Disability Screening and Labor Supply: Evidence from South Africa

By SOPHIE MITRA
Department of Economics,
Fordham University,
441 East Fordham Road,
Bronx, NY 10458
Ph: 718 817 5337 (o)
Ph: 914 960 3851 (c)
Fax: 718 817 3518
Email: mitra@fordham.edu

November 14th, 2008

Session: Topics in International Public Economics

Chair: Leora Friedberg, University of Virginia

Discussant: Norma Coe, Tilburg University

Disability Screening and Labor Supply: Evidence from South Africa

By SOPHIE MITRA[*]

When unemployment is high and unemployment assistance is not available, disability benefit programs may provide an important safety net for the working age population. Such situations prevail in certain developing countries like South Africa[1]. Yet research that examines the poverty reduction and labor supply effects of disability programs has taken place exclusively in developed countries with relatively low unemployment and high labor force participation rates. In developing countries with high unemployment rates, the disincentive effect of cash transfers on labor supply has been assumed to be economically insignificant (Anne Case and Angus Deaton 1998). In this paper, I provide initial evidence on, and draw attention to, the effect of the Disability Grant program in South Africa on labor supply in the context of a policy change in disability screening. I use a difference-in-differences estimator to assess the effect of a change toward a less intensive disability screening on non-labor force participation for older individuals.

If screening into disability benefit programs was perfect, the supply of disability benefits would be independent of labor supply decisions, and only those unable to work due to health conditions would receive benefits. However, the disability screening process is imperfect because it is, in practice, difficult to determine whether a person is able to work, which is the typical test of eligibility for disability benefit programs. The challenge of disability screening is acute in the case of invisible impairments such as lower back pain, or episodic ones such as

[1] Many middle countries have disability social assistance or insurance programs. For a review, see Mitra (2005).

certain mental illnesses. Recent evidence suggests that the work disincentive effects of disability benefits are expected to be larger during period of reduced stringency in screening since moral hazard reporting is more likely. Much of the literature on disability benefit programs has measured the elasticity of non-labor force participation for amounts of disability benefit among older males in the US (Robert Haveman and Barbara Wolfe 1990), and more recently in Canada (Jonathan Gruber 2000). Studies tend to find a negative effect of disability benefits on labor supply, but estimates of the magnitude of the effect vary greatly. In a seminal paper, Michele Campolieti (2004) shows that an analysis of the disincentive effect of disability benefits is problematic since it may reflect other factors of disability policy such as the screening stringency of the program. In Canada, during a period with high screening stringency in the early 1970s, Campolieti (2004) finds no large increase in non-employment for older men following a large benefit increase, while Gruber (2000) finds a large effect during a period of low stringency in the late 1980s. In the US, David Autor and Mark Duggan (2003) suggest that looser screening requirements since 1984, combined with more generous benefits, may have made disability benefits application and recipiency rates more responsive to labor demand shocks and thus contributed to a lower unemployment rate. Jonathan Gruber and Jeffrey Kubik (1997) directly estimate the effects of changes in program stringency on nonparticipation and find an elasticity of nonparticipation to denial rates in the range of 0.12-0.17. Research is needed on how changes in disability screening stringency may affect labor supply in developing countries with high unemployment and growing disability programs such as South Africa. Based on the literature on disability screening and labor supply, I expect to find that looser disability screening in some provinces of South Africa since 2002 has led to a lower probability of labor force participation among older individuals.

South Africa's Disability Grant (DG) program has grown rapidly in recent years. The number of beneficiaries more than tripled since 2000 (The Treasury 2003, 2005), with close to 4% of the working age population on DG in 2005. Expenditures on the DG program tripled between 2001 and 2004: DG expenditures accounted for 28% of social grant expenditures and close to 1% of GDP in 2004 (The Treasury 2005). In order to qualify for the DG, an applicant must be "owing to his or her physical or mental disability, unfit to obtain by virtue of any service, employment, or profession the means needed to enable him or her to provide for his or her maintenance" (Government of South Africa 2004). Applicants must be aged 18 to 64 for males and 18 to 59 for females. In addition, the DG is a non-contributory means tested program and benefits are granted on a temporary or permanent basis. The DG benefit amount is the same as for the old age pension and is substantial: it amounted to R940 per month in 2008, which is about twice the per capita income. A large majority of DG beneficiaries are Africans, which are the focus of this paper. Unlike in developed countries where disability beneficiaries are more often males, in South Africa, males and females are about as equally likely to be on disability. This paper therefore covers both males and females.

The recent growth of the DG program has led to a growing concern in media and political circles that DG benefits have contributed to create work disincentives and a culture of dependency. While there has been careful research on the behavioral effects of the Old Age Pension, and in particular on its effect on the labor force activity of the working age population (e.g., Cally Ardington; Anne Case and Victoria Hosegood 2008), the implications of the DG program have received little attention.[2] Research on the DG is very important for South Africa as it may help solve some of the puzzles of its labor market. David Lam, Murray Leibbrandt and

_____

[2] There has been some qualitative evidence that the DG program does not have work disincentive effects (Michael Noble, Phakama Ntshongwana and Rebecca Surender 2008).

Vimal Ranchhod (2005) show that the labor force participation of men 45 years and older has dropped since the mid-1990s. It is possible that that the DG program encourages older men to exit the labor force prior to retirement age as has been shown in developed countries. Finally, there has been a sharp growth in labor force participation following the end of apartheid, especially with an increase in the participation of Africans and women. However, this increase slowed down in 2000-2003 and it is unclear to what extent HIV/AIDS and worker discouragement have contributed to this slow down (Geeta Kingdon and John Knight 2007). Increased leniency in DG disability assessments in most provinces since 2002 might have contributed to the slowdown in the growth of the labor force.

I. Background on the Disability Grant Program

The DG program was a national program from its inception in 1946 until 1997, when the administration and management of social assistance was assigned to provinces, in line with the decent ralized nature of the government of the New South Africa. Until November 2001, however, decisions on DG eligibility remained consistent across provinces: in all provinces, decisions on DG eligibility were made following a medical assessment by a physician in a clinic/hospital, who made a recommendation to the Pension Medical Officer (PMO). The PMO, based at the provincial head office of the Department of Social Development, made the final decision on eligibility, and was perceived as the gatekeeper of the DG program. This system was criticized on the basis that the PMO, who never met the applicant, had a limited ability to assess the disability of the applicant. The November 2001 Regulatory Amendment to the Social Assistance Act of 1992 changed the DG award process by giving provinces the power to change the following: i) who made the final decision on eligibility; and ii) how assessments were

conducted[3]. The first policy change is the focus of this paper. All provinces, except the Northern

Cape and Mpumalanga, did away with the PMO position. The removal of this gate-keeping

position led to a reduction in the stringency of the program, and has been understood as one of

the major reasons for the large increase in grants awarded over the 2002-2004 period (CASE

2005). The second policy change provided for two possible assessment routes: by a physician in

a clinic/ hospital as done earlier, or by an assessment panel, which include a rehabilitation

therapist, an employee of the Department of Social Development and a representative of the

disability sector or the community. Within the provinces that adopted assessment panels, there

has been some variation on panel membership and procedures. Due to this within-province

variation in the implementation of assessment panels, this second policy change is beyond the
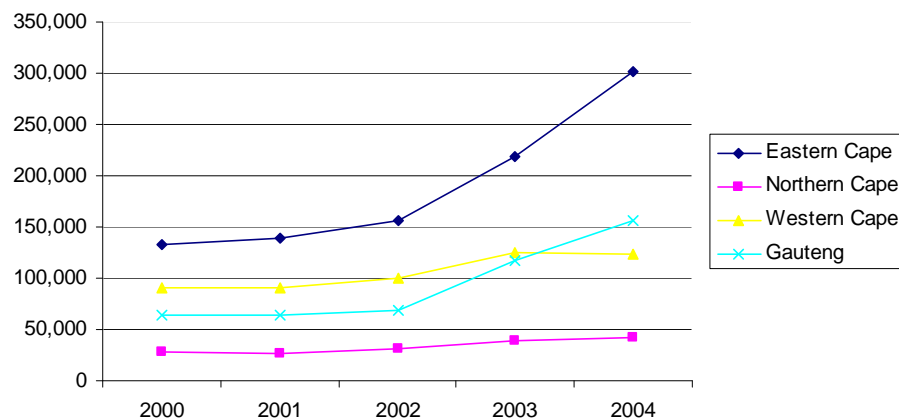
scope of this paper.

FIGURE 1 - NUMBER OF DISABILITY GRANT BENEFICIARIES IN SELECTED PROVINCES
Source: Data is from The Treasury (Various Years)

I focus on the demise of the PMO as a change towards more leniency in disability screening.

This policy change provides a unique opportunity to assess the impact of the DG program on

labor supply. Based on a difference-in-differences estimator, I compare non-labor force

---

[3] The main sources on policy changes were Community Agency for Social Enquiry (CASE) (2005), Government of South Africa (2001) and author's correspondence and meetings with province level staff of the South Africa Social Security Agency (SASSA).

participation for older individuals in Northern Cape, the province which did not make any

change to its disability screening, to the three provinces which did away with the PMO but

retained physicians as disability assessors (Western Cape, Eastern Cape and Gauteng).[4] Figure 1

shows the number of DG beneficiaries from 2001 until 2004. There was a sharp growth in

Eastern Cape and Gauteng, moderate growth in Western Cape, and very limited growth in

Northern Cape.

II. Data and Empirical Framework

I use data from the Labor Force Survey (LFS), a nationally representative household survey

focused on labor force participation. The LFS has a twice yearly rotation panel design, with data

collected in March and September of each year since 2000[5]. I use pooled cross sections of the

LFS. September 2000 and 2001 are the baseline, while March and September 2003 are the period

after the policy change. In October 2003, a severe drought hit parts of the treatment and control

provinces, which restricts the period of study post-policy change. The main labor market

outcome under study is the *broad* non-labor force participation rate. The *broad* labor force

includes discouraged workers, while the *narrow* labor force does not. In South Africa, where the

ranks of discouraged workers are very large, analysts have used the broad labor force to analyze

unemployment and labor force participation (Kingdon and Knight 2006). I use as an empirical

strategy a difference-in-differences estimator using a logistic regression of the form:

$$(1) \qquad NP_i = f(\beta_1 X_i + \beta_2 Post + \beta_3 Treat + \beta_4(Post \times Treat) + \varepsilon_i)$$

---

[4] Among other provinces, four provinces adopted assessment panels (KwaZulu Natal, Limpopo, Mpumalanga and North West), and one province, Free State, used panels and physicians in parallel in different districts.

[5] The LFS is a panel survey of dwelling units: it was not set up in such a way that individuals can be followed over time. For the panel starting in September 2001, Statistics South Africa constructed a longitudinal file at the individual level, called the 2006 LFS panel. However, sample sizes for our groups of interest at the province level were too small for it to be used in this analysis.

where *NP* is a dummy variable that takes the value of one for nonparticipation and zero

otherwise for individual *i*, *X* is a vector containing controls for observable characteristics (age,

marital status, urban area, and educational attainment), the province level unemployment and

HIV/AIDS prevalence rates for males, a dummy for year 2001, and two province dummies for

Western Cape and Eastern Cape. *Treat* is a dummy variable that takes the value of one for the

treatment provinces and zero otherwise. *Post* takes the value of one for the year after the

reduction in stringency. The coefficient of interest is β_4, the interaction between *Post* and *Treat*.

The coefficient estimate on this interaction term captures the change in nonparticipation in the

treatment provinces, where disability screening became more lenient in December 2001, relative

to the change in nonparticipation in the control province (Northern Cape), where there was no

change in the disability screening process. The key identification assumption of (1) is that there

was no labor market shock that affected the treatment and control provinces differentially over

2001-2003 that was correlated with the labor supply decisions of older individuals. In the

absence of a credible within-province control group, I cannot fully address this concern[6].

Province specific trends over the study period are controlled for through province level annual

unemployment and HIV/AIDS prevalence rates[7]. Another possible concern is that the policy

change in the treatment provinces might have responded to a downward trend in labor supply in

treatment provinces relative to Northern Cape, and the policy was adopted to respond to this

trend[8]. I run model (1) using LFS data for March 2000 and September 2001. The dummy *Post*

---

[6] Campolieti (2004) and Gruber (2000) use a triple difference estimator with younger workers (aged 24 to 39) as a within region control group. However, based on a profile of DG beneficiaries over the study period (CASE 2005), younger workers are also likely to have been affected by the policy change and are therefore not an adequate control group.
[7] Unemployment rates are from the LFS (Statistics South Africa, Various Years). HIV/AIDS prevalence rates are from the ASSA2003 actuarial model available at www.assa.org.za
[8] Similarly, one may wonder whether trends in labor supply motivated the absence of a policy reform in Northern Cape. No such motivation was mentioned in CASE (2005), nor in narratives by SASSA staff.

takes the value of one for 2001, and zero for 2000. I find no preexisting differential trend in non-labor force participation in the treatment provinces compared to Northern Cape.

III. Results

TABLE 1 - UNADJUSTED ESTIMATES OF THE IMPACT OF DISABILITY SCREENING REFORM ON NON-LABOR FORCE PARTICIPATION

	Pre-change	Post-change	Time difference	Difference-in-differences
Panel A. Males 44-64				
Treatment provinces	0.181	0.227	0.046	**0.092** *
n=5,845	(0.008)	(0.011)	(0.013)	**(0.044)**
Control province	0.341	0.295	-0.046	
n=589	(0.033)	(0.034)	(0.047)	
Panel B. Females 44-59				
Treatment provinces	0.29	0.317	0.027	**-0.02**
n=5,791	(0.009)	(0.011)	(0.014)	**(0.052)**
Control province	0.495	0.542	0.047	
n=485	(0.035)	(0.046)	(0.807)	

Notes: Weighted means are presented based on data from the LFS. The pre-change period includes data from the LFS for September 2000 and 2001; the post-change period includes data from LFS March and September 2003. Standard errors are in parenthesis. Treatment provinces are Eastern Cape, Gauteng and Western Cape. The control province is Northern Cape.

Table 1 gives unadjusted estimates of the policy effect by gender. In panel A, for older males in treatment provinces, non-labor force participation increased by a statistically significant 4.4 percentage points. There was a drop in non-labor force participation for the control province, but it is not statistically different from zero. The unadjusted difference-in-differences estimate for older males is a (significant) 9.2 percent relative increase in the non-labor force participation rate based on the broad labor force definition. In panel B, for older women in treatment provinces, there is a relative decrease in non-labor force participation of 2 percent that is not statistically different from zero. I proceed to assess whether the relative increase in non-labor force participation for males in treatment provinces holds in a regression framework as per equation (1).

9

Table 2 presents estimates of the interaction term between treatment and post for the probability of non-labor force participation for all males and sub-samples. In Table 2, column (1), for all males, the coefficient of interest is positive and significantly different from zero, with a marginal effect of 8.6 percent. This suggests that less intensive disability screening might have led individuals to leave the broad labor force. In the second and third row, I run the same regression on sub-samples of males with an educational attainment of grade seven or less and those aged 55 to 64. As expected, coefficients are larger for these sub-samples. Although DG receipt and unemployment are high in rural areas, the regression could not be run separately for rural and urban sub-samples due to the small size of the rural sub-sample in the control group and concern over the quality of the identification of rural/urban areas in the LFS (Statistics South Africa 2004).

TABLE 2 - ADJUSTED ESTIMATES OF THE IMPACT OF DISABILITY SCREENING REFORM
ON NON-LABOR FORCE PARTICIPATION

	(1) Non-labor participation (broad)	(2) Non-labor participation (narrow)	(3) Non-Employment
All males (45-64 age group)	0.937 *	0.502	0.457
n=6,434	(0.370)	(0.328)	(0.296)
	[0.0857]	[0.054]	[0.033]
Males, Grade 7 or less	1.142 *	0.722	0.763
n=3,231	(0.516)	(0.442)	(0.411)
	[0.107]	[0.08]	[0.099]
Older Males (55-64 age group)	1.289 *	0.827	0.748
n=2,301	(0.511)	(0.459)	(0.446)
	[0.168]	[0.103]	[0.043]

Notes: Table entries represent coefficient estimates from a logistic model. The table contains the estimated coefficient of the *Post*x*Treat* variable and standard errors (in parentheses). The marginal effect is between square brackets. The LFS has a stratified design with clusters, and standard errors are adjusted accordingly. Specifications also include age groups (two categories), marital status, urban area, and education (four categories), province level unemployment and HIV/AIDS prevalence rates, a dummy for year 2001, two province dummies for Western Cape and Eastern Cape, a dummy for *Post* and a dummy for *Treat*. In the second row (Males, Grade 7 or less), education variables are not included, and in the last row, the age group dummy is omitted. * $p<0.05$

In columns (2) and (3), the same regression is run for two other labor market outcomes, non-participation in the narrow labor force and non-employment. The coefficient of interest is consistently positive but not significantly different from zero. Together, these findings on

10

broad/narrow non-labor force participation and non-employment suggest that following the reform in disability screening in treatment provinces, discouraged workers might have dropped out of the broad labor force, but employed and job seeking older males might not have significantly altered their behavior.

IV. Conclusion

I exploit a natural experiment to estimate the impact of a change in disability screening stringency on labor force outcomes for older individuals in South Africa. Results differ across labor market outcomes and by gender. I provide initial evidence that reduced stringency in DG screening in treatment provinces might not have affected the labor market behavior of older females but might have led to a reduction in the participation of older males in the broad labor force. This result highlights the possibility that in the context of Western Cape, Eastern Cape and Gauteng, the reduced stringency of the DG program might have made discouraged male workers more likely to stop wanting work and drop out of the broad labor force. However, this study suffers from the inability to fully control for contemporaneous labor market changes. It also cannot provide a separate analysis for rural areas, where DG receipt and unemployment are high. The estimates presented in this article therefore cannot provide a definitive conclusion on the labor supply effects of the DG program. Further research is needed on the labor supply effects of disability programs in the context of high unemployment and poverty in developing countries. In South Africa, better data is needed in order to allow researchers to separate rural and urban areas and to follow individuals over time. The decision by Cabinet in August 2007 to harmonize the DG disability assessment at the national level may provide an opportunity for a reverse experiment. Other effects of the DG program also need to be evaluated, such as its poverty reduction and disability targeting effectiveness.

REFERENCES

Ardington, Cally, Anne Case, and Victoria Hosegood. 2008. **"**Labor Supply Responses to large Social Transfers: Longitudinal Evidence from South Africa." *American Economic Journal: Applied Economics* 1(1), Forthcoming

Autor, David H., and Mark G. Duggan. 2003. "The Rise in the Disability Rolls and the Decline in Unemployment." *Quarterly Journal of Economics*, 118(1): 157–206.

Campolieti, Michele. 2004. "Disability Insurance Benefits and Labor Supply: Some Additional Evidence." *Journal of Labor Economics* 22(4): 863-889.

CASE. 2005. *Investigation into the Increase in Uptake of Disability and Care Dependency Grants since December 2001*, Research for the National Treasury and the Department of Social Development, Community Agency for Social Enquiry, Pretoria.

Case, Anne, and Angus Deaton. 1998. "Large Cash Transfers to the Elderly in South Africa." *The Economic Journal,* 108(450): 1330-61.

Government of South Africa. 2004. Social Assistance Act of 2004, Act No 13, 2004. *Government Gazette*, June 10th. Government Printing Office, Pretoria, South Africa.

Government of South Africa. 2001. Social Assistance Act 59/1992: Amendment: Regulations regarding Grants and Financial Awards to Welfare Organisations and to Persons in Need of Social Relief of Distress. *Government Gazette*, November 23rd. Government Printing Office, Pretoria, South Africa.

Gruber, Jonathan. 2000. "Disability Insurance Benefits and Labor Supply." *Journal of Political Economy*, 108 (6): 1162-1183.

Gruber, Jonathan, and Jeffrey D. Kubik. 1997. "Disability Insurance Rejection Rates and the Labor Supply of Older Workers." *Journal of Public Economics,* 64(1): 1-23.

Haveman Robert, and Barbara Wolfe. 1990. "The Economic Well Being of the Disabled: 1962-1984." *Journal of Human Resources*, 25(1): 32-54.

Kingdon, Geeta, and John Knight. 2007. "Unemployment in South Africa, 1995-2003: Causes, Problems and Policies." *Journal of African Economies*, 16(5): 813-48.

Kingdon, Geeta, and John Knight. 2006. "Measuring Unemployment When Unemployment is High." *Labour Economics*, 13(3):291-295.

Lam, David, Murray Leibbrandt, and Vimal Ranchhod. 2005. *Labor Force Withdrawal of the Elderly in South Africa.* Prepared for the 2005 International Conference International Union for the Scientific Study of Population.

Mitra, Sophie. 2005. *Disability and Social Safety Nets in Developing Countries*. World Bank Social Protection Working Paper No. 509, The World Bank, Washington D.C..

Noble, Michael, Phakama Ntshongwana and Rebecca Surender. 2008. *Attitudes to Work and Social Security in South Africa*. Human Sciences Research Council, Pretoria, South Africa.

Statistics South Africa. Various Years. *Labour Force Survey: Statistical Release*. Pretoria, South Africa.

The Treasury. Various years. *Intergovernmental Review*. Government Printing Office, Pretoria, South Africa.