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The Macro-economic Implications of Poverty-reducing Income Transfers

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INTRODUCTION

This paper explores how income transfers to the poor may support a macro-economic strategy promoting economic growth, employment creation, and equitable redistribution. The central hypothesis of this paper is that transfers not only directly improve the well-being of the poor, they may also increase employer demand for labour while bolstering workers' effective supply, thus stimulating a growth process. In addition, income transfers may increase labour productivity, fostering a "virtuous circle" in which growth propels socio-economic progress that in turn extends the growth even further.

Whether universal, means-tested, or asset-based, the macro-economic consequences of redistributive transfers are similar. This paper lays out a framework for a universal grant, assessing the costs and benefits. The analysis readily applies (with modifications) to a targeted or means-tested grant, or to social expenditure that supports the development of an asset base for the poor.

The feasibility of substantial income transfers hinges on three critical issues: (1) the initial affordability given South Africa's macro-economic budget constraints, (2) the administrative and institutional capacity of the government to efficiently implement the programme, and (3) the long-term sustainability of financing income grants taking into account the social and economic benefits that expand the nation's productive and fiscal capacity.

The combination of severe poverty and high unemployment in South Africa raises the question of whether income transfers could provide a critical tool for reducing poverty and improving the efficiency of social delivery. The long-term nature of job creation strategies suggests the need for immediate measures that support basic living standards

for the poor. Direct income transfers to poor households could resolve the co[...] productive predicament of extending infra-structural investment in basic services (water, sanitation, electricity, and communications) to households that lack the income to finance usage charges. Likewise, the favourable investment returns of early intervention in nutrition development with respect to lifetime health and education outcomes demonstrate the need to analyse income transfers within the context of social investment.

IMPLICATIONS FOR PUBLIC FINANCE

The direct costs of a programme of income transfers depend on the level of the grant, the scope of beneficiaries, as well as the extent to which synergies can be developed with existing social security programmes. The sticker price of a universal grant based on transferring R100 per individual per month is R52 billion. Adjusting marginal tax rates and income thresholds in the tax structure to recapture the grant from relatively high income individuals can yield additional tax revenue of approximately R24 billion (see Appendix A for details of the fiscal analysis). The net cost of the transfer—the amount of transfers to the poor and the near poor—is R28 billion. In addition to the net cost of the income transfers, the administrative costs of the grant must be financed.

These figures are illustrative, based on the following scenario. Every South African is provided a tax-free income grant of R1200 per year. The primary income tax rebate is eliminated, and the marginal tax rate is increased to 10% for the first R10 000 of income, 20% on the next R10 000, and 30% on income up to R60 000, and then following the existing tax structure after that. This proposed tax structure eliminates the "poverty trap" found in some means-tested schemes that impose high effective marginal tax rates on potential workers, reducing the incentive to work. Low-wage entrants into the labour force face only a 10% marginal tax rate. This example is presented in order to demonstrate the

feasibility of utilising the tax system to replace a means test. In practice, the actual structure may differ substantially from this scenario depending on political factors.

The net cost of the income transfers represent a substantial burden on government expenditure, and the choice of financing mechanisms is a matter for public policy. Yet the expense is clearly affordable. Tax effort analysis has demonstrated that South Africa is characterised by considerable taxable capacity—on the order of approximately five percent of national income (see Appendix A). Potential revenue sources include increasing the progressivity of income taxation (R7-12 billion), reduction of private sector medical aid tax subsidies (R2-3 billion), the proceeds from capital gains taxation (R9-14 billion), an increase in the value-added tax (R4-7 billion), a higher value-added tax rate on luxury goods (R3-5 billion), tapping the "hidden surplus" indicated by consistent over-attainment of tax revenue targets (R5-6 billion), and savings from integrating other welfare programmes (R3-4 billion). The exact composition and level of financing is primarily a political question, but analysis demonstrates that between 33 and 51 billion rand of potential resources are available.

MACROECONONIC IMPLICATIONS

The potential benefits of income transfers include improved health and education, better access to employment-supporting services, reduced strains on wage earners through remittances, improved social stability and lower crime rates. All of these benefits may contribute to improved labour productivity, leading to increased private investment. Income grants also fuel spending by the poor, stimulating job creation. The resulting economic expansion, whose sustainability depends on its support of both the demand and supply sides of the process, may increase tax revenues and help to finance the income

transfers.   Depending on how the programme is structured as well as the res

economic responses, the income grant programme may actually provide a net contribution

to fiscal resources, supporting delivery of other social objectives. At least seven

transmission mechanisms potentially support a "virtuous circle" of increased productivity

generating higher growth, leading to further reductions in poverty. These mechanisms are

discussed below.

1) SOCIAL RISK MANAGEMENT

Stable and secure income transfers to the poor provide a guaranteed safety net

that may encourage low-income individuals to undertake risky yet high return investments

in human capital development and income-generating activities.[1] "The revolutionary idea

that defines the boundary between modern times and the past is the mastery of risk: the

notion that the future is more than the whim of gods and that men and women are not

passive before nature."[2]

Income transfers provide a valuable public policy tool for managing the risks faced

by the poor, addressing three critical dimensions: reducing adverse consequences, risk

mitigation and coping mechanisms.   Income transfers dampen adverse shocks to

livelihoods at a macro-economic level by stimulating overall economic activity.   At a

microeconomic level transfers mitigate risk by providing the security of a guaranteed

minimal level of income, enabling a poor person to more securely send children to school,

confident that the resulting marginal loss in income will not mean the difference between

perishing and survival.   Low income domestic and farm workers can give up their R400

per month jobs and undertake riskier yet more remunerative self-employment, or acquire

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[1] Holzmann, Robert and Steen Jorgensen.   2000. "Social Risk Management: A new conceptual framework for Social Protection, and beyond." February 2000. SP Discussion Paper No. 0006. The World Bank.

human capital in order find higher wage employment. The mere costs of job search—its risky outcomes—can lock low-income workers into poverty traps. Income transfers provide an elastic safety net, enabling vulnerable individuals who fall into the wrong tail of the probability distribution to bounce back into more sustaining livelihoods. Finally, income transfers provide a coping mechanism for the least fortunate, supporting a minimal level of subsistence for society's most marginalised.

2) RAISING LABOUR SUPPLY

Closely linked to the optimal management of social risk, the labour supply transmission mechanism operates through the effect that higher living standards exert on the capacity of unemployed job seekers to find work. Conventional economic theory argues that income transfers to the unemployed will tend to undermine their willingness to supply labour to the market, as additional income reduces the "opportunity cost" of not working. In the absence of income transfers, the alternative to working may be unacceptable living standards. Income transfers make the alternative living standards more tolerable. Empirical evidence from South Africa's *1997 October Household Survey* as well as from the SALDRU/World Bank living standards survey does not support this premise. Statistical analysis indicates that higher living standards are correlated with more extensive and more intensive job search efforts as well as higher rates of finding employment, even when controlling for the effect of remuneration on consumption. In the absence of longitudinal data, the inability to control for important econometric problems such as unobserved heterogeneity and dynamic simultaneity precludes robust inferences.

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[2] Bernstein, Peter L. 1996. *Against the Gods—the remarkable story of risk.* New York: John While & Sons. Cited in Holzmann and Steen (1996).

Nevertheless, statistical analysis cannot support the contention that income transfer undermine labour supply.

The graph below demonstrates the statistical link between *prior* living standards and the rate at which individuals wanting employment found jobs. The population of individuals in Gauteng, KwaZulu-Natal, and the Western Cape who expressed an interest in employment in October 1997 (active and passive job-seekers) was divided into five quintiles based on per capita household consumption in September 1997 (see Appendix B for details). Then the rates at which job seekers in each quintile found jobs in October 1997 were calculated. The graph below maps the job-finding rates across quintiles for the

The Link between Living Standards and Finding a Job

three provinces. This demonstrates that higher prior living standards are correlated higher job-finding rates. One interpretation of this statistical result is that individuals who can better afford leisure nevertheless choose to find jobs and/or are apparently better able to secure employment. The data does not support the conventional argument that income transfers will lead to reductions in labour supply.

These conclusions are not unambiguous. Higher living standards are likely to be correlated with past job experience as well as access to employment networks—both which bias the analysis. The positive correlation may simply reflect the positive effects of experience and networks on job-finding. Longitudinal data is not available to control for these effects, nor is there adequate information regarding networks. Nevertheless, statistical analysis of the correlation between consumption levels and the intensity of job search does not support the contention that higher consumption levels dampen labour supply. Both the extensiveness and intensity of job search increases with consumption levels—individuals in higher consumption quintiles employ more varied techniques and spend more hours in job search.

3) EFFICIENCY WAGES

Income transfers to the poor act as a wage subsidy, allowing wage increases to more efficiently raise the productivity of workers. Currently, the imperative of providing remittances to family members, friends, and other individuals in need reduces the remaining wage available to sustain the worker's productivity. Wage increases are in part "taxed" by associated increases in remittances, since the working poor provide the primary social safety net for the ultra-poor. As a result, the "efficiency wage" effect is diluted— wage increases do not lead to as powerful a productivity-enhancing effect as they would if the remittance pressures were reduced. This tends to create a low wage trap, as higher

wages provide a public good, and market failure ensures that this "good" is insuffic̵
provided.

A theoretical model of firm behaviour reflecting these conditions (see Appendix C) demonstrates that providing income transfers to the poor may lead to increased employment, even benefiting those who do not receive a net income transfer. Income transfers reduce poverty, mitigating the demands on workers for remittances. This allows workers to channel more of their wages to productivity-enhancing consumption and human capital investment, increasing firm competitiveness and thus raising production and the demand for labour.

Empirical evidence in South Africa and in other countries supports this hypothesis. An ILO study documents how the tendency for large family remittances to flow from urban to rural areas places South African firms at a structural disadvantage, resulting in reduced employment.[3] A large body of cross-country evidence documents the substantial role remittances from the working poor play in creating a social safety net for the ultra-poor. Empirical and theoretical analysis supports the applicability of the "efficiency wage" hypothesis. Wage increases that support nutrition, health, better housing, education, and other social and private assets significantly increase worker productivity.[4]

4) SOCIAL INVESTMENT

Income transfers to the poor increase the efficiency of social investment, promoting long term productivity growth. A recent United Nations report documents the extent to

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[3] Standing, G., J. Sender, and J. Weeks. 1996. *Restructuring the Labour Market: the South African Challenge.* Geneva: International Labour Office. Cited in *The South African Labour Market* by Frans Barker, 1999. Pretoria: J.L. van Schaik Publishers. Page 118.
[4] Behrman, J. and A.B. Deolalikar. 1989. "Health and Nutrition". Chapter 13 in H. Chenery and T.N. Srinivasan, eds., *Handbook of Development Economics.* Volume II. Amsterdam: North-Holland. Also, S. Strauss and D. Thomas. 1989. "Human Resources: Empirical Modeling of Household and Family Decisions". Chapter 34 in H.

which inadequate early childhood nutrition contributes to long-term health and edu

problems, leading to lower productivity through poorer health and higher absenteeism.[5] In

addition, conditions resulting from childhood deprivation lead to long term strains on the

nation's health and education systems, draining resources that could efficiently target

other social priorities. Poverty-linked AIDS also creates a cataclysmic burden on health

resources, and truncates the productivity of human capital prematurely through the death

of its victims. The World Bank has documented the extent to which AIDS will undermine

economic growth, further exacerbating the social crisis.[6] In this context, income transfers

cannot be analysed as unproductive consumption expenditure, but rather must be viewed

as a critical component of social investment, which complements the development of other

social assets.

5) A SOCIAL STAKE

The basic income grant provides a social stake for the economically

disenfranchised, promoting social cohesiveness and investor confidence. "Research

conducted in working class townships around Durban revealed a link between…violence

and the erosive effects of apartheid and poverty…."[7] Poverty creates vulnerability to

crime, and victimisation in turn erodes human and social capital and undermines access to

employment.[8] "The shock of being victimised by crime makes the poor more

vulnerable.… In some cases, heightened vulnerability may force victims to resort to

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Chenery and T.N. Srinivasan, eds., *Handbook of Development Economics*. Volume IIIA. Amsterdam: North-Holland.
[5] James, Philip. 2000. Report of the Commission on the Nutrition Challenges of the 21st Century. New York: United Nations.
[6] Piot, Peter. 1999. Presentation to the May Meeting of African Ministers of Finance and Ministers of Economic Development hosted by the Economic Commission for Africa—Addis Ababa. 7 May 1999.
[7] Louw, Antoinette and Mark Shaw. 1997. *Stolen Opportunities: the Impact of Crime on South Africa's Poor*. Institute for Security Studies: Monograph No. 14. July 1997.
[8] Moser, Caroline, Jeremy Holland and Sarah Adam. 1996. "The Implications of Urban Violence for the Design of Social Investment Funds". The World Bank, Urban No. OU-10. December 1996.

criminal activity as a means of survival....["][9] Theoretical economic and empirical country evidence demonstrates that income transfers yield social benefits that increase private investment and stimulate economic growth.[10] Investing in income transfers will likely yield substantial social returns, redressing the turmoil associated with South Africa's apartheid legacy and promoting social cohesion and stability. These dividends will support continued productive investment and economic expansion.

6) FISCAL STIMULUS

Income transfers to the poor stimulate aggregate spending, leading to increased economic activity which promotes economic growth. An analysis of South Africa's productive capacity does not support the contention that income transfers to the poor might be inflationary or unsustainable. Since 1995, utilisation of productive capacity has fallen approximately five percent, as demonstrated in the graph on the next page. The substantial increase in economic activity generated by income transfers will tend to increase capacity utilisation. This spending will provide a demand-side stimulus that increases the demand for labour, promoting increased employment.

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[9] Louw, Antoinette and Mark Shaw. 1997. *Stolen Opportunities: the Impact of Crime on South Africa's Poor*. Institute for Security Studies: Monograph No. 14. July 1997. Page 7.
[10] Cashin, Paul. 1995 "Government Spending, Taxes, and Economic Growth." *IMF Staff Papers*. Volume 42, No. 2. June 1995. International Monetary Fund. Page 262.

Capacity Utilisation in South Africa (1991-1999)
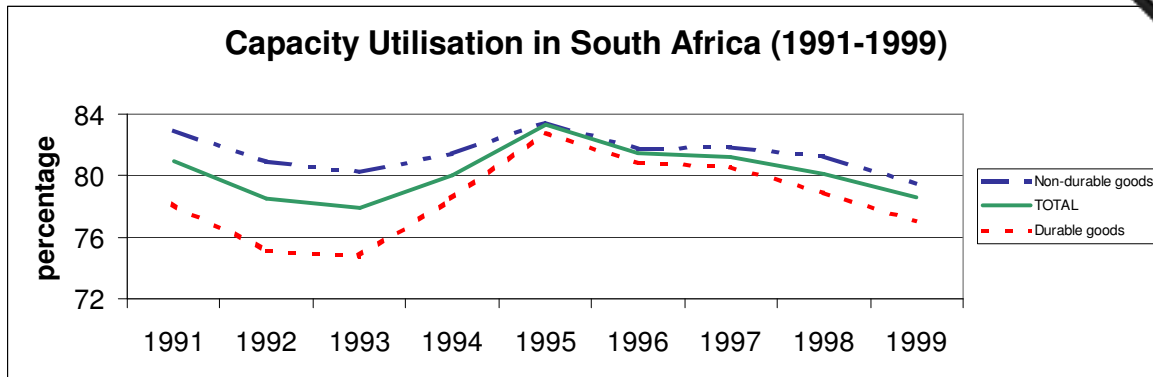
7) FOSTERING JOB-CREATING SPENDING

Income transfers to the poor shift aggregate demand towards labour-intensive job-creating industries, because they increase the consumption of the poor, the composition of which is relatively labour-intensive. Relatively affluent consumers spend a relatively large share of expenditure on capital-intensive and import-intensive goods, creating a bias against labour-intensive production in the country. The largest components of South African imports (excluding capital goods) include appliances, electronics, automobiles, jewellery, and other goods consumed disproportionately by the relatively affluent. Redistributing income to lower income individuals is likely to stimulate job creation, particularly if appropriate policies are implemented to enable the unemployed to undertake productive activities that meet the resulting increased economic demand. Effective micro-credit policies combined with logistical support for entrepreneurs can effectively maximise the resulting job creation.

CONCLUSIONS

The evidence presented in this paper suggests that substantial income transfers to the poor may be feasible, affordable, and capable of supporting increased economic growth and job creation. Income grants fortify the ability of the poor to manage risk while

directly improving their livelihoods. In addition, income transfers may improve efficiency of human capital and strengthen social cohesiveness while stimulating overall economic activity. These factors tend to increase both the supply and demand for labour, increasing employment and potentially sustaining a dynamic growth process. The success of a programme of income transfers depends critically on this growth dynamic. Complementary public policy that supports job creation and socio-economic development are necessary to reinforce the process by which redistribution generates growth that in turn sustains further broad-based improvements in living standards.
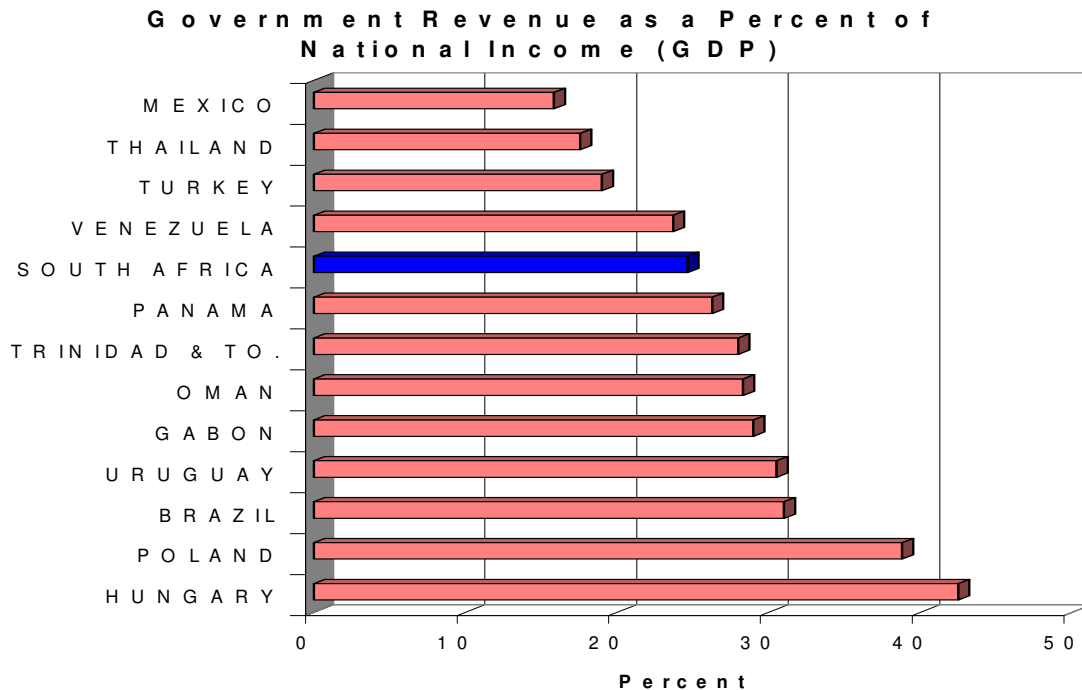
APPENDIX A) FINANCING INCOME TRANSFERS

South Africa's tax structure relies heavily on relatively regressive taxes, and historically has failed to employ some progressive taxes such as effective estate taxes and capital gains taxes. Studies of the South African tax system document the extent to which lower and middle income groups bear a disproportionate share of the tax burden. During the 1990s, South Africa derived about a quarter of its tax revenue from the Value Added Tax (VAT), yet the poorest fifth of the population spend 61% of their consumption expenditure on goods subject to VAT, while the wealthiest fifth of the population spend only 43% of their consumption expenditure on these types of goods. The Katz Commission report, recognising the "huge disparity of incomes and assets between the various groups in South Africa", argues for the need for greater reliance on wealth taxes.[11]

Furthermore, South Africa's government revenue (relative to national income) is significantly less than that of other countries with comparable income levels. The graph below shows average government revenue (relative to national income) for countries with per capita incomes within twenty percent of South Africa's level. This documents that South Africa's government revenue (as a percentage of national income) is about four percentage points lower than the average for countries with similar income levels. A comparison using industrialised countries documents an even greater disparity.

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[11] Third Interim Report of the Commission of Inquiry into certain aspects of the Tax Structure of South Africa. 1995. (Chaired by M. M. Katz.) Pretoria: Republic of South Africa Government Printer. Page 50.

The graph below compares South Africa's average tax rate (total tax revenue percentage of national income) to those of industrialised countries. South Africa's government revenue (relative to national income) is less than two-thirds the average calculated for industrialised countries. A previous report to ESSET supported a similar

G o v e r n m e n t R e v e n u e as a P e r c e n t o f N a t i o n a l I n c o m e (G D P)

Country	Percent
M E X I C O	
T H A I L A N D	
T U R K E Y	
V E N E Z U E L A	
S O U T H A F R I C A	
P A N A M A	
T R I N I D A D & T O .	
O M A N	
G A B O N	
U R U G U A Y	
B R A Z I L	
P O L A N D	
H U N G A R Y	

0   1 0   2 0   3 0   4 0   5 0

P e r c e n t

S o u r c e : I M F

conclusion, comparing South Africa's tax ratio with those of countries with similar income levels. The ten countries with per capita incomes closest to South Africa were analysed, indicating an average tax rate of 32% compared to South Africa's average tax rate of 26%.[12]

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[12] Samson, Michael, Kenneth Mac Quene, Ingrid van Niekerk, and Thami Ngqungwana. 1997. "South Africa's Apartheid Debt." *A Public Policy Study for ESSET*. Johannesburg: ESSET.

Cross-country Government Revenue Comparison

Percent of National Income
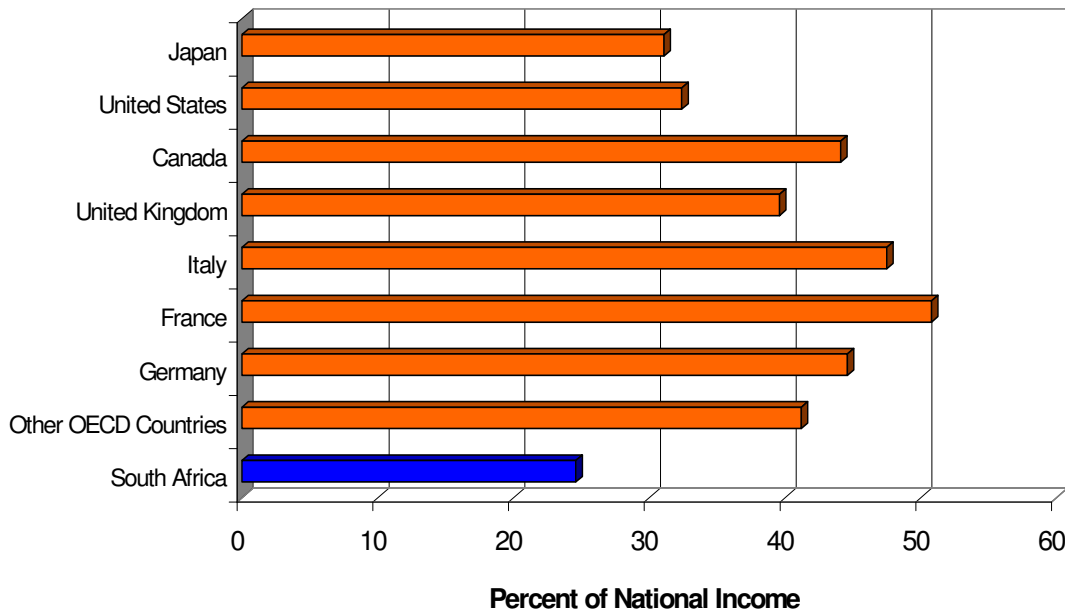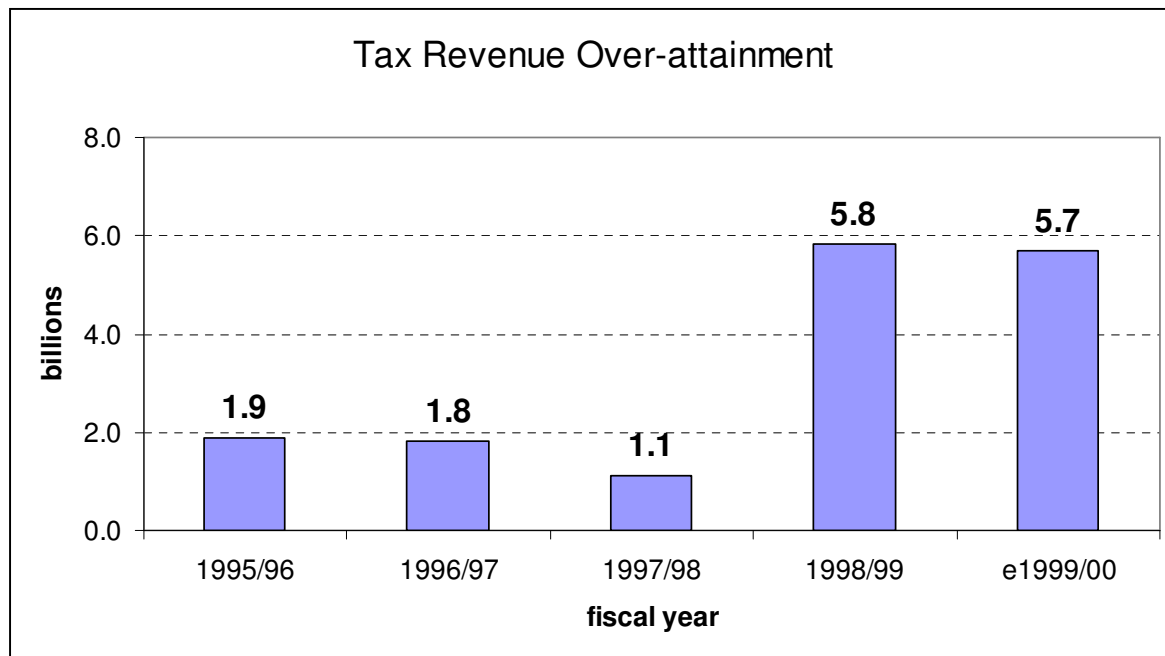
SOURCE: OECD, South African Department of Finance

Econometric studies that control for individual country characteristics have found South Africa's average tax rate to be significantly less than that which would be predicted given the country's economic profile.[13] Furthermore, tax effort analysis suggests that South Africa could mobilise an additional twenty-five billion rand per year without undermining international competitiveness.[14]

South Africa's relatively low level of taxation has been consistent with an over-attainment of revenue targets. Improved tax administration has enabled the Department of Revenue to raise tax collections more rapidly than predicted. With tax rates well below

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[13] Harber, Richard. 1995. "South Africa's Public Finances". Pretoria: United States Agency for International Development. Also, Michael Samson. 1996. "Re-evaluating South Africa's Fiscal Constraints on Transformation." *A Consultancy Report to NEDLAC Commissioned by the Economic Policy Research Institute*. Cape Town: EPRI. Also, Michael Samson, Kenneth Mac Quene, Ingrid van Niekerk, and Thami Ngqungwana. 1997. "South Africa's Apartheid Debt." *A Public Policy Study for ESSET*. Johannesburg: ESSET.

[14] Samson, Michael. 1996. "Re-evaluating South Africa's Fiscal Constraints on Transformation." *A Consultancy Report to NEDLAC Commissioned by the Economic Policy Research Institute*. Cape Town:

revenue-inefficient levels, increased collection effort productively yields abundant re Over the past five years, South Africa has consistently over-achieved its budgeted tax revenue targets—in the past two years by nearly six billion rand annually. Given this experience, the existing backlog of uncollected taxes, and South Africa's relatively low tax ratio, expectations are likely to persist that the Department of Revenue will continue to over-achieve budgeted revenue targets.

Tax Revenue Over-attainment

billions / fiscal year

1995/96	1996/97	1997/98	1998/99	e1999/00
1.9	1.8	1.1	5.8	5.7

EPRI. Also, Harber, Richard. 1995. "South Africa's Public Finances". Pretoria: United States Agency for International Development.

APPENDIX B) THE LINK BETWEEN LIVING STANDARDS AND LABOUR SUPPLY

This appendix presents initial findings linking living standards to effective labour supply. Although conventional wisdom posits that increased income reduces incentives to work, theory as well as anecdotal evidence calls into question whether this negative relationship holds among people who live in deep poverty. As South Africa considers the introduction of income transfers to the poor, it is necessary to consider the impact of raising poor incomes not only on the basic health and welfare of the poor but also on labour market outcomes as well. How would higher disposable income induce a positive labour supply response? Consider the position of poor people who want to work in South Africa. Indigent individuals who want a job must surmount more than a shortage of labour demand; they face poor health, living conditions, and interviewing skills. They often live many kilometres from potential work opportunities, and they lack sufficient financial resources to overcome these obstacles. Unless someone who wants work can put together the resources for clean clothes, decent meal, and bus fare to meet a prospective employer, her chances of landing a job are that much slimmer. Under these circumstances, a small increase in disposable income could improve her capacity to carry out an effective job search. Anecdotal evidence supports the relevance of this scenario. This appendix explores household survey data to more scientifically evaluate the hypothesis, assessing whether increases in disposable income among poor people are correlated with greater labour supply and improve job-finding success rates.

DATA

The data employed relies on two sources. The first dataset is the 1997 October Household Survey (OHS), an annual nationally representative survey of 30,000

households designed to monitor trends in labour, health, and welfare. The OHS provides information on the propensity of jobless individuals to actively seek work and can be used to infer job-finding success rates. Another dataset, the 1993 South African Integrated Household Survey, commonly known as the SALDRU survey (after the University of Cape Town's South African Labour and Development Research Unit, which administered the survey together with the World Bank) provides corroborating information on the participation of jobless individuals in active job search. The SALDRU survey covers a smaller sample population (about 9,000 households) but is also nationally representative.

METHODOLOGY

Ideally, this type of study would use panel data to measure the impact of changes in income on job-seeking behaviour. Panel data is not available, so an alternative approach is adopted. Job-seekers are sorted into consumption brackets and marginal changes in job-seeking behaviour moving between brackets are evaluated. Consumption is more relevant than income, as it provides a better sense of the real resources contributing to the productivity/employability of job-seekers. In addition, consumption data is more reliable than income data. Consumption brackets are based on monthly *per capita* household expenditure and are defined individually for each of South Africa's provinces. Job-seekers are defined broadly to include all jobless individuals who express an interest in working, regardless of whether or not they are actively seeking employment.

JOB-SEEKING BEHAVIOUR

First, the impact of increased consumption on the job-seeking patterns of unemployed poor is evaluated. How does increased consumption affect the likelihood that a job-seeking poor person will actively look for work? From both the SALDRU survey and the OHS we can judge the propensity of job-desiring people to "participate" in an active job-search. According to both surveys, the percentage of people desiring work who participate in active job searching rises as we move upwards through the poorest deciles of the distribution. The percentage of active job-seekers rises from 29 percent to 40 percent over the first three deciles of the SALDRU data and from 41 to 47 percent over the same deciles of the OHS. The following table depicts the results from the SALDRU data. Overall, the percentage of active job-seekers is lower in the SALDRU than in the OHS – 40 percent versus 46 percent. This is explained by the fact that the SALDRU survey asked respondents about their job-seeking activity over the past one week, compared with the past four weeks in the OHS.

Participation Rates in Active Job Search
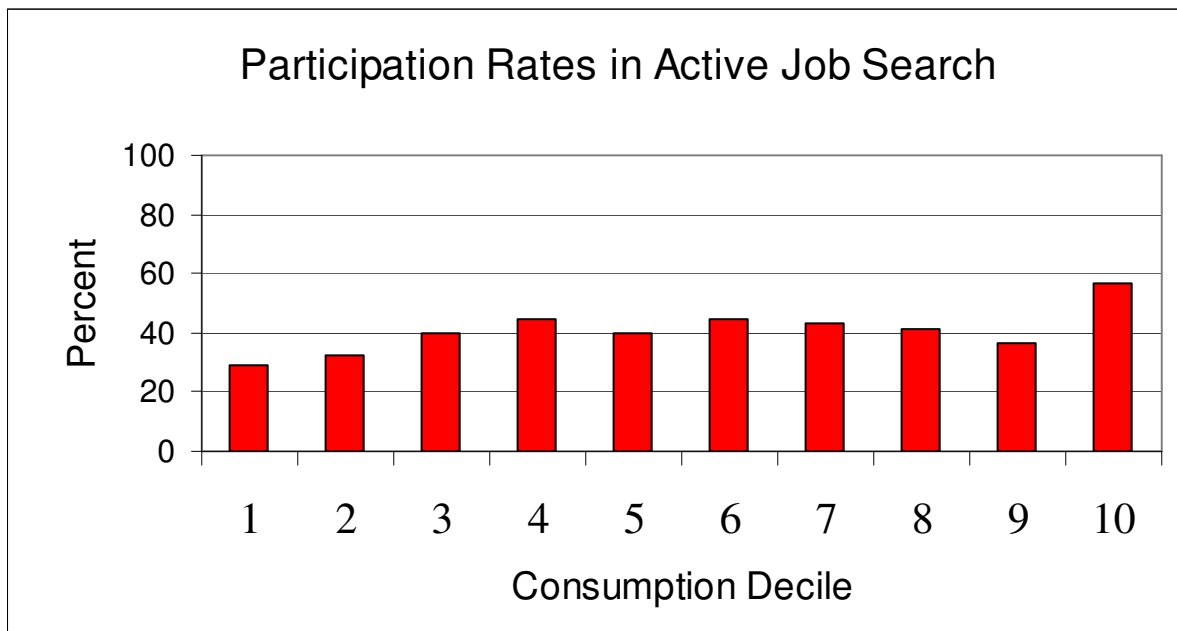
The analysis demonstrates that among South Africa's poorest job-seekers, consumption levels are correlated with a greater likelihood to actively pursue work. This result also holds for both the SALDRU dataset and OHS dataset when analysing number of ways in which individuals search for work and the total number of hours spent searching for work.

JOB-FINDING SUCCESS RATES

The analysis of job finding success rates is based on a small sample of 359 individuals in the October Household Survey who started new jobs in October 1997. These 359 individuals were classified as "successful job-seekers" and added to the sample of people seeking jobs in October 1997, and the ratio of job-finders to job-seekers was calculated and sorted by consumption bracket. Since our household expenditure data is for September, the month before job-finders started their jobs, some control is obtained for the reverse causality between consumption and employment.

Unfortunately, the data does not allow the distinction between successful job-seekers that are moving out of unemployment and those which are merely changing jobs. Observations of job-switchers will tend to increase job-finding rates in higher consumption brackets, because people who already had jobs in September will have higher consumption levels before starting their new positions. To the extent that job-switchers account for a portion of poor job-finders, the results will be biased in favour of a positive consumption/job-finding relationship.

Since the sample of job-finders is so relatively small – 359 job-finders our of almost 16,000 job-seekers – and since the results are driven by the distribution of job-seekers across consumption brackets, it is more practical to examine quintiles than deciles. The

confidence of the decile analysis is reduced with so few observations for job-finders.

two provinces had more than 50 job-finders to divide over 10 consumption brackets. Both

provinces showed increasing job-finding rates over the first four deciles of the population.

Job-finding success rates for South Africa's three largest provinces are
summarised in the graph below (and duplicated in the main report).

The Link between Living Standards and Finding a Job

Increased propensity to look for work and higher consumption enable more well-off

individuals to find jobs with greater rates of success. Although better data and a more

rigorous analysis will be needed to adequately address numerous econometric problems,

these results imply that higher consumption is correlated with stronger job-seeking

behaviour and improved job-seeking outcomes. There is no evidence to support the

notion that higher levels of consumption discourage labour supply among South Africa's

jobless poor.

APPENDIX C) THE MICROECONOMICS OF THE LABOUR DEMAND RESPO

TO INCOME TRANSFERS

This appendix develops a theoretical model characterised by an efficiency wage effect as well as a labour force that remits a significant share of wages to the non-working poor. Consider an economy characterised by a representative firm with a fixed supply of capital facing a production function where both the quantity of labour employed and the wage paid are choice variables. The production function is increasing in both the wage paid and quantity of labour employed, but subject to diminishing marginal returns. The wage rate itself does not directly affect productivity and output, but rather it influences the "net wage", which in turn positively influences productivity and output. The "net wage" is defined as the gross wage less the remittances paid to support poorer family members and friends. The quantity of remittances paid depends positively on the worker's individual gross wage as well as the overall poverty rate in the society. The poverty rate is determined in part by public policy variables, including but not limited to expenditures on income transfers to the poor.

Mathematically, this economy can be represented by the following equations:

(1)   OUTPUT   Y = Y(NW , L)

Output Y depends positively on the two choice variables—the net wage (NW) and the quantity of labour employed (L)—but subject to diminishing marginal returns. That is, $Y_{NW} > 0$, $Y_{NWNW} < 0$, $Y_L > 0$, $Y_{LL} < 0$.

(2)   NET WAGE   NW = w - R

The net wage (NW) is equal to the gross wage (w) less remittances (R) paid to poorer family members and friends. In this model, the net wage (NW) is a proxy for the level of consumption of the representative worker. Productivity depends directly on the worker's consumption, not the gross wage.

(3)   REMITTANCES   R = R[p(t), w]

Remittances (R) paid by the representative worker depend positively on both the overall poverty rate (p) and the individual gross wage (w) paid to the worker. The poverty rate is a decreasing function in the public policy variable (t), which in this case represents the total amount of income transfers to the poor.

(4)   WAGE BILL   WB = wL

The wage bill (WB) is the product of the wage (w) paid and the quantity of labour employed (L).

The representative firm chooses the wage (w) and quantity of labour (L) to maximise profit, which is equal to the value of output less the wage bill. This can be written:

(5)   FIRM'S OBJECTIVE   MAX Y{w – R[p(t), w], L} - wL
                                           w,L

The solution to this problem can be obtained by differentiating the objective function with respect to the two choice variables, yielding a simultaneous system of first order conditions determining the profit-maximising choices for the wage rate and quantity of labour employed. Calculating the total differential equations for this system yields a simultaneous differential equation system representing the differentials of the

wage rate and quantity of labour employed as functions of the parameters of system and the differential of public policy variable representing income transfers to the poor. This system yields the response of wages and employment with respect to the level of income transfers to the poor.

The system of first order conditions generated by this calculation is:

(6)   LABOUR FOC: $Y_L\{w – R[p(t), w], L\} = w$

(7)   WAGE FOC: $Y_w\{w – R[p(t), w], L\} = L$

These equations have the following interpretation. The profit-maximising firm must choose the wage rate and labour quantity employed to balance two trade-offs. First, the additional amount of output resulting from hiring one more worker must equal the cost of that one additional worker—the wage rate. Second, the additional amount of output resulting from increasing the wage by one more rand must equal the cost of that increased wage paid—that is, it must equal the number of workers employed.

In order to evaluate the impact of the policy variable on wages and employment, it is necessary to calculate the total differential equations associated with the above system. The calculated system of total differential equations is:

(8)   LABOUR DIFF. EQ.: $Y_{LNI}[dw – R_pp'(t)dt – R_wdw] + Y_{LL}dL = dw$

(9)   WAGE DIFF. EQ.: $Y_{WNI}[dw – R_pp'(t)dt – R_wdw] + Y_{WL}dL = dL$

This system of simultaneous differential equations in the can be solved to yield closed form solutions for the differentials for wages and labour in terms of the

differential of the public policy variable representing income transfers to the poor.

closed form solutions are:

(10) LABOUR

$$\frac{dL}{dt} = \frac{Y_{WNW} R_p p'(t)}{[Y_{LL} Y_{WNW} (1 - R_W)] - \{(1 - Y_{WL})[1 + Y_{LNW}(1 - R_W)]\}} > 0$$

(11) WAGE RATE

$$\frac{dw}{dt} = \frac{[(Y_{LL} Y_{WNW}) - (1 - Y_{WL})Y_{LNW}]R_p p'(t)}{[Y_{LL} Y_{WNW} (1 - R_W)] - \{(1 - Y_{WL})[1 + Y_{LNW}(1 - R_W)]\}}$$

The derivative of employment with respect to transfers to the poor is unambiguously positive.[15] Remittances to poor family members and friends are reduced as the poverty rate falls in response to increased public transfers. Net wages rise, leading to higher productivity and increased employment. The magnitude of the resulting job creation depends on several factors. The more efficiently the transfers reduce poverty, the more employment will be created. The stronger the effect that poverty exerts on inducing remittances, the more jobs will be created as transfers bring poverty levels down. The stronger the wage effect on remittances, the more employment will be stimulated by compensating public transfers. A strong wage effect on remittances acts like an inefficient tax on labour income—while public transfers can restore the efficiency of the wage.

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[15] Due to diminishing marginal returns to wages and labour employed, $Y_{WNW} < 0$ and $Y_{LL} < 0$. Since increased wages are not 100% captured by remittances, $R_w < 1$. Poverty increases remittances, so $R_p > 0$, \while increases in transfers to the poor reduce poverty, so $p'(t) < 0$.