

DEMOGRAPHIC, COMMUNITY AND  
MACROECONOMIC EFFECTS ON  
DISABILITY GRANT PROGRAMME PARTICIPATION

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# DEMOGRAPHIC, COMMUNITY AND MACROECONOMIC EFFECTS ON DISABILITY GRANT PROGRAMME PARTICIPATION

DEVELOPMENT POLICY RESEARCH UNIT

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## **ABSTRACT**

This paper investigates the role of demographic, community and macroeconomic effects on Disability Grant programme (DGP) participation. The study descriptively analyses demographic patterns of the disability grant (DG) beneficiaries using data from the 2002 to 2007 rounds of the General Household Survey (GHS). The decision to participate in the programme is empirically examined by probit techniques using data drawn from the 2007 wave of the GHS. Not surprisingly, the results indicate that work disability is the largest significant predictor of DGP participation. Coloureds and Asian females have a higher likelihood of receiving disability benefits compared to Africans, as are older people compared to younger individuals. The results confirm that macroeconomic dynamics and DGP participation are negatively related. The probability of receiving disability benefits increases as the rate of unemployment increases. Community differences in geographical access to welfare offices and public transport facilities exert a substantial impact on receipt of disability benefits.

**JEL Codes:** H53, J21, J64, J22, J68

**Keywords:** Disability Grant, Programme participation, Probit

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## **Disclaimer**

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## 1. INTRODUCTION

People with disabilities generally have more limited opportunities than able bodied people. They are often at high risk of unemployment because of discrimination even when the economy is performing well (Boardman, Grove, Perkins and Shepherd, 2003; Manning and White, 1995). As a result, South Africans with disabilities rely on social support from the government in the form of a non-contributory disability grant (DG).

Evidence suggests that there are no clear national guidelines which outline the eligibility criteria for DG enrolment. The guidelines vary from province to province and within each province further disparities exist between health practitioners. Ultimately, it appears that the screening process differs between doctors, which reinforces people's belief that the decisions regarding DG eligibility are ad hoc and inconsistent (De Koker, De Waal and Vorster, 2006). For example, people who are more deserving to receive the grant are sometimes not enrolled on the programme, whilst those who are less deserving are enrolled. If the screening process were perfect, only those who are not able to work as a result of a severe disability would be awarded the grant, invalidating the influence of any other factors such as gender, marital status and province of residence.

Nonetheless, because of inadequacies in the screening process, it would appear demographic and economic conditions significantly affect the award of disability benefits. This paper aims to profile DG beneficiaries by investigating the influence of demographic and economic conditions on Disability Grant Programme (DGP) participation. Special emphasis will be placed on exploring the differential impact of race, age, educational attainment, gender, unemployment rates and geographical access to welfare offices on DGP participation. Descriptive analysis of enrolment to the DGP will be explicitly examined using cross-sectional data from the General Household Survey (GHS) waves of 2002 to 2007, while econometric evidence will be drawn from the 2007 wave of the GHS. The GHS is ideally suited to carry out a comprehensive analysis of DGP participation, as it contains detailed information on social grants and demographic characteristics of participants.

The outline of the paper is as follows: Section 2 provides an overview of disability prevalence in South Africa, while Section 3 presents a descriptive analysis of the DGP and its recipients. Section 4 reviews literature related to DGP participation, while Section 5 describes the data. Section 6 presents the modelling strategies. Section 7 presents the results of implementing probit regression techniques. Section 8 tests the sensitivity of the results by restricting the sample to age-eligible Africans and Coloureds. Section 9 concludes with a discussion on the implications of the findings.

## 2. DISABILITY IN SOUTH AFRICA

The first step in profiling beneficiaries of the DG is to understand disability prevalence in South Africa. The GHS identifies an individual as having a disability if his/her answer to the question: "Have you had any limitation in daily activities, at home, at work or at school, because of a long-term physical, sensory, hearing, intellectual, or psychological condition, lasting six months or more?" is affirmative. Although the GHS is intended to provide a nationally representative sample, it under-samples specific sub-populations, such as the people with disabilities. Therefore, there may be significant differences in the disability prevalence estimated using the GHS and other more representative surveys such as the census. In particular, GHS disability estimates are lower than census estimates. The possible explanation for the difference is that the GHS "does not cover other collective living quarters such as students' hostels, old-age homes, hospitals, prisons and military barracks, and is therefore only representative of non-institutionalised and non-military persons or households in South Africa" (StatsSA, 2007). This paper elects to utilise the GHS as the survey covers a longer time series than the census. Unfortunately, the estimates only provide useful insights but not a definitive portrait of disability prevalence in the country.

Table 1 provides demographic evidence of disability in South Africa between 2002 and 2007. The estimates suggests that in 2007, the country had a total of 1.4 million people with disabilities, which is approximately 3.0 percent of the 2007 population (47.9 million). The distribution of disability among the eight categories of impairment shows that the majority of people report disabilities that affect movement, vision and intellectual development. Almost a third of people with disabilities have physical

impairment, whilst an annual average of 16 percent have vision and mental disabilities each. Speech disabilities have the lowest frequency, with an average annual share of 4.0 percent.

**Table 1: Demographic prevalence of disability in South Africa, 2002-2007**

Variable	2002	2003	2004	2005	2006	2007
People with disabilities (million)	1.5	1.1	1.3	1.5	1.5	1.4
Share of total population (%)	3.3	2.4	2.7	3.2	3.1	3.0
<b>Impairment (%)</b>						
Sight	21.0	14.7	10.9	16.5	16.9	15.6
Hearing	13.1	9.2	9.2	11.7	13.7	12.4
Speech	3.1	3.3	4.3	4.1	4.0	3.0
Physical	29.7	33.5	35.9	35.4	33.0	32.8
Mental	18.5	21.5	20.9	14.3	15.3	15.0
Emotional	6.9	9.1	8.0	9.9	8.5	9.7
Other	7.8	8.8	10.9	8.2	8.7	11.7
<b>Race (%)</b>						
African	79.3	75.9	79.9	80.3	79.5	79.2
Coloured	9.7	13.5	12.1	10.4	10.9	11.1
Asian	1.9	2.4	2.4	1.9	2.7	2.2
White	9.1	8.2	5.6	7.3	6.9	7.4
<b>Gender (%)</b>						
Male	51.6	56.2	53.9	52.1	53.6	51.9
Female	48.5	43.8	46.1	48.0	46.4	48.1
<b>Marital Status (%)</b>						
Married	32.0	32.9	30.0	35.1	33.1	32.2
Widowed	13.9	12.8	12.3	13.4	13.2	12.8
Divorced	4.3	4.8	5.5	4.3	4.6	3.9
Single	49.8	49.6	52.2	47.2	49.1	51.1
<b>Age Groups (%)</b>						
0-14 years	10.7	8.9	9.3	9.7	10.2	10.2
15-24 years	12.4	10.6	11.5	9.9	11.6	11.8
25-34 years	14.8	14.9	15.4	14.7	14.3	15.3
35-44 years	13.9	16.0	16.2	14.0	13.2	14.7
45-54 years	17.0	18.3	18.9	18.7	17.5	15.7
55-64 years	14.2	15.9	16.9	17.0	16.0	15.1
+65 years	17.0	15.5	11.8	16.0	17.2	17.3
<b>Educational Attainment (%)</b>						
No education	28.5	30.2	31.0	26.6	25.4	30.1
Primary	44.5	43.7	44.8	47.0	50.4	43.5
Secondary	13.6	14.9	15.8	16.1	16.3	15.8
Matric	7.0	7.0	6.9	7.1	5.2	7.1
Diploma	3.8	2.2	1.3	2.1	1.5	2.3
Degree	2.6	1.9	0.2	1.2	1.3	1.2
<b>Province (%)</b>						
Western Cape	8.8	13.7	13.2	10.3	10.3	10.0
Eastern Cape	18.1	14.8	16.3	16.7	21.9	16.3
Northern Cape	2.6	3.0	2.1	2.7	2.4	3.0
Free State	8.9	7.4	6.9	9.1	6.0	8.4
KwaZulu Natal	16.2	15.4	18.9	21.8	19.6	20.6
North West	10.4	9.3	9.5	9.3	8.0	9.1
Gauteng	16.3	15.9	14.0	13.8	14.0	13.9
Mpumalanga	7.1	7.3	8.4	7.7	8.6	9.6
Limpopo	11.6	13.2	10.9	8.8	9.2	9.1

Source: Author's calculations based on GHS, 2002-2007.

- Notes: 1. Disability is defined as activity limitations.  
2. All estimates are weighted.

Africans constitute the highest proportion of people with disabilities, with an average share of 79.2 percent, followed by Coloureds with 11.1 percent. Asians have the least proportion with an average share of 2.2 percent in 2007. Women constitute a smaller share (48.1 percent) of the disabled population compared to men (51.9 percent). Single and married individuals have a bigger share (51.1 percent and 32.2 percent respectively), compared to 3.9 percent and 12.8 percent among the divorced and widowers respectively.

Disability is more prevalent among older people. Individuals aged 65 years and above have the highest representation (17.3 percent), whilst individuals aged between 0 and 14 years account for the smallest proportion of national disabilities with a share of 10.2 percent in 2007. Disability is no less prevalent among individuals with low educational attainment than is otherwise. An average of 30.1 percent of disabled individuals in 2007 had no formal education. While the less educated (primary education and below) account for the largest share of the disabled population, individuals with tertiary education (diploma and/or degree) account for small shares of national disabilities (2.3 percent and 1.2 percent respectively). Finally, spatial distribution of disability shows that KwaZulu-Natal has the highest proportion of people with disabilities (20.6 percent), followed by Eastern Cape (16.3 percent) and Gauteng (13.9 percent). The Northern Cape Province has the least number of people with disabilities (3.0 percent).

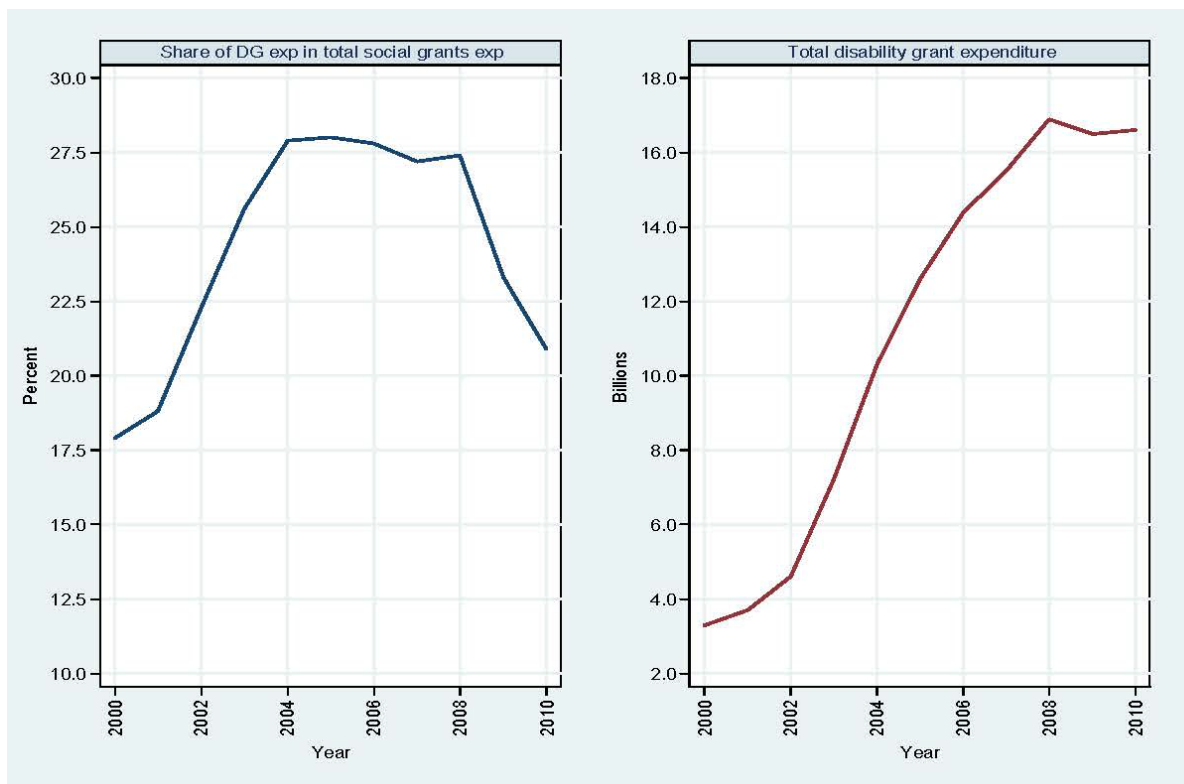
### **3. THE DISABILITY GRANT PROGRAMME**

The Social Assistance Act, No 59 of 1992, amended in 2004, provides for the rendering of social assistance to vulnerable individuals. Subsequent amendments to the Act further regulated the provision of grants and financial assistance to people who meet certain requirements. There are various categories of social grants, which cater for different groups of people such as disadvantaged children and families, the elderly, war veterans and people with disabilities (Government Gazette, 2004).

People with disabilities may benefit from three forms of social assistance depending on their age. Children with disabilities (below the age of 18) are entitled to the care dependency grant (CDG) if their caregivers are considered to be "in need" through the means test. Adults with disabilities, between the ages of 18 and 60 years, are entitled to the DG, as are people living with HIV whose CD4 count has dropped below 200 cells= $\text{mm}^3$ . The DG is automatically converted to an old age pension (OAP) for people who are 60 years and above (Government Gazette, 2004).

The DG may be granted on a temporary (six months) or permanent basis. The temporary DG is designed for people who are expected to resume a productive life within a period of six months to one year, whilst the permanent grant is meant for people whose functional ability is not expected to change. The permanent DG is thus intended to be provided until a person is eligible for the OAP. Between 2004 and 2007, the DGP accounted for an annual average of 27 percent of total social grant expenditure, third after the child support grant (CSG) and OAP. By 2010, total expenditure reached R16 billion (Figure 1) or 1.3 percent of GDP (National Treasury, 2009).

Figure 1: Expenditure on disability benefits, 2000-2010



Source: National Treasury Annual Reports, 2000-2010.

### 3.1 Eligibility

In order to qualify for the DG, applicants must be citizens or permanent residents of South Africa and be living in South Africa at the time of applying for the grant. Incarcerated people, and those who live in state institutions (such as old age homes), psychiatric hospitals and state treatment centres are not eligible for the grant. The grant cannot be accessed by individuals who are receiving state care for drug rehabilitation and those who refuse to undergo treatment. Medical confirmation of having a disability is required.

### 3.2 Assessment

The provisions of the Social Assistance Act of 2004 require that a person seeking enrolment to the DGP applies through the South African Social Security Agency (SASSA). After submitting the required supporting documentation for the DG application, the applicant is then referred to a state appointed medical practitioner to determine the extent of his/her disability (Government Gazette, 2004).

Historically, the medical assessment of DG applicants has been conducted by medical practitioners appointed by the state. The practitioner, on completion of the examination process, compiles an assessment report upon which the Department of Social Development will base their final decision. The report is valid for thirty days and if the application is approved, payment will be effected after three months. If the application is rejected, the applicant is allowed to lodge an appeal within thirty days of receipt of the rejection advice (SASSA, 2009).

Medical practitioners receive little or no training from government agencies in the medical assessment of DG applicants. Due to the shortage of health practitioners in South Africa, particularly in rural areas, coupled with the rising health care burden, it has become an increasing challenge to provide these medical assessments. Furthermore, where resources are scarce, medical practitioners may resent or avoid work which they may deem to be administrative, such as assessments for grant applicants, and opt for clinical work for which they were trained (Swartz and Schneider, 2006).



Partly because of human resource constraints, and to allow for equitable and efficient access to disability and care-dependency grants, the Department of Social Development promulgated regulations in 2001, leading to the creation of assessment panels mandated with the medical screening of DG applicants. Members of the review panel are required to evaluate applicants submitted information and determine disability for both disability and care-dependency grants. Medical practitioners may be included in the assessment panel, though such inclusion is not mandatory. Assessment panels may have flexible membership, but should have representation from the social security board and a rehabilitation therapist (nurse, social worker, occupational, psychotherapist, audio visual therapist etc.). The panel should also include a representative from the disability sector or a reputable member of the community such as a priest, chief, magistrate, or any person who is familiar with the community and its circumstances (Watermeyer, 2006).

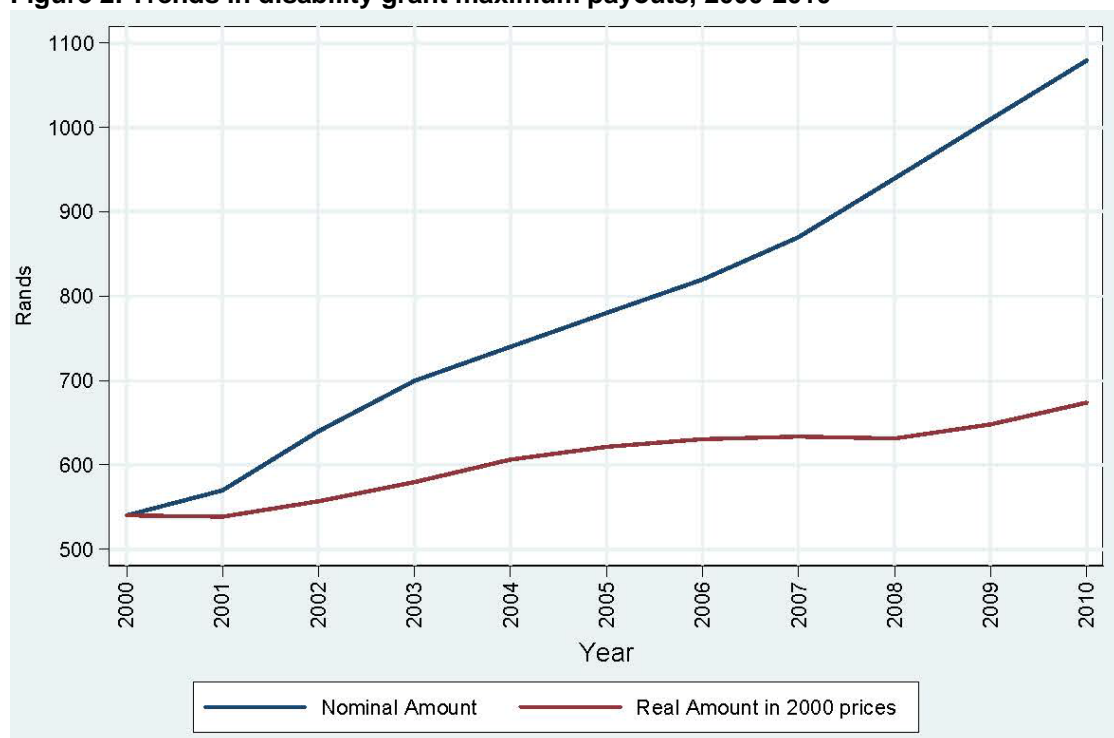
### 3.3 Calculation of Benefits (Means-test)

The maximum benefit an individual qualifies for is determined through a means test as in:

$$DG_i = 1.5\chi - 0.5\varphi \quad (1)$$

Where  $\chi$  is the maximum benefit potentially available to the applicant, and  $\varphi$  is the applicant's net annual income. For a married individual,  $\varphi$  is half of the combined annual net income of the applicant and spouse. In addition to the income thresholds, the means test also specifies asset thresholds beyond which individuals are not eligible for the grant. From 2007, a single person's income must be less than R23 544 per year, and the value of his/her assets must be less than R451 200 for them to qualify for the grant. For married individuals, joint income must not be more than R43 700 and the value of their joint assets must be less than R902 400. In terms of the means test, assets are defined as, any items of value that one owns, such as a car, a television and an oven among others. If the applicant owns a house and lives therein, the house is not included in the individual's asset value (SASSA, 2009). Because of difficulties with the valuation of assets, often only the income criterion is applied when screening applications for the DG through the means test (SASSA, 2009). The maximum payout has increased from R540 (US\$117.40 at US\$ 1=R4.60) in 2000, to R1 080 (US\$147.95 at US\$1=R7.30) by 2010 (Figure 2), representing an average annual growth rate of 9 percent. The DG benefits have for long been considered generous, as the payout is slightly more than the black median per capita income (Edmonds, 2006).

**Figure 2: Trends in disability grant maximum payouts, 2000-2010**

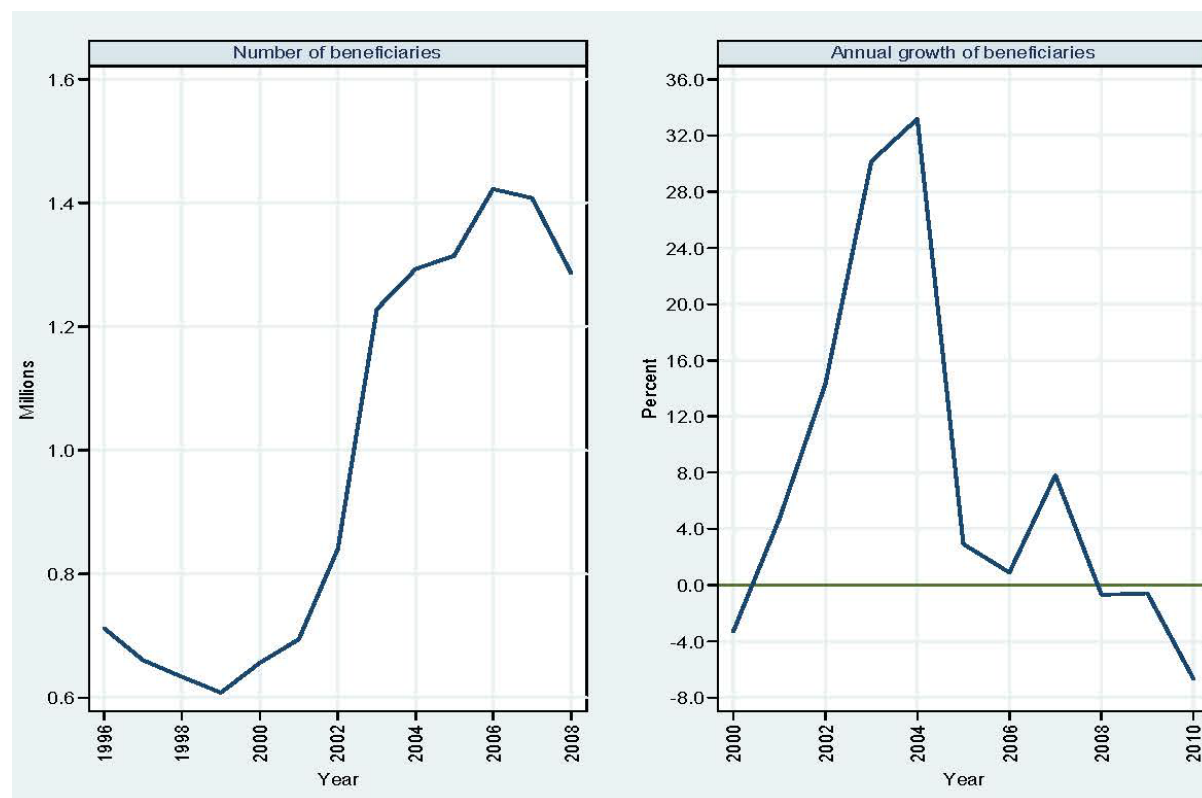


Source: National Treasury Annual Reports, 2000-2010.

### 3.4 Demographics of Disability Grant Beneficiaries

As mentioned earlier, the DGP has grown tremendously since 2001. As shown in Figure 3, the number of beneficiaries more than doubled between 2001 and 2004. Over 1.3 million individuals received disability benefits in 2004, compared to just under 0.6 million people in 2001. The highest growth rate of 33.2 percent was recorded between 2003 and 2004.

**Figure 3: Trends in disability grant beneficiaries and annual growth rates**



Source: National Treasury Annual Reports, 1996-2010.

A number of factors have been identified anecdotally as potential reasons for the rapid growth of the DG coverage. CASE (2005) notes the impact of poverty, unemployment, the impact of HIV/AIDS, increased awareness of the DGP and the increased access to the South African social security system, on the increase in DG uptake. In addition to these socio-economic factors, the period post 2001 saw the relaxation of stringent application procedures for both the temporary and permanent DGs. Less than 1 percent of applications were rejected in 2005, compared to an average of over 8 percent recorded before 2001, reflecting more relaxed admission criteria (Steele, 2006).

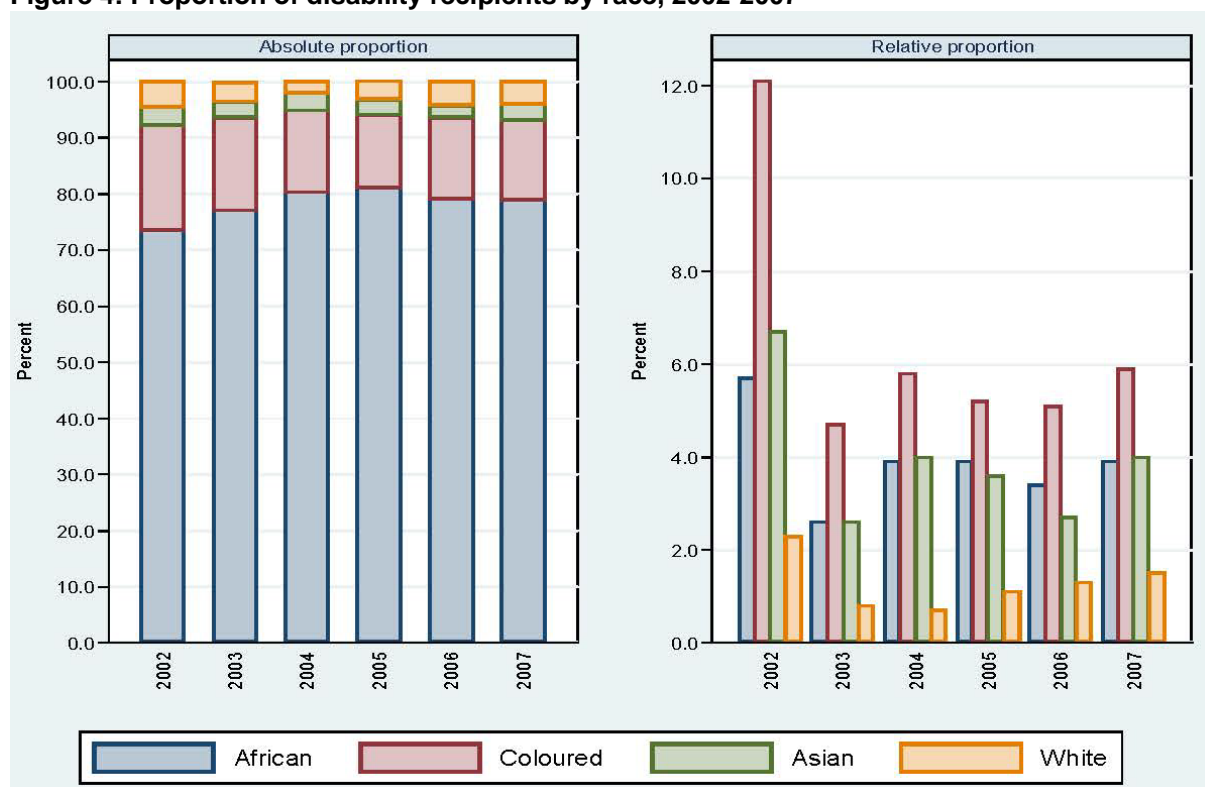
The assessment process was also reported to have been marred by inconsistencies in the application of rules. Many officials and doctors recognised both the financial and health needs of people and awarded the grant on the basis of poverty alleviation, rather than the applicant's incapability to work.

Due to ineffective administration, many individuals who were awarded with temporary DG continued to receive the grant even after the period for which they had been awarded had lapsed. This encouraged people to enter the grant system through the temporary route, knowing that they would get financial assistance for a substantial period of time. It was further reported that even if applicants were unsuccessful on first application, they would return with new ailments until their applications are approved (Steele, 2006). It was further reported that people living with HIV discontinued taking treatment, in order to keep their CD4 count low so that they can stay in the programme (Kagee and Delpont, 2010; Nattrass, 2006).

### 3.4.1 Race and Distribution of the Disability Grant

The GHS identifies DG recipients as individuals who respond yes to the question: "Do you receive the disability grant?" The analyses hereafter are based on the GHS identification of DG recipients. The left panel of Figure 4 shows the distribution of people receiving disability benefits as a proportion of the total age-eligible population by race, whilst the panel on the right outlines the share of recipients in relation to the proportion of the population comprised by that race. It is evident that the distribution of recipients reflects the racial structure of South Africa: Africans account for the biggest share of recipients, followed by Coloureds and Whites, whilst Asians have the least number of recipients. Nonetheless, relative to the share of age-eligible population comprised by the respective groups, it appears Coloureds have the highest DG award rate. Barring 2002, Africans and Asians have similar award rates, whilst Whites have the least probability of receiving disability benefits relative to their share of age-eligible individuals.

**Figure 4: Proportion of disability recipients by race, 2002-2007**

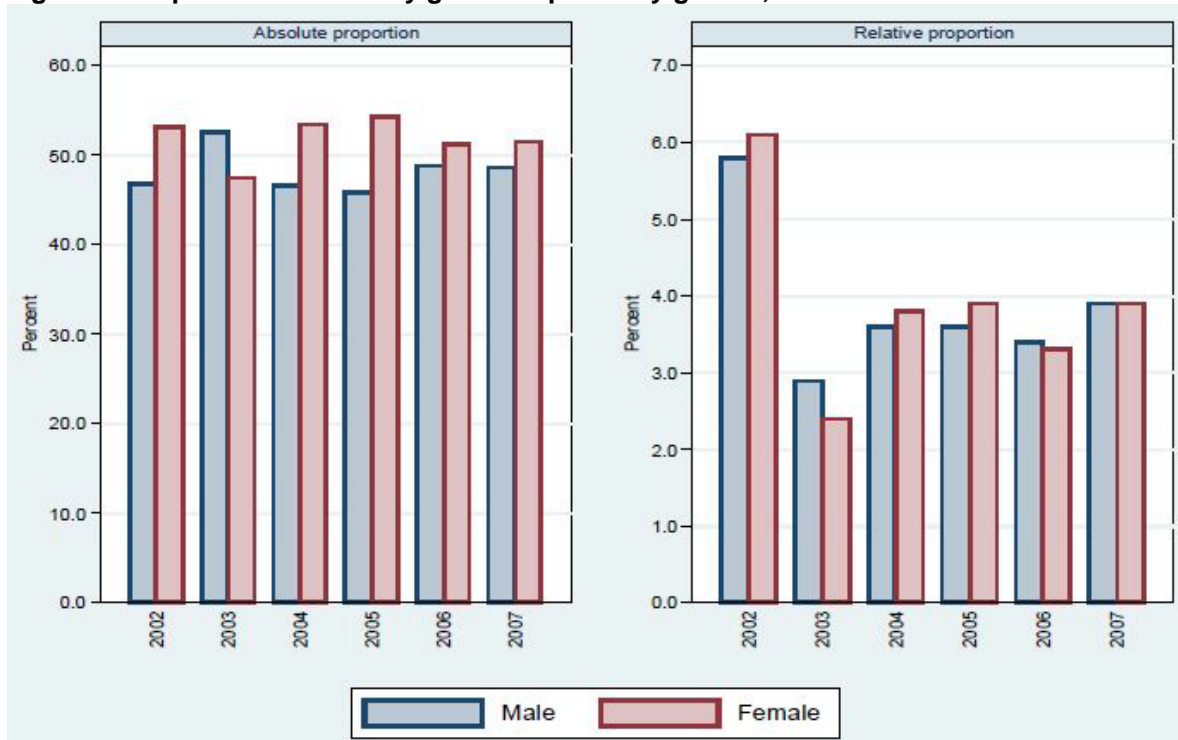


Source: Author's calculations based on GHS, 2002-2007.

### 3.4.2 Gender and Distribution of the Disability Grant

Among those reporting receipt of the DG, females dominated both the absolute and relative proportions as shown in Figure 5. The share of females receiving the grant averaged 53 percent over the period 2002-2007, compared to an average of 47 percent for males. In relative terms, barring 2002, the average rate of receipt has been approximately 3.9 percent of the age-eligible females compared to 3.7 for males.

**Figure 5: Proportion of disability grant recipients by gender, 2002-2007**

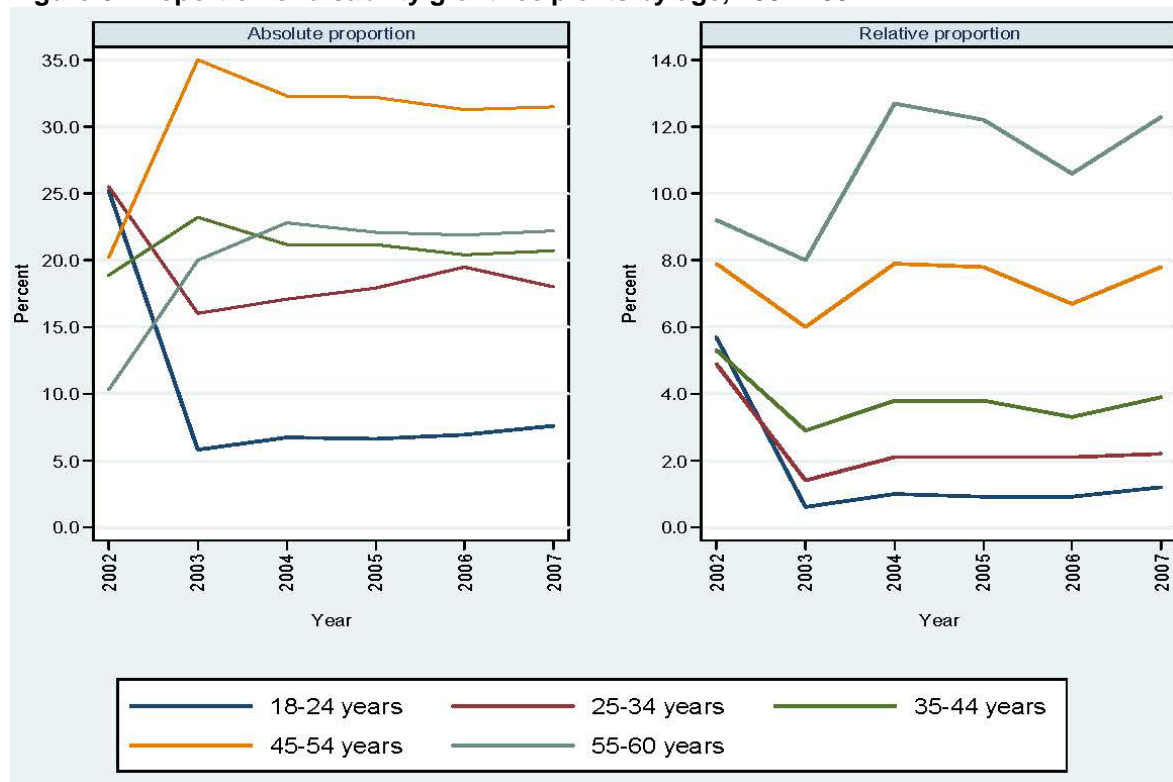


Source: Author's calculations based on GHS, 2002-2007.

### 3.4.3 Age and Distribution of the Disability Grant

Young people (18-24 years) constitute a smaller proportion of DG beneficiaries relative to older people (Figure 6). Individuals aged 45-54 years form the biggest proportion of DG recipients, with an average share of 32 percent. Relative to the proportion of age-eligible population, the 55-60 year cohort has the highest award rate followed by the 45-54 cohort.

**Figure 6: Proportion of disability grant recipients by age, 2002-2007**

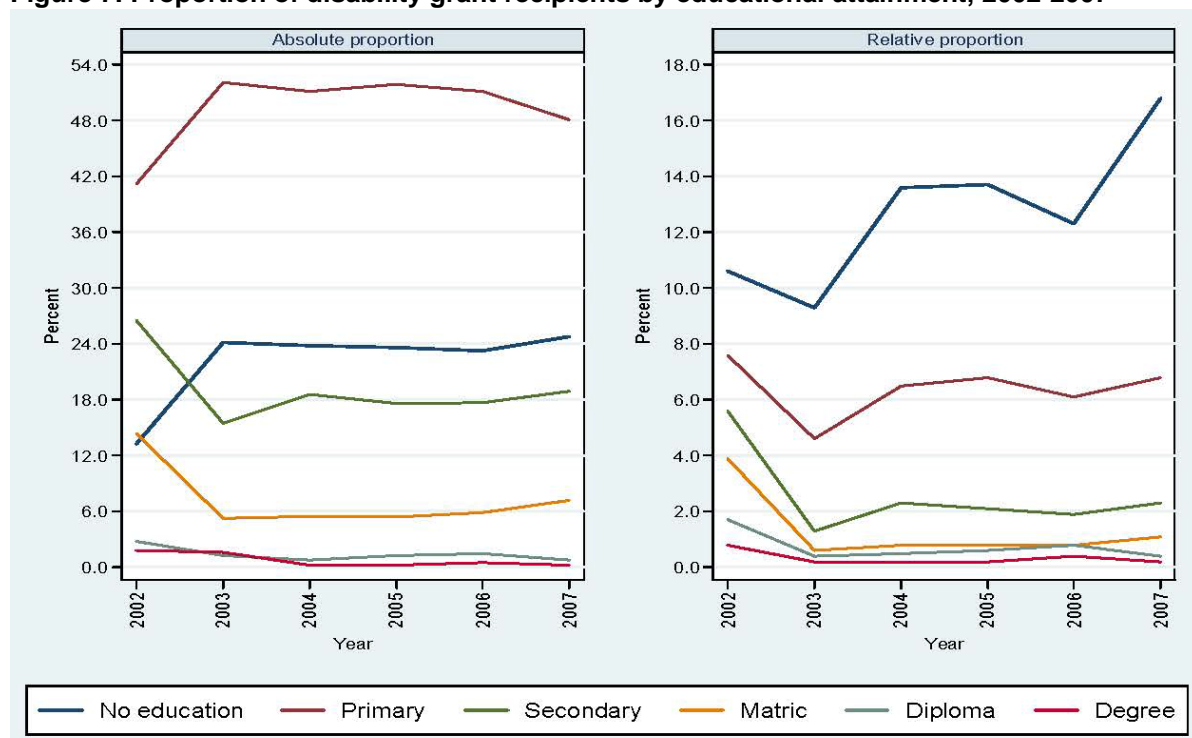


Source: Author's calculations based on GHS, 2002-2007.

### 3.4.4 Education and Distribution of the Disability Grant

Figure 7 confirms that there is an inverse relationship between DG receipt and level of education. More than seven in ten of recipients have up to primary education, a proportion that has not changed between 2003 and 2006. Conversely, post-matric education is the least represented among DG recipients with less than 3 percent of recipients reporting having a diploma or a degree. Individuals with no education represented the highest proportion of grant recipients, with over 16 percent of the age-eligible receiving disability benefits, followed by primary education cohort with an average of 7 percent award rate.

**Figure 7: Proportion of disability grant recipients by educational attainment, 2002-2007**

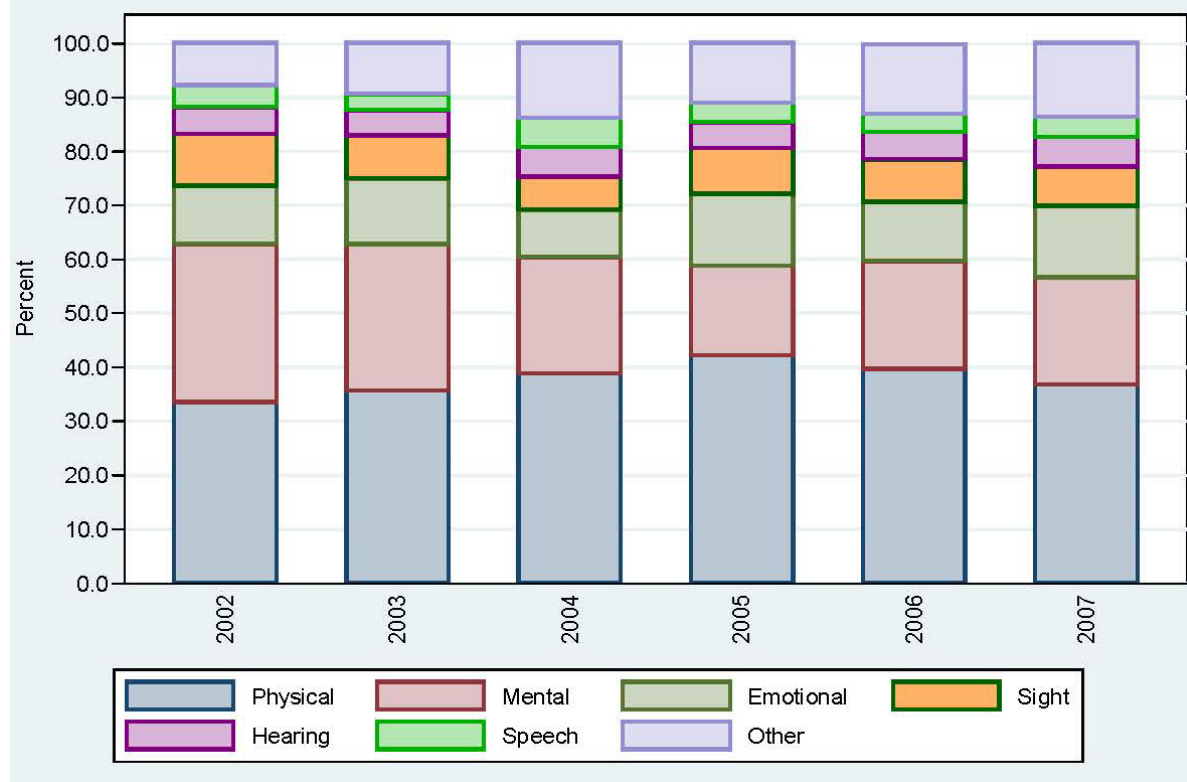


Source: Author's calculations based on GHS, 2002-2007.

### 3.4.5 Impairment and Distribution of the Disability Grant

Figure 8 reports the proportion of recipients by categories of impairment. Approximately a third of recipients have physical disabilities. People with mental and emotional disabilities account for averages of 22.3 and 10.0 percent of recipients respectively. Speech and hearing impairments have the least proportions.

**Figure 8: Proportion of disability grant recipients by category of impairment, 2002-2007**

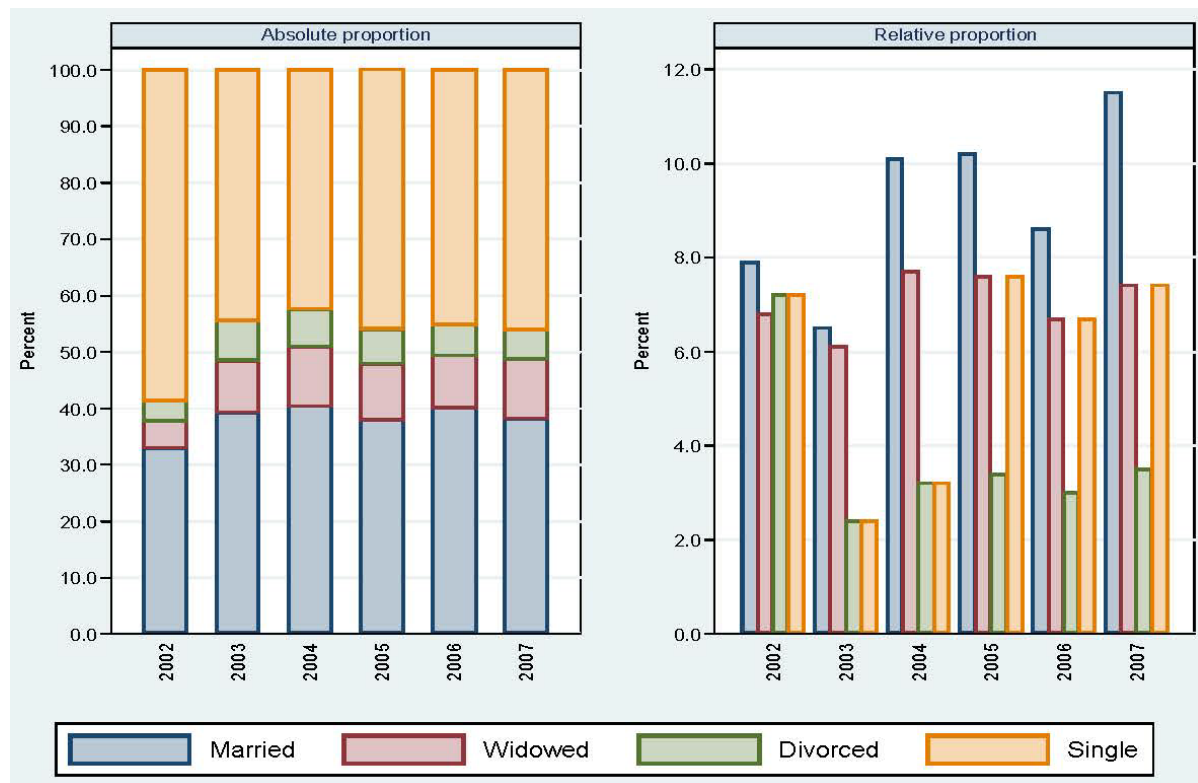


Source: Author's calculations based on GHS, 2002-2007.

### 3.4.6 Marital Status and Distribution of the Disability Grant

Figure 9 illustrates the distribution of DG receipt by marital status. Single individuals constitute the largest proportion of recipients, whilst divorced individuals account for the smallest proportion of recipients. Despite single individuals comprising the largest share of recipients, married individuals have a significantly higher award rate of over 10 percent compared to an average of 3 percent for age-eligible single individuals.

**Figure 9: Proportion of disability grant recipients by marital status, 2002-2007**



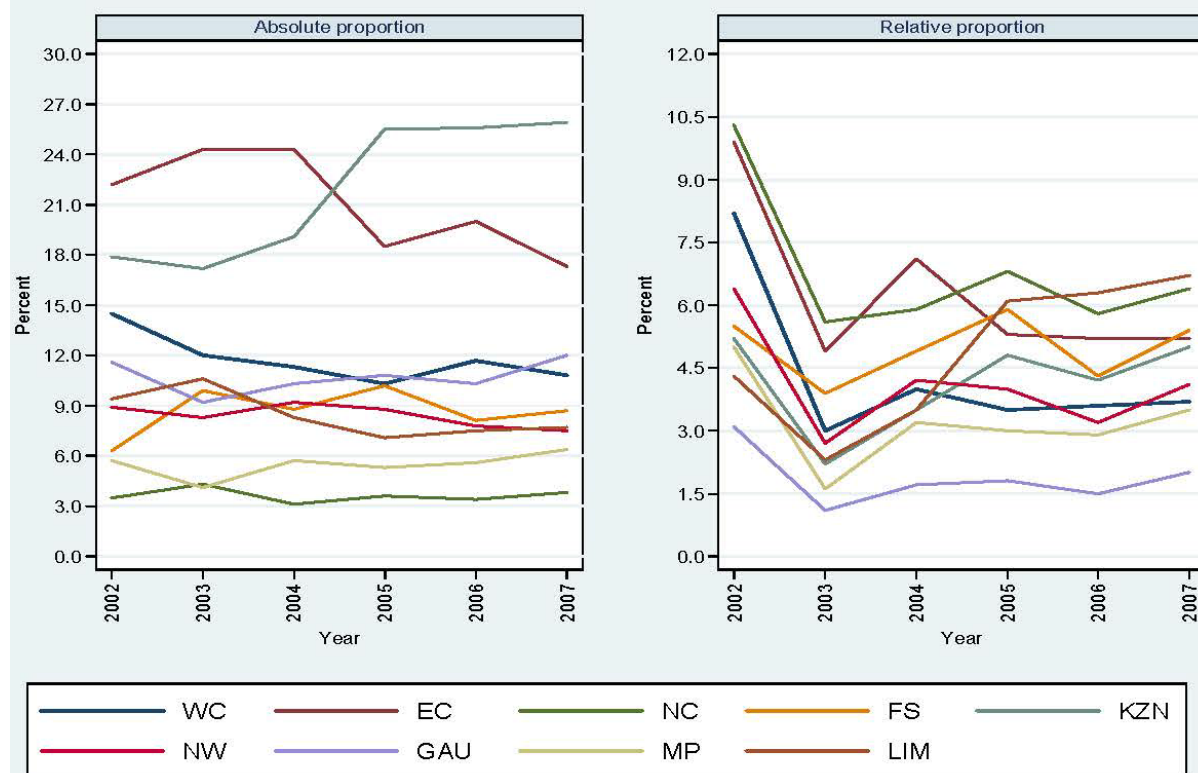
Source: Author's calculations based on GHS, 2002-2007.



### 3.4.7 Province and Distribution of the Disability Grant

Figure 10 compares the provincial distribution of DG recipients by age-eligible as well as provincial share of the age-eligible. The Eastern Cape and KwaZulu-Natal accounted for the biggest shares of recipients, with the former dominating pre-2003, while the latter dominated post-2003. The Northern Cape accounted for the least share of DG recipients over the whole period. However, in relative terms, Northern Cape had the highest share of recipients over the greater part of 2002-2007 period, while Gauteng had the least relative proportion of recipients over the same period.

**Figure 10: Proportion of disability grant recipients by province, 2002-2007**



Source: Author's calculations based on GHS, 2002-2007.

## 4. RELATED LITERATURE

There has been growing concern in media and policy circles that the DGP creates perverse health incentives (Standing, 2008; Nattrass, 2006), and work disincentives (Mitra, 2009; Noble, Ntshongwana and Surender, 2008; Mitra, 2008); is poorly administered (van der Westhuizen and van Zyll, 2002); and has deviated to benefit the long term unemployed in place of people with disabilities (Vorster, Eigelaar-Meets, Poole and Rossouw, 2004). In a study that investigated the case for a Basic Income Grant (BIG) for South Africa, Standing (2008) notes that giving people money, without conditions or obligations, promotes idleness and dependency, while being unnecessarily costly. Similarly, Mitra (2009) investigated the labour supply effect of the DG by exploiting a policy change that introduced leniency in eligibility screening. Using a difference-in-difference framework, the findings of the study suggested that LFP among people with disabilities declined in provinces that adopted the new policy.

In a separate study, Nattrass (2006) notes that the roll out of highly active antiretroviral therapy (HAART) offers a chance for restored health to people living with HIV. However, administration of the therapy comes at the cost of losing the DG because the CD4 count for patients on treatment will significantly improve. People with HIV therefore discontinued taking HAART treatment to increase their chances of remaining on the DGP. Despite the above challenges, little research has focused on profiling the grant beneficiaries. Jelsma, Maart, Eide, Toni and Loeb (2008) investigated the regional influence on receipt of DG for a sample of isiXhosa-speaking people in 15 districts of the Eastern Cape and 2 districts of the Western Cape. The descriptive study concluded that living in a rural or

urban area has no significant impact on the likelihood of receiving disability benefits. CASE (2005) conducted a qualitative analysis of the increase in the DG and care dependency grant take-up. They found that the increased take-up was associated with a lenient screening process, increased awareness of the programme and ravaging effects of HIV/AIDS. Similarly, De Koker et al. (2006) extensively examined the profiles of DG beneficiaries in selected Western Cape districts. The research revealed that most beneficiaries of disability benefits come from larger households.

The DG profiles by Jelsma et al. (2008) and De Koker et al. (2006), though informative, have not been nationally representative as the researchers in both cases restricted the observational samples to a few selected communities. Mitra (2010) addressed this problem by drawing a profile utilising a national representative GHS sample. The study concluded that work disability, age and education have significant influences on the probability of receiving disability benefits. Nonetheless, the study did not control for potential variation in DG receipt arising from macroeconomic effects such as local unemployment rates even though such factors appear to have a significant influences on who receives the disability benefits in South Africa. Further, the study ignored the potential influence of community effects such as distance to the nearest welfare offices and public transport facilities. This paper aims to address such shortfalls by controlling for community and macroeconomic effects in addition to the traditional demographic impact on DGP participation.

Internationally, a growing body of literature has analysed entry and exit of recipients from welfare programmes. Broadly, deteriorating economic conditions (economic recession), family size, changes in wages, educational and age differences were found to have significant effects on both entry and exit from welfare programmes (Lim, Chen and Waldorf, 2011; Ribar, Edelhoch and Liu, 2009; Wolkwitz, 2007; Cunnyngnam, 2003; Hoynes, 2000; Fitzgerald, 1995)

## **5. DATA**

As described above, the take-up of disability benefits has long been anecdotally explained in the context of poverty, unemployment and effects of HIV /AIDS. The clearer effects of these and other factors on the likelihood of receiving disability benefits can be better understood within an econometric framework. The data used for empirical analyses is drawn from the 2007 round of the GHS, a nationally representative and detailed cross-sectional survey conducted by Statistics South Africa.

The total sample for this analysis is restricted to individuals between the ages of 18 and 60 years, the eligible ages to receive the DG. Table 2 presents the mean characteristics of DG recipients and non-recipients. Of the 58 402 age-eligible individuals, 3 062 received the DG, representing 5.2 percent of the total sample. In addition to identifying people with disabilities using the activity limitation question, the GHS also includes a question that prompts for reasons why working-age individuals may have been unemployed in the week preceding the interview. Disability is among the response options to this question. In this paper, this is termed 'work disability' to separate it from activity limitation.

Overall, 47.6 percent of DG recipients reported an activity limiting impairment, whilst this is only true of 1.8 percent of non-recipients. Moreover, 76.2 percent of the recipients reported having a work disability compared to 3 percent among non-recipients. Physical impairment is the most reported category (49.5 percent) among recipients, whilst speech impairment is the least reported category among recipients.

**Table 2: Descriptive statistics of selected variables used in estimations**

Variable	DG Beneficiaries N = 3062		Non-DG Beneficiaries N = 55340	
	Mean	(SD)	Mean	(SD)
<b>Disability</b>				
Work Disability	0.762	(0.426)	0.030	(0.171)
Activity limitation	0.476	(0.500)	0.018	(0.134)
Physical	0.495	(0.500)	0.410	(0.492)
Sight	0.074	(0.262)	0.196	(0.397)
Hearing	0.053	(0.225)	0.136	(0.343)
Speech	0.040	(0.196)	0.028	(0.166)
Mental	0.202	(0.401)	0.143	(0.351)
Emotional	0.136	(0.343)	0.087	(0.282)
<b>Race</b>				
African	0.761	(0.427)	0.775	(0.418)
Coloured	0.193	(0.395)	0.140	(0.347)
Asian	0.021	(0.142)	0.022	(0.145)
White	0.025	(0.158)	0.064	(0.244)
<b>Gender</b>				
Male	0.471	(0.499)	0.458	(0.498)
Age				
<b>Age</b>	44.699	(11.138)	34.270	(11.866)
18-24 years	0.062	(0.242)	0.275	(0.446)
25-34 years	0.143	(0.351)	0.275	(0.446)
35-44 years	0.226	(0.419)	0.222	(0.415)
45-54 years	0.332	(0.471)	0.161	(0.368)
55-60 years	0.235	(0.424)	0.068	(0.251)
<b>Marital status</b>				
Single	0.459	(0.498)	0.539	(0.499)
Married	0.294	(0.456)	0.299	(0.458)
Cohabit	0.086	(0.280)	0.101	(0.301)
Widowed	0.110	(0.313)	0.037	(0.190)
Divorced	0.051	(0.220)	0.025	(0.156)
<b>Educational attainment</b>				
Years of education	5.207	(4.048)	8.895	(3.706)
No education	0.255	(0.436)	0.066	(0.249)
Primary	0.514	(0.500)	0.301	(0.459)
Secondary	0.167	(0.373)	0.319	(0.466)
Diploma	0.005	(0.072)	0.060	(0.238)
Degree	0.002	(0.044)	0.024	(0.152)
<b>Literacy</b>				
Can read	0.664	(0.472)	0.908	(0.289)
Can write	0.662	(0.473)	0.905	(0.293)
<b>Province</b>				
Gauteng	0.050	(0.219)	0.117	(0.322)
Eastern Cape	0.148	(0.355)	0.120	(0.325)
Northern Cape	0.088	(0.283)	0.064	(0.246)
Free State	0.093	(0.291)	0.073	(0.260)
KwaZulu Natal	0.301	(0.459)	0.251	(0.433)
North West	0.085	(0.279)	0.083	(0.276)
Western Cape	0.130	(0.336)	0.119	(0.324)
Mpumalanga	0.049	(0.216)	0.079	(0.270)
Limpopo	0.056	(0.230)	0.093	(0.290)
<b>Income Eligibility</b>				
Fail means-test	0.047	(0.212)	0.230	(0.421)
<b>Household size</b>				
HHsize	4.950	(2.753)	4.960	(2.883)
<b>Local labour market conditions</b>				
District unemployment rate	0.253	(0.087)	0.243	(0.089)
<b>Accessibility of social services</b>				
Less than 30 minutes from welfare office	0.543	(0.498)	0.499	(0.500)
Less than 30 minutes from public transport	0.106	(0.308)	0.099	(0.298)

Source: Author's own calculations based on GHS, 2007.

Note: Standard deviations (SD) are shown in parenthesis.

Africans dominate both recipients and non-recipients, which is consistent with the fact that they constitute the majority population in the country. Males constitute a lower proportion for both recipients (47.1 percent) and non-recipients (45.8 percent) compared to females. DG recipients are older (mean of 45 years) than non-recipients (mean of 34 years), whilst single individuals dominate both recipients and non-recipients in moderately similar proportions. Educational attainment is lower among recipients compared to non-recipients, and so are general literacy levels as proxied by ability to read and write. In terms of provincial distribution of age-eligible individuals, KwaZulu-Natal accounts for the highest share of both recipients and non-recipients, whilst Mpumalanga has the least proportion of recipients and Northern Cape accounts for the smallest share of non-recipients.

Less than five percent of recipients failed the income means-test, compared to 23 percent amongst non-recipients. Both recipients and non-recipients come from households with similar sizes of approximately five members. Average unemployment rate is marginally higher (25.3 percent) among recipients compared to 24.3 percent among non-recipients. Fifty four percent of recipients stay within a 30 minute drive to the nearest welfare office, compared to 49.9 percent among non-recipients. Finally, only about 10.6 percent of recipients live within 30 minutes of public transport, compared to 9.9 percent among individuals not receiving the DG.

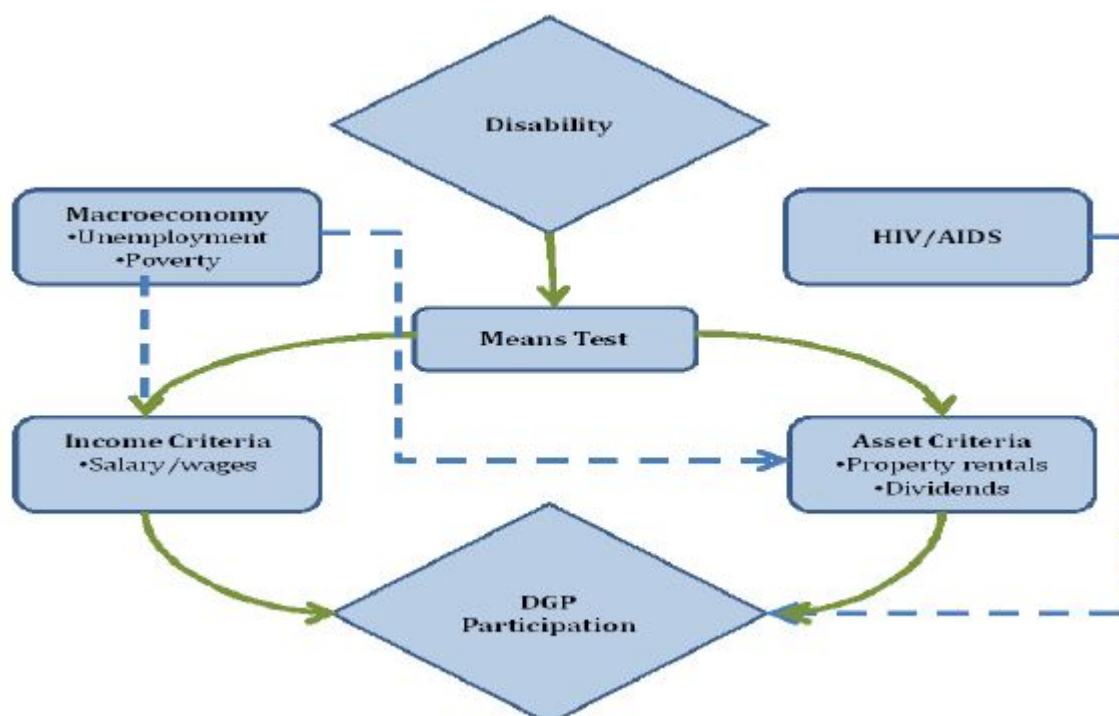
## **6. MODEL FORMULATION**

### **6.1 Conceptual Framework**

The decision to participate in a welfare programme brings both benefits and costs (Lim et al., 2011; Wiseman, 2009; Moffitt, 1983). Individuals participate in the DGP if the utility of entry outweighs utility of non-participation. The utility from DGP participation is a function of the DGP benefit amount, while the utility of non-participation is a function of wages and other income. Costs of participating in the programme can be valued in the form of financial resources used in applying for the grant (direct costs) or psychological costs in the form of stigma associated with receiving welfare benefits (indirect costs). Substantial costs have been suggested among people living with HIV who potentially may discontinue antiretroviral treatment to increase the likelihood of receiving the DG.

Eligibility for disability benefits is determined by activity limitation as a result of a disability, level of income, value of assets owned and CD4 count for applicants living with HIV/AIDS. From Figure 11, the macroeconomic environment affects participation decisions via two channels: the labour market, and the asset level. In periods of decreased job opportunities (high unemployment rates and increased poverty), decreased individual and household income implies an increasing number of potentially eligible applicants. Moreover, a poorly performing macroeconomy suggests the likelihood of a bearish stock market. This results in decreased asset holdings among potential applicants, thereby increasing their likelihood of entering the DGP. CASE (2005) identified poverty, the impact of HIV/AIDS, increased awareness of the DG and increased access to the social security system as important factors. Vorster, Rossouw and Muller (2000) observed an increase in the number of applicants who might be able to work and had the desire to work but could not find employment, as suitable recipients of a DG. This trend has been observed in most provinces of the country.

**Figure 11: Conceptual framework for the impact of vocational and macroeconomic factors on DGP participation**



Source: Adapted from Lim et al. (2011).

Internationally, a growing body of literature has identified poor macroeconomic conditions as significant predictors of welfare programmes participation. Wolkwitz (2007) and Cunyngham (2003) suggested that previously non-eligible households were likely to enter the Food Stamp Programme (FSP) in the US in periods of economic recession. Similarly, poor economic conditions were observed to be correlated with the Aid to Families with Dependent Children (AFDC) programme participation, with higher entry and lower exit propensities from welfare (Ribar, 2003; Hoynes, 2000; Fitzgerald, 1995). Specifically, episodes of high unemployment rates and slow economic growth had significant effects on likelihood of entering a welfare programme.

## 6.2 Empirical Model

The random utility model is ideal for modelling the binary discrete choice of DGP participation (Greene, 1997). This is because an individual has two choices: to participate in a welfare programme or not. An individual participates if the expected utility on welfare is greater than the expected utility off welfare. Despite the utility index associated with each choice not being observable, consumer theory proposes that each participant reveals his/her preferences by choosing the alternative with the highest utility.

Let  $Y_i$  be a binary indicator variable with  $Y_i = 1$  if an individual participates in the DGP, and  $Y_i = 0$  otherwise. Furthermore, let  $X_i$  be the vector of demographic, community and macroeconomic factors hypothesized to affect DGP participation.  $X$  thus includes variables such as disability status, race, age, educational attainment, marital status, household size, spatial controls, and proxies for macroeconomic conditions. The participation probabilities can thus be specified as:

$$Y_i = DGP \text{ Participation} = \beta X_i + \varepsilon_i \quad (II)$$

where  $DGP \in \{0, 1\}$ . The observed choice  $Y_i$  is assumed to be the result of some unobserved latent valuation  $Y^*$  that depends on  $X_i$  such that:

$$Y_i^* = DGP \text{ Participation} = \beta X_i + \varepsilon_i \quad (III)$$

where  $\varepsilon_i$  is drawn (usually *iid*) from the probability density function  $f(\varepsilon_i)$

The model can be estimated using maximum likelihood methods. Assuming the unobservable,  $f(\varepsilon_i)$  follows a normal distribution, (III) can be estimated using a probit model.

The model is estimated, firstly for the pooled sample of age-eligible individuals, and then separately for males and females. In each specification, implicit reference to the central hypothesis of the paper is reflected in the choice of controls included, namely demographic, community and macroeconomic impacts on the probability of DGP participation.

## 7. RESULTS

Table 3 shows the estimation results of the DGP participation equation. The reference individual is an 18-24 year old African, resident in Gauteng, who never married, is not disabled, passed the income means-test, and lives less than 30 minutes from the nearest welfare office and public transport facilities.

**Table 3: Probit estimates (marginal effects) of determinants of disability grant receipt**

Variable	All observations (1)	Females (2)	Males (3)
Activity limitation	0.108*** (0.007)	0.082*** (0.008)	0.127*** (0.011)
Work disability	0.260*** (0.010)	0.302*** (0.017)	0.232*** (0.012)
Coloured	0.002 (0.002)	0.005* (0.002)	-0.001 (0.002)
Asian	0.001 (0.003)	0.001 (0.004)	0.001 (0.004)
White	-0.004*** (0.001)	-0.004** (0.002)	-0.005** (0.002)
Male	-0.001 (0.001)		
25-34 years	0.011*** (0.002)	0.008*** (0.003)	0.013*** (0.003)
35-44 years	0.020*** (0.003)	0.016*** (0.004)	0.022*** (0.004)
45-54 years	0.039*** (0.004)	0.029*** (0.005)	0.046*** (0.007)
55-60 years	0.076*** (0.008)	0.057*** (0.010)	0.089*** (0.012)
Married	-0.003*** (0.001)	-0.002* (0.001)	-0.003** (0.001)
Cohabit	-0.003*** (0.001)	-0.001 (0.002)	-0.005*** (0.001)
Widowed	0.003 (0.002)	-0.000 (0.003)	0.003 (0.002)
Divorced	0.001 (0.002)	-0.002 (0.002)	0.004 (0.003)
Years of education	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Can read	-0.002 (0.005)	-0.000 (0.006)	-0.003 (0.007)
Can write	0.005 (0.003)	0.001 (0.005)	0.007* (0.004)
Eastern Cape	0.004* (0.002)	0.004 (0.003)	0.004 (0.003)
Northern Cape	0.011*** (0.004)	0.011** (0.005)	0.011** (0.005)
Free State	0.009*** (0.003)	0.011** (0.005)	0.009** (0.004)
KwaZulu-Natal	0.011*** (0.002)	0.009*** (0.003)	0.012*** (0.003)
North West	-0.001 (0.002)	0.000 (0.003)	-0.002 (0.002)
Western Cape	0.009*** (0.003)	0.007* (0.004)	0.013** (0.005)
Mpumalanga	-0.004** (0.002)	-0.004** (0.002)	-0.002 (0.003)
Limpopo	-0.003* (0.002)	0.001 (0.003)	-0.006*** (0.002)
Means-test	-0.006*** (0.001)	-0.004*** (0.001)	-0.007*** (0.001)
Household size	-0.000 (0.000)	0.000 (0.000)	-0.000** (0.000)
District unemployment rate	0.018*** (0.005)	0.014** (0.007)	0.023*** (0.007)
Less than 30 min from welfare office	0.032*** (0.005)	0.020*** (0.004)	0.043*** (0.006)
Less than 30 min from public transport	0.009* (0.007)	0.006* (0.005)	0.012* (0.010)
Observations	57,929	26,493	31,436

Source: Author's calculations based on GHS, 2007.

Notes: Standard errors in parentheses: \*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

The results confirm some of the findings observed in the descriptive analysis. In particular, work disability is the largest predictor of the probability of receiving disability benefits, with marginal effects of 30.2 and 23.2 percent for males and females respectively. Similarly activity limitation has the predicted effect of increasing the likelihood of DGP enrolment, albeit with considerably lower marginal effects than work disability. With a marginal effect of 12.7 percent, the effect is higher for females compared to males (8.2 percent). The influence of race is consistent with what was observed in the descriptive analysis (Section 3.4.1), that is relative to Africans, Asians and Coloured males appear to have a higher probability of receiving the DG, whilst Whites are significantly less likely to receive disability benefits. Older people have a higher likelihood of receiving the DG, for both males and females, compared to younger adults.

Marital status has varying effects on the probability of receiving disability benefits. While married and cohabiting individuals have a comparatively lower likelihood of receiving the DG, widowed males, and divorced males and females appear to have a higher likelihood of participating in the DGP compared to single individuals, although the effects are not statistically significant. The influence of education is as expected. Years of education have a significant and negative impact on DGP participation. The higher the level of education, the lower the probability of participating in the programme for both males and females.

Both males and females in entirely all the provinces barring the North West, Mpumalanga and Limpopo have a higher probability of receiving disability benefits relative to Gauteng residents. The income means-test coefficient is consistent with a priori expectations. The likelihood of receiving disability benefits declines with the level of income. The marginal effect on the probability of receiving the DG is -0.004 and -0.007 for males and females respectively.

There is a positive association between household size and probability of receiving disability benefits. An additional household member increases the probability of receiving disability benefits by 0.6 and 0.7 percent for males and females respectively. This may be picking up the effects of poverty, where poor households (usually larger sized) have an increased DG take-up because the awarding process is anecdotally biased in favour of poor households. Alternatively, this may be an indication that households with a DG recipient are large as relatives want to benefit from the grant implying that the impact of household size on DG receipt is endogenous.

Local employment opportunities as measured by the district unemployment rate significantly affect the likelihood of participating in the DGP. Increasing unemployment rates are associated with increased DG take-up. This is particularly true for females, among whom a percentage increase in local unemployment has a 2.3 percent marginal effect on the probability of receiving disability benefits. The same is true for males, albeit with a lower marginal effect of 1.4 percent. Community effects exhibit varying influence on the likelihood of receiving disability benefits. The further one resides from the nearest welfare office, the lesser the probability of receiving disability benefits. In particular, living less than 30 minutes from the welfare office increases the likelihood of receiving DG benefits by 2 and 4.3 percentage points for males and females respectively. Similarly, the effect of staying less than 30 minutes from public transport marginally increases the possibility of receiving disability benefits.

Overall the variables perform as expected and indicate that the probability of DGP participation is reasonably sensitive to demographic, community and macroeconomic influences for both males and females.

## **8. SENSITIVITY ANALYSIS**

Throughout the paper, a pooled sample of individuals from all the four racial groups in South Africa is used. However, some have suggested that HIV prevalence rate among Africans and Coloureds is higher compared to Whites and Asians (ASSA, 2008). As a result, demographic effects may only explain variation in DGP participation insofar as the included variables adequately control for HIV prevalence. If that notion is true, it is expected that the statistical significance on the marginal effects on most variables will decline if the sample is restricted to Africans and Coloureds.

To test the robustness of the results, a further analysis is thus conducted using only the sample of Africans and Coloureds. The re-estimated effects on the probability of participating in the DGP are shown in Table 4. While our results with respect to demographic, community and macroeconomic



effects on DGP participation generally hold, regardless of the sample used in the analysis, the magnitude of some of the marginal effects are different, although none have had the statistical significance decline. For example, using the sample of Coloureds, the marginal effect of work disability increases significantly to 47.3 and 39.2 percent for males and females respectively. This is almost twice the marginal effects observed in the main results. One can therefore conclude that restricting the sample of analysis alone cannot reverse the results observed.

**Table 4: Probit estimates (marginal effects) of determinants of disability grant receipt for African and Coloured individuals**

Variables	Africans			Coloureds		
	All (1)	Males (2)	Females (3)	All (4)	Males (5)	Females (6)
Activity limitation	0.111*** (0.008)	0.084*** (0.010)	0.129*** (0.012)	0.128*** (0.020)	0.102*** (0.025)	0.142*** (0.031)
Work disability	0.237*** (0.011)	0.268*** (0.018)	0.217*** (0.013)	0.423*** (0.029)	0.538*** (0.046)	0.344*** (0.037)
Male	-0.001 (0.001)	0.004* (0.003)				
25-34 years	0.011*** (0.002)	0.009*** (0.003)	0.013*** (0.003)	0.016** (0.008)	0.008 (0.009)	0.022* (0.013)
35-44 years	0.022*** (0.003)	0.019*** (0.004)	0.023*** (0.005)	0.017** (0.008)	0.008 (0.009)	0.022* (0.012)
45-54 years	0.039*** (0.005)	0.032*** (0.007)	0.044*** (0.007)	0.048*** (0.014)	0.023 (0.015)	0.065*** (0.023)
55-60 years	0.078*** (0.009)	0.064*** (0.013)	0.087*** (0.013)	0.083*** (0.024)	0.032 (0.021)	0.125*** (0.043)
Married	-0.002** (0.001)	-0.003** (0.001)	-0.001 (0.001)	-0.005* (0.003)	0.003 (0.005)	-0.008** (0.004)
Cohabit	-0.003** (0.001)	0.000 (0.002)	-0.005*** (0.002)	-0.007** (0.003)	-0.004 (0.006)	-0.007* (0.004)
Widowed	0.002 (0.002)	-0.001 (0.003)	0.004 (0.002)	0.006 (0.007)	0.001 (0.011)	0.005 (0.008)
Divorced	-0.001 (0.002)	-0.004* (0.002)	0.002 (0.003)	0.008 (0.009)	0.014 (0.018)	0.004 (0.009)
Years of education	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.001)	-0.002** (0.001)	-0.001 (0.001)
Can read	-0.007 (0.007)	-0.001 (0.007)	-0.013 (0.011)	0.007 (0.009)	0.000 (0.019)	0.010 (0.007)
Can write	0.007** (0.003)	0.001 (0.006)	0.010*** (0.003)	-0.003 (0.015)	0.002 (0.018)	-0.010 (0.025)
Eastern Cape	0.007** (0.003)	0.007* (0.004)	0.006 (0.004)	-0.004 (0.010)	-0.013** (0.006)	0.018 (0.039)
Northern Cape	0.021*** (0.006)	0.010 (0.007)	0.032*** (0.011)	0.000 (0.012)	-0.004 (0.013)	0.012 (0.028)
Free state	0.014*** (0.004)	0.017*** (0.006)	0.012** (0.005)	-0.003 (0.011)	-0.014*** (0.004)	0.034 (0.059)
KwaZulu-Natal	0.014*** (0.003)	0.011*** (0.004)	0.015*** (0.004)	0.007 (0.019)	-0.012** (0.005)	0.062 (0.088)
North West	0.001 (0.002)	0.002 (0.003)	-0.000 (0.003)	-0.014*** (0.003)	-0.014*** (0.003)	-0.012** (0.005)
Western Cape	0.009* (0.005)	0.009 (0.007)	0.010 (0.007)	0.005 (0.011)	-0.010 (0.015)	0.022 (0.022)
Mpumalanga	-0.002 (0.002)	-0.003 (0.002)	-0.001 (0.003)	0.001 (0.040)		0.065 (0.186)
Limpopo	-0.002 (0.002)	0.003 (0.004)	-0.005** (0.002)			
Means-test	-0.006*** (0.001)	-0.005*** (0.001)	-0.007*** (0.001)	-0.004** (0.003)	-0.003** (0.005)	-0.005** (0.004)
Household size	0.002* (0.000)	0.002* (0.000)	0.003** (0.000)	0.001* (0.000)	0.001* (0.001)	0.001* (0.001)
District unemp rate	0.006** (0.005)	0.013** (0.008)	0.001** (0.008)	0.023** (0.022)	0.024** (0.032)	0.015** (0.028)
Less than 30 min from w/office	0.004** (0.001)	0.006** (0.001)	0.002* (0.001)	0.003** (0.003)	0.006* (0.004)	0.001* (0.004)
Less than 30 min from p/trans	0.002* (0.001)	0.004** (0.002)	0.003** (0.002)	0.004* (0.005)	0.006* (0.008)	0.002* (0.006)
Observations	44,889	20,231	24,658	8,232	3,874	4,349

Source: Author's calculations based on GHS, 2007.

Notes: Standard errors in parentheses: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## 9. CONCLUSION

This paper sought to profile beneficiaries of the DG in South Africa, with particular emphasis on the impact of demographics, community and macroeconomic influences on the probability of receiving disability benefits. The analysis included a descriptive framework of trends in DG beneficiaries as well as an empirical analysis of the effects of these factors on DG receipt. The study utilised data from the GHS. The 2002 to 2007 waves were utilised for the descriptive analysis, while econometric evidence on DGP participation was drawn from the 2007 wave. Probit techniques were used for the empirical analyses; firstly for the pooled sample of age-eligible individuals, and subsequently for males and females separately. Three broad groups of controls were included in the empirical analysis. Demographic effects were proxied by age, race, educational attainment, marital status, gender and household size. Community effects were captured in provincial dummies, distance to the welfare office and distance to public transport, whilst macroeconomic effects were proxied by unemployment rate.

The study reveals several important findings. Firstly, there are significant race differences in the probability of receiving disability benefits. Africans have a lower probability of receiving disability benefits compared to Coloureds and Asians, further confounding the notion that poverty is a significant predictor of DG receipt. Since Africans usually constitute a higher share of the poor, we would have expected them to have a higher likelihood of receiving disability benefits if poverty is indeed a determinant of DG receipt. Secondly, the propensity of entry into the DGP is higher among older people relative to younger people. Thirdly, high unemployment rates significantly increase the likelihood of receiving the DG. Finally, community variations as reflected in differences in geographical access to welfare and public transport facilities, significantly explain differences in disability receipts. Communities with easy access to facilities, as measured by the distance to the nearest welfare office and distance to public transport, have a higher chance of receiving disability benefits.

An important policy implication emerging from these findings is that government effort should be directed at improving accessibility to welfare offices both in terms of distance and easy access to public transport. Potential beneficiaries of the DGP appear to be excluded because of inaccessibility of welfare offices.

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