviewees is different from the interviewees of the other years in terms of in what province they are living. This is causing the negative earnings spike in Figure 3 below. Moreover, the earnings gap between ethnicities is smaller for male union workers in comparison to the situation found above in Figure 1 for all individuals. Similarly, as before, the year effect causes the gap to be larger, except for 1994 where the gap is at its smallest.

Table 3: Event study results for union workers

	Males		Females	
	(1)	(2)	(3)	(4)
Year × Black African				
1993	-3225.026***	-2036.971**	-1878.723**	-2448.379***
	(958.570)	(884.695)	(744.927)	(782.097)
1994	8159.316***	7911.948***	1595.217***	1619.433***
	(521.316)	(494.577)	(371.992)	(339.058)
1996	3282.157***	3275.534***	-1068.352	-897.412
	(743.832)	(716.536)	(761.3828)	(719.549)
1997	3776.488***	3803.390***	-597.678	-456.255
	(641.081)	(623.829)	(555.716)	(530.110)
1998	1169.627	1149.162***	-1922.226**	-1705.229**
	(1381.246)	(1368.337)	(807.577)	(780.339)
1999	-217.149	-202.093	-1703.469**	-1303.404*
	(1180.897)	(1172.088)	(730.128)	(689.871)
Year				
1993	3152.061***	3044.716***	1370.328*	2646.370***
	(947.655)	(872.731)	(702.971)	(751.126)
1994	-9179.799***	-9046.862***	-3609.863***	-3340.238***
	(503.626)	(483.829)	(345.580)	(317.933)
1996	-3190.595***	-3263.257***	837.448	785.052
	(732.210)	(706.021)	(735.559)	(698.689)
1997	-3878.787***	-3995.401***	112.178	16.993
	(632.650)	(616.644)	(535.936)	(515.573)
1998	-527.825	-408.835	2218.508***	1841.225**
	(1365.834)	(1353.174)	(778.156)	(756.573)
1999	584.279	646.952	2120.838***	1686.998**
	(1169.638)	(1158.794)	(686.417)	(651.021)
Black African	-12930.85***	-10824.560***	-4169.879***	-2873.738***
	(477.787)	(452.883)	(299.096)	(275.645)
Controls		✓		✓
Number of observations	22,423	22,336	11,326	11,282

*Note: In column 2 and 4 control variables are added. These controls consist of the following variables: age, years of education, marital status, the province someone lives in and if the town they live in is in an urban or rural area. Significance is shown by adding stars to the coefficient in the following manner: *** p<0.01 ** p<0.05 * p<0.1. Standard errors are shown between parentheses.*

In conclusion, the earnings gap between-race groups is decreasing for union workers. The GEAR policy effects are showing that there is a positive impact on wages of Black African union workers. Moreover, this can be concluded by the relative impact of the year effects and most certainly on the coefficient of being a Black African. In comparison with the whole sample discussed in the section before, the Black African coefficient found in Table 3 column 2 is around 6000 Rand per month less negative than the same coefficient in Table 2 column 2. This difference between these coefficients shows that the difference in earnings between Black and White African union workers is smaller to begin with.

It is not a strange finding that the between-race earnings gap for workers that are part of the workers union are smaller than the same gap for all workers. The most important reason is that unions are able to discuss wages for all members of the union. Therefore, it is very likely that the monthly earnings of different individuals who have the same job is the same. More often than not the discussed wages between worker and employer unions are upheld for all different ethnic groups. By following these strict rules set by the unions, both ethnic groups are getting the same wage and therefore closing the earnings gap between races.

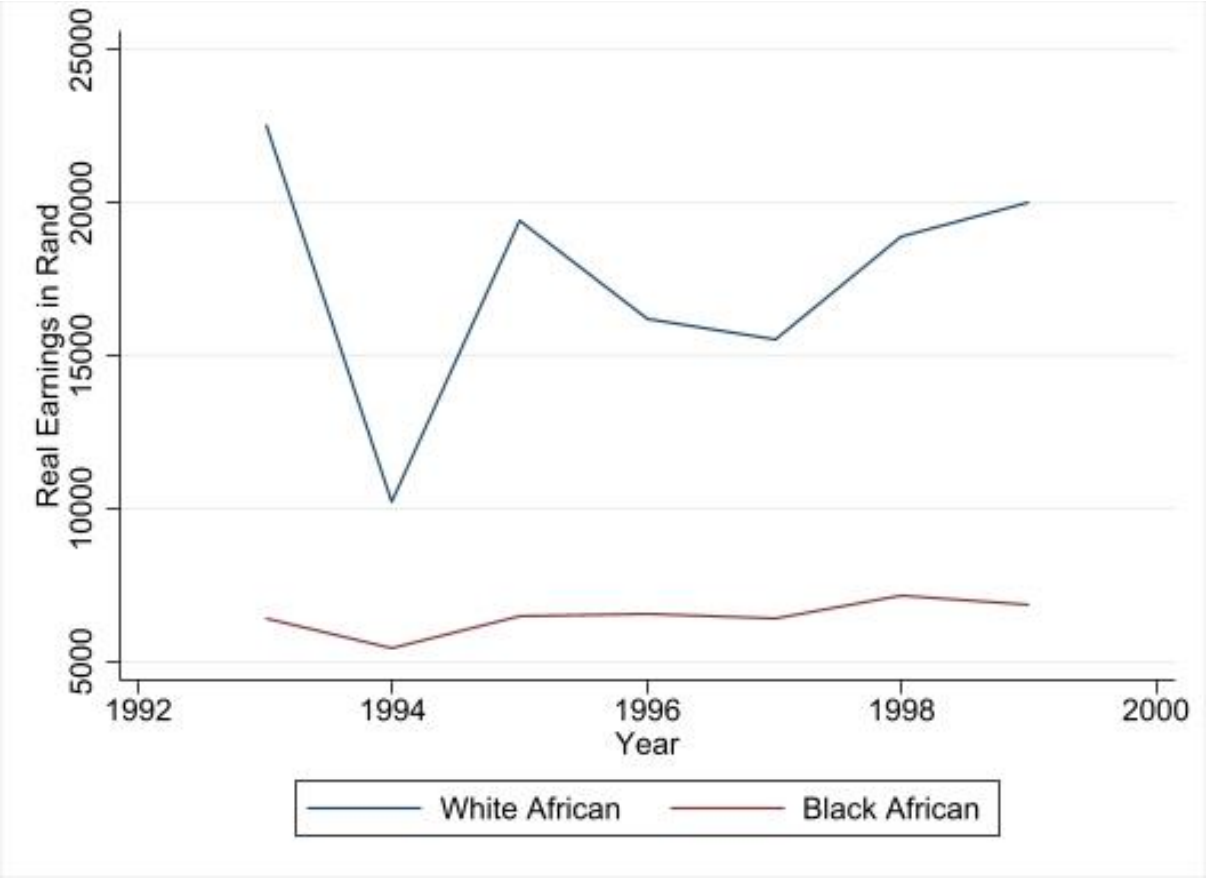

Figure 3: Trend of real earnings for male workers that are part of a worker's union

This complements the expectations set in the second hypothesis. Due to the collective bargaining strategy of workers unions, the wages differences between workers of different ethnic groups are kept to a smaller extent than when unions where not present.

When considering the results for female union workers in columns 3 and 4 of Table 3 there is a weaker effect in comparison to the situation where all females are considered. Not only is the effect weaker, the effect in the first years after the policy intervention is also no longer significant. This shows that the GEAR policy is not working as effective as hoped for female union workers. Similar reasoning can be followed when looking at the effects of specific years. Also, here the effects are less strong and not always significant. This is however not a peculiar finding. Females who are part of a worker's union have, like their male counterparts, wages that are more or less fixed. They are negotiated for by the unions and are therefore less likely to be impacted by emancipation movement in the short run.

The positive effects of the GEAR policy that are found for female union workers is also visible in Figure 4 below. There is a clear increase in the real earnings per month for both White and Black African females in the years following 1997. Based on the results of the event study in columns 3 and 4 of Table 3 this effect is mainly caused by the year effects. This could be caused by renewed negotiations where the emancipation of women is in a further stage.

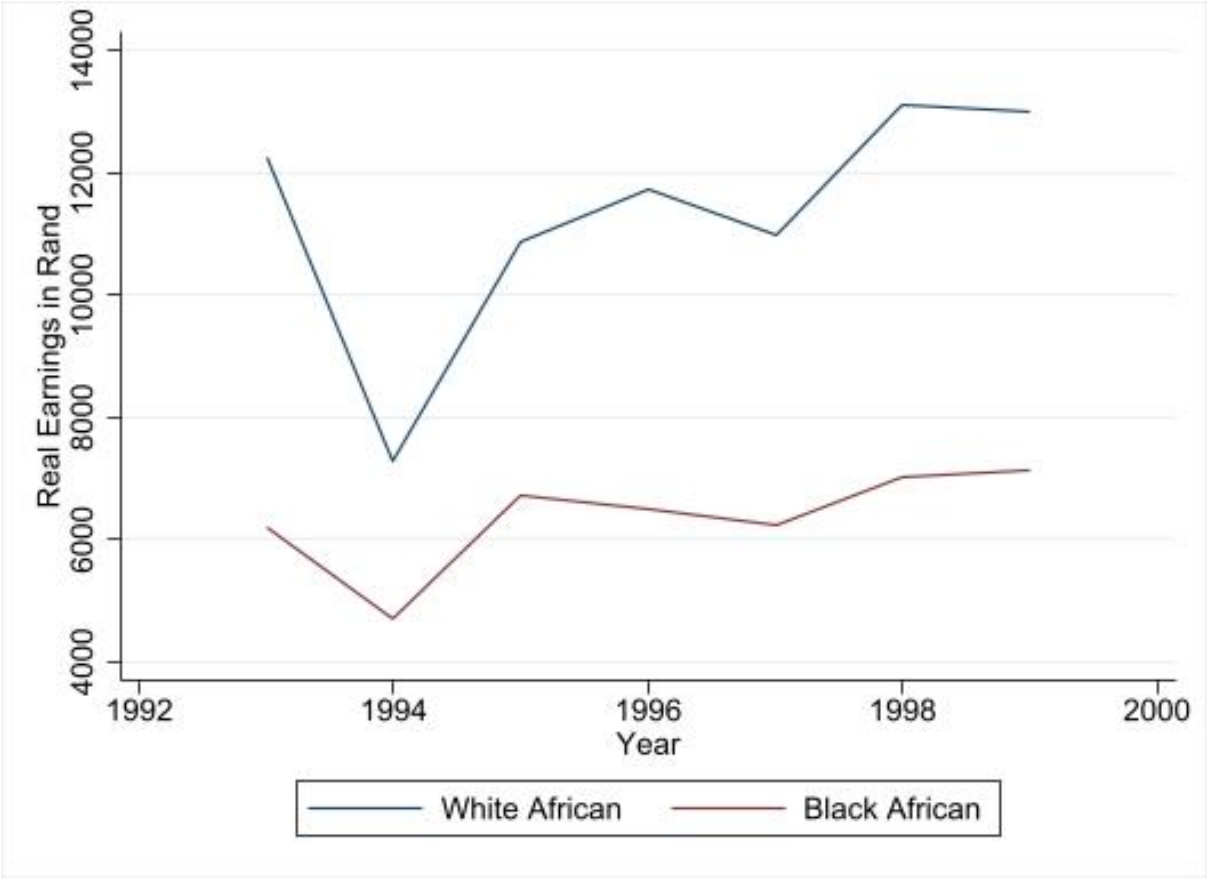

Figure 4: Trend of real earnings for female workers that are part of a worker's union.

When looking at the results of the whole sample in comparison with the sample where only the union workers are included, it is true across the board that the effects are less strong and sometimes even less significant. The most probable explanation for this finding is that the wages of union workers are more rigid than that of other workers. Since unions are able to negotiate wages which are fixed for a longer period of time, wages tend to be more equal for all workers but will also be more rigid. Moreover, because everyone will be getting the same wages, the earnings gap between ethnic groups will be smaller than in a situation where there will be no rules with respect to wage negotiation.

7. Discussion

As described before, one of the downfalls of the event study methodology is that it is unable to control for biases that arise due to changes over time that do not originate from the implementation of GEAR 1996. One example is the phenomenon described by Christopher (2001). He describes that there are differences in the speed in which desegregation of population groups occurs after the Apartheid period. He finds that Whites, in contrast to Black Africans, are living more segregated for longer after the official ending of Apartheid and are slower to move into neighbourhoods with people of a different ethnicity. This could impact the results in a negative way, due to the lack of interest in seeking connection with other ethnic groups. This argument is supported by the work of Powell, Branscombe and Schmitt (2005). They find that the difference in framing disadvantages of other groups plays a role in the discriminatory stance towards these groups. If different ethnic groups live closer together, they will get to know more about the situation of the other group and therefore be more understanding. This could not only reduce discrimination in society in general, but also in the workforce.

Another factor might be that the awareness of inequality between population groups caused changes in income between White and Black Africans. This could also be influenced by the finding of Minkoff and Lyons (2017). People who live in areas where the income inequality is visible, and thus are confronted with the inequality on a regular basis, have different views with regard to the existence of the inequality gap. People who are more often confronted with this inequality gap tend to have a more positive attitude towards decreasing this gap than people who are exposed to this phenomenon less often. Combined with the finding of Christopher (2001) this would mean that Whites are way less likely to see a problem with the status quo of the Apartheid era. Therefore, differences between the groups with regard to their attitude to solving inequality will evolve differently as well. It is however hard to measure the attitude towards inequality. However, as explained before, the results would be negatively impacted if solving inequality is not seen as a pertinent issue among multiple ethnic groups.

It is very well possible that the effects of GEAR are underestimated for union workers. When comparing the results of Table 2 and 3 with respect to males, the GEAR policy effects are lower for union workers. This could be the result of the already smaller earnings gap between Black and White Africans, shown by the coefficient for ethnicity. Since the original earnings gap between the ethnic groups is smaller for union workers, it is not strange that the impact of the policy is found to be lower. Moreover, due to wage rigidity for union workers, it is likely that the impact of GEAR will be only visible after a few years. This is because unions will probably not negotiate wages for every sector every year. These wage agreements are usually set for multiple years.

Lastly, when looking at post-Apartheid, between-race income inequality, it would be useful to conduct research by making use of a panel dataset. Due to a difference in the composition of people, when looking at the province they are living in, the year effects played a big role in this research. One example for this phenomenon is the negative earnings spike in 1994. This spike was mainly caused by the difference in participant composition. Although, a lot of differences between years can be accounted for by making use of a single year variable that captures the differences between years, it is still very well possible that there are factors that are not captured in this year effect. This problem could be solved by making use of data for the same individuals over a longer period of time. By making use of individual fixed effects, the differences between years could only originate from external factors and no longer be influenced by the interviewees. This would make it possible to investigate the increase in earnings on an individual level where we account for the personal traits of this specific individual. By making use of these specific characteristics a clearer picture can be painted on the situation of income inequality and what we can do to drive it back.

8. Conclusion

When looking at the results for all males, closing the between-race earnings gap is something that is achieved by the GEAR 1996 policy. There are significant positive effects following the implementation of GEAR in the years after. However, due to the negative year effects, the real earnings are almost unaffected for Black African males. Due to the drop in wages for everyone in society, the earnings gap decreases as a result. Although my expectation was that the between-race earnings gap would lessen by an increase in wages for Black Africans, it is in fact the case that the earnings gap is decreasing due to a decrease in earnings for the White African population.

A different perspective is found for females. In this case there is a negative effect of the policy on net income and positive effects for the year effects. This is a contradictory view of the results of men. This is nevertheless not a strange finding. The movement for emancipation of women was kick started in 1990 in South-Africa. This would therefore positively impact the earnings of all women in society. Moreover, the negative effect of the GEAR policy for females could be explained by the growing investment in construction sectors. These sectors are mostly dominated by men (Fielden, Davidson, Gale & Davey, 2000). Due to more investment in these male dominated sectors, males would probably reap the benefits of these investments in terms of higher wages.

When further analysing the results for union workers, the results for both males and females are similar but less strong than the results for the whole population. Moreover, the earnings gap for workers of a union is smaller in absolute terms. This finding shows that there is an effective way to lessen the income gap. This has mostly to do with the collective bargaining strategy that unions use to make sure a fair and equal minimum wage is set for everyone that is part of the union. Due to the collective bargaining strategy that is applied by these worker unions, strict wage guidelines are set. Therefore, the differences in between-race earnings are lower for union workers.

Based on these findings I can conclude that the impact of GEAR on closing the earnings gap between ethnic groups is effective, but only for the male workers. In addition to that, the earnings gap is smaller in the situation with workers that are part of the union.

Due to the effectiveness of the workers unions to reduce the income inequality, it would be a good idea for policymakers to implement this kind of strategy in their plans. By making sure a fair wage is negotiated between employers and workers for a large group at the time, this could create equal opportunities for everyone and therefore make an end to differences in outcomes for different ethnic groups.

Not only can collective bargaining be effective in the sphere of wages, but it can also be used for equality in general. By creating laws and policies that do not distinguish between ethnicity or social

background, inequality can be pushed back. In addition, it is important to try and tackle the existing inequality between social groups. Some groups in society are more privileged than others. It is important that we try to give opportunities to the less advantaged groups to climb the social ladder.

When converting this idea to the real world, this solution would not be practical for jobs with only a few employees. The time and money it would take to negotiate wages for these small employment groups would probably not outweigh the benefits of equal pay. This wage setting tactic would therefore only be functional in settings were a lot of employees are involved. Moreover, in sectors with a great variety of social backgrounds it could be most effective to implement the collective bargaining strategy. This would result in equal pay for a bigger group of workers.

For further research it would be beneficial to look into other policies that aimed to close the earnings gap between ethnic groups. Not only policies implemented after the Apartheid period but also elsewhere. Since the between-race pay gap is still an issue in modern society, more research could be conducted into this field. That way it is possible to find solutions for differences in pay because of the ethnic group someone belongs to. Specifically, it could be useful to check my finding that it is beneficial to make use of collective bargaining by means of unions. This wage setting strategy, could make sure the earnings gap is kept to a minimum. Due to the strict rules surrounding wages, employers will treat everyone similar regardless of social background. In a perfect world this would eradicate the wage gap completely by negotiating wages so that they become fixed for a period of time. If this process could be completed for all jobs, this would make sure all workers that are performing the same jobs will earn the same amount of money for their labour efforts.

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Appendix

Table A.1 – Descriptive statistics per year

1993	White African	Black African	Combined
Age	36.811	37.066	37.005
Female	0.422	0.433	0.430
Married	0.749	0.494	0.555
Union	0.137	0.218	0.199
Urban	0.919	0.454	0.565
Years of education	11.331	6.652	7.771
Real monthly earnings			
25% percentiles	9,370.23	1,081.18	1,394.72
50% percentiles	15,584.25	2,758.31	3,954.03
75% percentiles	24,027.22	5,307.88	9,112.91
99% percentiles	87,791.88	19,353.13	52,689.54
Province			
Eastern Cape	113	589	702
Free State	107	661	768
Gauteng	1,001	1,313	2,314
KwaZulu-Natal	155	1,196	1,351
Limpopo	87	572	659
Mpumalanga	93	797	890
Northern Cape	0	25	25
North West	90	772	862
Western Cape	276	192	468
Number of observations	1,922	6,117	8,039

1994	White African	Black African	Combined
Age	38.242	38.070	38.132
Female	0.407	0.427	0.419
Married	0.753	0.590	0.649
Union	0.217	0.273	0.253
Urban	0.865	0.493	0.628
Years of education	11.985	7.230	8.953
Real monthly earnings			
25% percentiles	4,954.27	1,148.58	1,490.47
50% percentiles	8,351.61	2,527.65	4,398.41
75% percentiles	13,424.96	4,862.65	8,128.42
99% percentiles	119,596.10	19,207.04	78,368.96
Province			
Eastern Cape	809	1,787	2,596
Free State	740	1,388	2,128
Gauteng	1,930	2,388	4,318
KwaZulu-Natal	1,445	3,196	4,641
Limpopo	602	1,581	2,183
Mpumalanga	675	1,286	1,961
Northern Cape	706	1,005	1,711
North West	515	1,585	2,100
Western Cape	1,185	948	2,133
Number of observations	8,607	15,164	23,771

Table A.1 continued

1995	White African	Black African	Combined
Age	38.770	38.433	38.519
Female	0.392	0.404	0.401
Married	0.797	0.616	0.662
Union	0.190	0.290	0.265
Urban	0.828	0.458	0.552
Years of education	12.128	7.335	8.563
Real monthly earnings			
25% percentiles	7,782.40	1,328.78	1,805.41
50% percentiles	12,736.08	3,213.63	4,454.31
75% percentiles	21,661.30	5,790.31	9,532.02
99% percentiles	175,124.70	22,672.33	65,409.63
Province			
Eastern Cape	676	2,638	3,314
Free State	649	2,670	3,319
Gauteng	1,534	2,481	4,015
KwaZulu-Natal	813	3,707	4,520
Limpopo	253	1,777	2,030
Mpumalanga	506	2,156	2,662
Northern Cape	388	413	801
North West	352	1,894	2,246
Western Cape	1,114	615	1,729
Number of observations	6,285	18,351	24,636

1996	White African	Black African	Combined
Age	38.722	37.937	38.082
Female	0.406	0.415	0.413
Married	0.720	0.607	0.628
Union	0.228	0.300	0.286
Urban	0.900	0.625	0.676
Years of education	12.109	7.782	0.859
Real monthly earnings			
25% percentiles	6,301.68	1,183.34	2,087.22
50% percentiles	12,016.93	3,830.68	4,113.51
75% percentiles	16,976.78	6,309.07	9,032.74
99% percentiles	109,445.40	22,466.74	41,926.37
Province			
Eastern Cape	248	1,063	1,311
Free State	189	927	1,116
Gauteng	748	2,227	2,975
KwaZulu-Natal	165	1,474	1,639
Limpopo	100	841	941
Mpumalanga	155	947	1,102
Northern Cape	61	236	297
North West	64	836	900
Western Cape	310	404	714
Number of observations	2,040	8,955	10,995

Table A.1 continued

1997	White African	Black African	Combined
Age	38.640	38.506	38.528
Female	0.401	0.421	0.834
Married	0.759	0.589	0.617
Union	0.227	0.341	0.322
Urban	0.935	0.577	0.418
Years of education	12.051	7.593	8.331
Real monthly earnings			
25% percentiles	6,985.37	1,538.80	1,846.56
50% percentiles	12,291.29	3,410.59	4,000.87
75% percentiles	19,979.43	6,093.64	7,693.98
99% percentiles	87,457.52	23.040.40	41,116.96
Province			
Eastern Cape	150	1,359	1,509
Free State	225	2,032	2,257
Gauteng	1,353	3,475	4,828
KwaZulu-Natal	281	2,747	3,028
Limpopo	55	1,773	1,828
Mpumalanga	216	1,942	2,158
Northern Cape	217	381	598
North West	165	2,144	2,309
Western Cape	626	724	1,350
Number of observations	3,288	16,577	19,865

1998	White African	Black African	Combined
Age	39.205	38.481	38.609
Female	0.420	0.413	0.415
Married	0.743	0.613	0.636
Union	0.222	0.332	0.312
Urban	0.9135	0.551	0.615
Years of education	12.237	7.336	8.199
Real monthly earnings			
25% percentiles	6,214.31	1,398.22	1,694.81
50% percentiles	11,297.47	3,059.14	3,765.31
75% percentiles	19.772.80	5,564.35	7,889.07
99% percentiles	148,861.20	31,918.95	68,874.88
Province			
Eastern Cape	178	1,007	1,185
Free State	239	1,364	1,603
Gauteng	662	2,005	2,667
KwaZulu-Natal	256	1,601	1,857
Limpopo	45	1,065	1,110
Mpumalanga	220	1,461	1,681
Northern Cape	150	357	507
North West	145	1,495	1,640
Western Cape	429	491	920
Number of observations	2,324	10,846	13,170

Table A.1 continued

1999	White African	Black African	Combined
Age	38.577	38.207	38.266
Female	0.433	0.430	0.430
Married	0.728	0.570	0.595
Union	0.272	0.325	0.317
Urban	0.863	0.577	0.623
Years of education	12.380	7.478	8.264
Real monthly earnings			
25% percentiles	7,485.00	1,388.63	1,603.31
50% percentiles	12,664.59	2,846.69	3,482.27
75% percentiles	20,322.34	5,472.32	7,776.33
99% percentiles	139,712.10	33,327.14	61,932.94
Province			
Eastern Cape	272	1,457	1,729
Free State	289	1,750	2,039
Gauteng	983	2,917	3,900
KwaZulu-Natal	199	2,588	2,787
Limpopo	134	1,809	1,943
Mpumalanga	216	2,044	2,260
Northern Cape	194	455	649
North West	144	1,983	2,127
Western Cape	562	794	1,356
Number of observations	2,993	15,797	18,790

Note: Age and years of education are presented in years. Real earnings are presented in Rands. The percentiles show the earnings amount of a person at that rank of the given population groups. All other variables are shown in fractions apart from the province variable, this variable is showing absolute numbers.