Employment, Wages and Social Security

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Introduction

The South African government has committed itself to reducing the unemployment rate from 26% in 2004 to 13% by 2014. In order to achieve this formidable goal, it has already launched the Accelerated and Shared Growth Initiative of South Africa (ASGISA) which includes the National Industrial Policy Framework (NIPF) – interventions aimed at raising the growth rate and labour-absorbing capacity of the economy. These initiatives are premised on the realisation that economic growth remains the main engine driving sustainable job-creation.

However, it is unlikely that these strategies alone can be expected to reach the 2014 target (Altman 2007), implying significant scope for further market interventions on the part of government. Accordingly, the Minister of Finance (2007) has announced the introduction of a mandatory national social security scheme which, apart from its poverty alleviation effects, will likely contribute to an improvement in the functioning of the labour market. Complimentary to this national social security scheme is a wage subsidy scheme broadly targeted at low-income workers. The aim of the subsidy is threefold: firstly, to off-set the costs of social security contributions, secondly, to reduce further the wage bill of potential employers in order to boost demand for low-income workers and, finally, to act as a redistributive tool to reduce poverty amongst the working poor.

This discussion paper reviews the strategies for the introduction of a wage subsidy in the South African context. It begins by reviewing the current labour market, and touching on the current initiatives being undertaken by the South African government in an attempt to speed economic growth and promote employment. This is followed by a review of active labour market policies (ALMPs), and presents the argument for the introduction of a wage-subsidy broadly targeted at low-income workers. The paper concludes by outlining the structure of the proposed wage subsidy and estimating the likely impact of this intervention on unemployment.

The Scale and Nature of Unemployment in South Africa

The South African labour market exhibits two pervasive problems – high unemployment and a large pool of discouraged work-seekers.[1] Unemployment in South Africa is too high and, from a policy perspective, presents a serious and pressing socio-economic concern. Strong employment growth of 2,8 per cent per year since 2003 has reduced the official unemployment rate by over 5,5 percentage points, yet in spite of the recent positive trends, one-in-four economically active individuals remain out of work.[2]

[1] Discouraged work-seekers are "*unemployed persons who are available to work but who say they are not actively looking for work*" (Labour Force Survey, March 2007, p. ii).
[2] The official definition of unemployment is – "*Persons aged 15-65 who did not have a job or business in the seven days prior to the survey interview but had looked for work or taken steps to start a new business in the four weeks prior to the interview and were able to take up work within two weeks of the interview*" (Labour Force Survey, March 2007, p. ii).

Applying the broad definition of unemployment, which includes discouraged work-seekers, increases the rate of unemployment to 38 per cent.[3] It is estimated that there are currently 3,5 million discouraged workers in South Africa, translating to 11,6 per cent of the working-age population.[4] Table 1 provides a summary of labour market trends since the advent of democracy in 1994. The rate and level of unemployment increased significantly between 1995 and 2003 when unemployment rates peaked. Since 2003 the rate of unemployment has fallen for four consecutive years.

Table 1: Participation, Employment, and Unemployment Rates (%)

Year	ILO Classification			Broad Classification	
	Participation	Employment	Unemployment	Participation	Unemployment
1995	51.4	43.3	15.6	60.3	28.2
2003	57.1	39.3	31.2	68.4	42.5
2004	54.3	39.1	27.9	67.2	41.8
2005	54.8	40.3	26.5	67.8	40.5
2006	56.0	41.7	25.6	68.4	39.0
2007	56.2	41.9	25.5	67.8	38.3

Note: All statistics are for the working age population, 15 to 65 years old

Source: October Household Survey, March wave of Labour Force Survey, authors calculations

Unemployment imposes significant socio-economic costs. Unemployed South Africans represent not only lost economic output today – whose cost is borne most heavily by the poor – but unemployment contributes to the slowdown in future economic growth as unemployment erodes human capital and deprives individuals from acquiring the skills and assets required to fuel the economy in the future. Exacerbating the economic costs, unemployment also contributes to social exclusion and the social ills that accompany a loss of hope – including crime and a disengagement with the political process.

Unemployment in South Africa is high from a historical perspective, having doubled between 1995 and 2003 (see table 1), and compares poorly against other emerging market economies. Table 2 shows that unemployment in South Africa is significantly higher than observed in a selection of emerging market economies.

[3] The broad definition of unemployment is the sum of the official unemployed plus discouraged work-seekers.

[4] The working age population is sum of all individuals aged between 15 and 64.

Table 2: International Comparisons, Participation, Employment and Unemployment Rates

Country	Year	Unemployed	Labour Force	Participation	Employment	Unemployment
		(000s)	(000s)	(%)	(%)	(%)
Argentina	2006	1,049	11,052	68.5	62.0	9.5
Brazil	2004	8,264	90,962	73.1	66.5	9.1
Chile	2005	440	6,345	59.3	55.2	6.9
Czech Republic	2005	410	5,175	70.4	64.8	7.9
Hungary	2006	317	4,247	62.0	57.4	7.5
Korea	2005	887	23,744	66.3	63.8	3.7
Mexico	2006	1,378	43,216	63.0	61.0	3.2
Phillipines	2006	2,620	35,804	65.8	61.0	7.3
Poland	2006	2,344	16,937	63.4	54.6	13.8
Singapore	2006	84	1,881	71.3	68.1	4.5
South Africa	**2007**	**4,336**	**16,984**	**56.2**	**41.9**	**25.5**
Turkey	2005	2,519	24,566	51.3	46.0	10.3

Note: All statistics are supposed to be comparable, working age population defined as 15 to 64 years old

Source: International Labour Organisation - Key Indicators of the Labour Market (KILM), LFS (March 2007)

Whilst unemployment in South Africa is pervasive, analysing the characteristics and trends underlying unemployment in South Africa indicates that unemployment is inequitably distributed and certain groups are more likely to be unemployed than others. For example, it can be shown that unemployment has a fundamental gender, population group, age, education, and experience bias to it.

Unemployment is higher for the African population group than among the Indian/Asian, coloured and white population groups. Whilst it can be shown that this population group bias has diminished over time with the fall of Apartheid in 1994, the labour outcomes of black Africans remain significantly worse than for other population groups. Irrespective of population group, unemployment rates amongst women – particular for black African women – are substantially higher than for their male counterparts. More than one-third of black African women are currently unemployed. A large degree of the differences in the incidence of unemployment by race can however be explained by underlying differences in observable characteristics such as education levels or location (Kingdon and Knight, 2001).[5]

[5] Kingdon and Knight (2001) estimate probit equations of unemployment in South Africa to try and understand what characteristics determine the probability of an individual being unemployed. Analysing the racial distribution of unemployment, they find that a substantial portion of the race gap in unemployment incidence can be explained by inter-group differences in observed characteristics. For example, three-quarters of the African-white unemployment gap could be accounted for by characteristics such as education and better location.

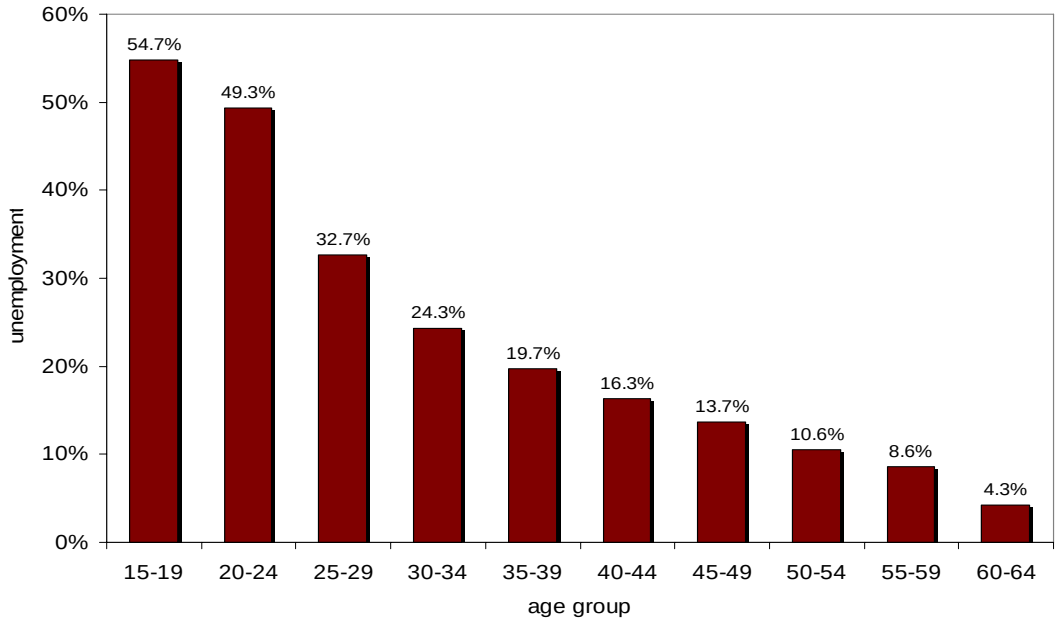
Table 3: Unemployment Rates by gender and population group, March 2003 to March 2007 (%)

Year	Male					Female				
	Black African	Coloured	Indian / Asian	White	**Avg.**	Black African	Coloured	Indian / Asian	White	**Avg.**
2003	32.8	20.3	18.3	5.6	**27.2**	42.6	24.7	28.7	7.7	**35.9**
2004	29.4	16.2	14.0	3.9	**23.9**	39.9	20.2	21.0	6.3	**32.9**
2005	26.7	18.6	15.4	4.4	**22.4**	37.6	21.2	22.6	5.9	**31.4**
2006	25.6	18.3	11.8	3.6	**21.6**	36.2	19.6	10.2	6.2	**30.3**
2007	25.0	16.9	11.3	4.1	**21.1**	36.4	22.9	17.9	4.6	**30.8**

Source: Labour Force Survey - March 2007

Youth unemployment in South Africa is considerable. Figures from the StatsSA Labour Force Survey (September 2006) shows 35.6 per cent of the youth are unemployed.[6] Using the ILO definition of youth unemployment (i.e. 15 to 24 years old) this increases to over 50 per cent. Those in their twenties alone account for half of all South Africa's unemployed. This translates to 1.2 million individuals. The chart below shows the rate of unemployment for each age cohort within the working age population.

Figure 1: Unemployment Rates by Age Cohort



Source: Labour Force Survey – September 2006

Unemployment also has a degree of geographical bias to it. In particular, unemployment rates in more rural provinces tend to be higher than in more urban provinces. The unemployment rate in Limpopo (32,4%) and the North West Province (32,0%), where unemployment is highest, is almost double the rate of unemployment in the Western Cape (17,4%), which is the province with the best labour market performance.

[6] South Africa defines the 'youth' as those aged between 15 and 34.

Education and unemployment tend to display an inverse relationship. Unemployment is highest for those without matric and lowest for those with a university degree. Indeed only a completed degree seems to provide relief from unemployment in South Africa with less than 5 per cent of graduates unemployed. Of particular concern is expanding number of unemployed who hold matric. Not only is the unemployment rate high for this group (27.1 per cent), but these relatively well-qualified individuals account for 30 per cent of total unemployment.

Table 4: Participation, Employment and Unemployment by Education Level (%)

	Participation	Employment	Unemployment
Less than Matric	46.4	32.9	29.1
Matric	69.9	51.0	27.1
Matric 'plus'	87.3	78.8	9.8
University Graduate	86.1	82.5	4.3

Notes: All statistics are for the working age population (15-64 years old). ILO definitions adopted. Matric are those with grade 12/standard 10/form5/matric. Post-Matric includes those with certificate or diploma and grade 12/standard 10. College includes all individuals with bachelors degree and higher. This classification eliminates those with vocational degrees and those with certificate or diploma but less than matric

Source: Labour Force Survey - March 2007

A key finding from the International Panel's (2007) labour market analysis is that once an individual accesses the formal labour market, they have a very good chance of remaining formally employed. Analysis of the transition from different states suggests 85 per cent of entrants to the formal sector come from other formal sector jobs. A second finding relating to the transition analysis is that obtaining that first job is vital to the individual's future involvement with the labour market. This suggests that once individuals obtain experience within the formal job market they are unlikely to leave. However obtaining that initial experience appears an inhibiting factor. Approximately 60 per cent (2.6 million) of South Africa's unemployed have never worked. This is closely related to the persistent nature of unemployment in South Africa illustrated through predominance for the unemployed to be long-term unemployed – 62 per cent of the unemployed have been out of work for one year or longer, 36 per cent have been unemployed for three years or longer.

The second pervasive problem within South Africa's labour market is the scale of discouraged work-seekers. The large pool of discouraged work-seekers is a problem because it limits the labour force participation rate and subsequently the capacity of the economy. Reducing the number of discouraged work-seekers through increasing the labour market opportunities and pulling them into the labour force increases economy's potential rate of growth. Over the long-term therefore lowering the scale of discouraged labour will be critical determinant of South Africa's economic performance.

What explains the increase and high levels of unemployment since 1994?

The increasing rates and stubbornly high levels of unemployment in South Africa since 1994 can be explained by numerous factors that have been debated in a plethora of

academic literature. Unemployment in South Africa has been fundamentally influenced by the dynamics in the labour market and the evolution of demand for labour and its supply. More specifically employment growth has been unable to compensate for the significant increases in labour force participation since 1994.

Labour supply expanded considerably in the post-Apartheid era as the share of Africans, young people and females (particularly an influx of black African women) entering the labour force increased greatly. In 1995 the labour force participation rate for Africans was just 46.9 per cent (Banerjee et. al. 2006); by 2006 this had grown to 54.9%. These trends altered the composition of the labour force and increased the size of the low-skilled labour force. On its own, this change in the composition of the labour force would have increased unemployment. Banerjee et. al. (2006) estimate that 31 per cent of the increase in unemployment can be attributed to the change in the composition of the labour force. Labour force participation has expanded by 47 per cent since 1995 increasing the labour force participation rate from 51.4 per cent to 56.2 per cent in March 2007.[7]

Labour demand has not been able to keep pace. Employment growth has averaged 1.9 per cent a year since 1995 and total employment has increased by over 3 million but has been insufficient to keep pace with the expansion in the labour force. The mismatch between labour supply and labour demand has been patently manifested in the growing and high rates of unemployment.[8] The very long duration of unemployment among a high proportion of the unemployed reinforces the suggestion that deficient labour demand explains much of the unemployment rate. This begs the question; why has South Africa not had a greater increase in the demand for labour?

An immediate cause of high unemployment in South Africa is that wages are too high relative to the real wage levels that would clear the labour market at lower unemployment levels. This in part reflects the growth in African worker's real wages that accompanied the expansion in unionisation after the restrictions imposed on unions were lifted in 1979. Given the scale of unemployment in South Africa we may have expected real wages to fall to clear the labour market. However, real wages have been prevented from falling by the strength of labour unions, existence of collective wage bargaining agreements and bargaining councils, and restrictive labour legislation.

High real wages are one explanation of why unemployment has been slow to fall in South Africa. However, despite this impediment to faster employment growth, empirical studies have shown that real wages have increased very little since the advent of democracy, suggesting wage-push cannot explain the increasing rates of unemployment. Banerjee et

[7] Without the increase in labour supply, the employment growth achieved between 1994 and 2007 would have resulted in an unemployment rate of 18.6 per cent.

[8] The worsening in employment outcomes for African males has occurred despite with an increasing employability as changes in education and freer migration since the end of apartheid have improved the job market prospects for these individuals (Wittenberg 2007). However, increased participation has raised competition actually resulting in a deterioration in employment prospects overall.

al. (2006) for example show that the role of unions seems to have mostly been preventing real wages from falling.

The considerable structural change experienced in the South African economy is an important explanation of the growing levels of unemployment. The decline of South Africa's primary sectors – agriculture and in particular mining – and the relative shrinkage of manufacturing has been well-documented (Banerjee et. al. 2006, Fedderke 2005, Rodrik 2006). These sectors are intensive in low skilled labour compared to services (Bhorat and Oosthuisen 2005) and thus the structural shift away from these sectors has led to a collapse in the demand for relatively unskilled workers. Lower labour demand due to a shift in the economic structure has also been exacerbated by economy-wide skill upgrading and the move towards skill-biased technical change. Together, economic and skills-based structural shifts therefore amplified the unemployment consequences of the increase in supply of unskilled workers.

The concomitant shrinking demand for and large expansion of unskilled labour created what Banerjee et al (2006) term a "perfect storm", setting the environment whereby a sharp increase in unemployment among the less-skilled and less experienced was almost inevitable. A recent paper exploring the so-called Okun relationship between economic growth and unemployment estimates that, since 1991, the cyclical component of unemployment has not exceeded 15 per cent (Marinkov and Geldenhuys 2007). Unemployment in South Africa is therefore primarily structural in nature. This suggests that, whilst macroeconomic policy that generates accelerated and sustained rates of economic growth has an important role to play, the economy will not be able to absorb the vast pools of unemployed labour without significant invention and microeconomic reform.

Given the structural impediments to wage employment for the lower-skilled, one may have expected the unemployed to become self-employed and enter the informal sector. This has not been the case in South Africa. Rodrik (2006) argues the relatively low level of informal unemployment has therefore contributed to South Africa's high level of unemployment. Informal unemployment plays an important role in absorbing job seekers in many developing countries. In Brazil and Mexico, for example, the informal sector represents 34,4 per cent and 28 per cent respectively of total employment. In South Africa however, informal employment is just 16,9 per cent of total employment. Rodrik (2006) argues that the legacy from the Apartheid regime, which constrained or prevented African's job mobility, is a major cause of this phenomenon.

Addressing the Challenge of High Unemployment

A review of the causes of unemployment suggests that a major factor is the failure on the part the South African economy to exhibit sectoral flexibility when confronted by changes in the global economy. Hausman and Rodrik (2006) argue that a large part of South Africa's decline in employment results from declining export sectors, and an over-reliance on traditional sectors with limited growth and employment potential. This argument is supported by the findings of Baartjes et al. (2007), who show that the South

African mining sector, a traditional employer of lower-skilled workers, will likely see a continued decline in the percentage of economy-wide employment.

Employment is more likely to expand where there is growth in labour-absorbing activities. The South African government can play an important role in promoting growth and employment creation by supporting export-oriented manufacturing sectors, thereby 'lifting' large numbers of structurally unemployed individuals into the formal economy. In this sense, the large pool of unemployed South Africans might be seen as an under-utilised source of future robust economic growth.

Rodrik (2006) identifies several stylized facts relating to economic growth and development: firstly, that economic development typically requires product diversification, as opposed to focusing on those industries which have a comparative advantage; secondly, that rapidly growing countries typically are those with larger and expanding manufacturing sectors, and that growth accelerations are associated with structural changes in the direction of manufacturing; thirdly, that countries promoting the export of 'sophisticated' goods are likely to grow more quickly; fourthly, that a broad-based manufacturing sector is more likely to take advantage of new opportunities, than one which focuses on a few primary-based goods.

ASGISA aims to give expression to many of the aspects of successful growth episodes listed above. Specifically, ASGISA aims to achieve this by recognising and proposing solutions to overcoming the binding constraints to growth in the South African economy. These include: addressing the volatility and level of the South African rand in order to promote investment in tradable goods and services; reducing the cost and improving the efficiency of the national logistics system in order to reduce the cost of moving goods internationally and domestically; addressing the shortage of suitably skilled labour, and reducing barriers to entry and limits to competition, primarily through stricter competition law and improved industrial policy.

The NIPF framework explicitly aims to 'facilitate diversification beyond [South Africa's] current reliance on traditional commodities and non-tradable services', and to achieve a more 'labour-absorbing industrialisation path with a particular emphasis on tradable labour-absorbing goods and services'. In order to achieve this goal, the NIPF has focused on promoting 'lead' industries, including automotive manufacturing, beneficiation of chemicals and plastics, and the wood and pulp industries.

If successful, the ASGISA interventions may serve to raise the growth rate of the economy to the 6% target, while significantly reducing unemployment. However, even under these conditions, there is evidence that the formal economy will not be able to produce enough employment opportunities to reach the target set by government. The HSRC (2006-2007) undertook to determine likely sources of future employment growth in the private and public sectors. In order to determine where the likely sources of employment growth may be found in the private sector, Altman (2007) estimates the possibilities for employment creation at various levels of economic growth. She concludes that, if the economy were to achieve the ASGISA objective of 6% growth,

there would still be approximately 600 000 individuals requiring employment; if growth were to average 4,5% per annum, there would be a deficit of 1,5 million jobs in relation to the target; and if growth were to average only 3%, then approximately 2,8 million 'public jobs' would have to be created to achieve the target of halving unemployment.

These projections suggest that no single panacea will serve to overcome the unemployment problem in South Africa, and that there may be an important role for government in assisting with employment creation. In terms of 'passive' labour market interventions, the South African government has committed itself to introducing a mandatory national social security scheme which will, amongst others, provide unemployment benefits. According to Klasen and Woolard (2001), the absence of unemployment benefits in South Africa affects household formation and residential choices in ways that are detrimental to job-finding. By forcing the unemployed to base their location decisions on the availability of economic support in rural areas, rather than on the availability of job openings, a lack of adequate unemployment benefits serves to raise the unemployment rate.

Further interventions may include increasing the number of individuals employed in the public service. Hassen and Altman (2007) suggests that expanding public sector employment could be expected to play an important role in helping to achieve the 2014 target. A second, complementary option may be to employ directly large numbers of low-skilled workers in public works programmes (discussed below), while simultaneously raising the demand for labour in the private market through the introduction of a wage subsidy.

Active Labour Market Policies

Active Labour Market Policies (ALMPs) aim to influence the employment prospects of the unemployed by encouraging or mandating participation in job-search assistance programmes, skills training, or by directly increasing the returns to labour (for example, through wage subsidies) (Smith 2006). There are broadly four types of active labour market policy interventions: **labour market training** aims to improve the productivity and employability of individuals, by offering general education (basic computer skills, language courses etc.); **training for specific vocations**, or on-the-job training which is aimed at improving work experience; **private sector incentive programmes** which typically aim to influence the behaviour of employers and potential employees, a prominent example being the wage subsidy, and; **job-search efficiency services** which provide job-search assistance, vocational guidance and placement services.

Given the considerable fiscal costs associated with ALMPs[9], an expanding body of research has attempted to verify empirically the effectiveness of these programmes. Although initially disappointing, more recent econometric studies into the effects of ALMPs have found increasingly positive results – which are variously attributed to improved data and better ALMP design.

[9] Several OECD countries, including Belgium, Denmark, Finland, France and Germany, spent between 1% and 2% of GDP on ALMPs in 2002.

Broader institutional and macroeconomic factors influence the success of the ALMPs. In a meta-analysis of 95 evaluation studies, Kluve (2006) finds that restrictive dismissal regulations significantly reduce the effectiveness of private sector interventions, in terms of post-programme employment rates, and that programmes aimed specifically at the youth are generally highly ineffective, although there is evidence of certain programmes working highly effectively (see Box 1 below). There is also evidence that interventions are more likely to be effective in countries with high-unemployment rates (see Calmfors 1994).

The effectiveness of ALMPs appears to be heavily dependent on the time-frame measured. For example, training programmes have typically been found to have little impact on the immediate employment of young individuals, but appear to have longer term effects, in terms of improved long-term employability. Public works programmes - while initially successful at providing employment to poor individuals - are enormously expensive, typically don't provide full-time employment and do not raise the long-term employability of participants. However, these programmes may be justified on the grounds of improved equity and poverty reduction.

Training subsidies are found to raise the longer-term employability of participants, even while short-term effects may be negative. Job search assistance is both effective, and relatively cost-efficient, particularly where the assistance has cost less than the additional time spent on unemployment insurance benefits (Smith 2006). However, most ALMPs have been introduced in developed countries, and are concerned with assisting the individual to re-enter the job market, in order to limit incidences of welfare-dependency. Similarly, many ostensibly successful ALMPs[10] have simply enforced unemployment benefit 'activation' rules more strictly. These successes are not relevant in the South African context.

Comparing the performance of various employment programmes with each other, as well as with intense job-search in open unemployment, Sianesi (2005) found that wage subsidies were by far the most successful strategy at raising employment probability. Similarly, Estevao (2003) found that direct subsidies have been most successful at raising employment (measured as the share of the working age population in the business sector), while public sector employment and training programmes either had limited or negative effects. Recent empirical studies find that wage subsidies, either preceded by or including on-the-job training are most effective at raising employment probabilities (see Jaenichen and Stephan 2007; Kluve 2006). Although the results are by no means consistent across countries, a consensus appears to be emerging that direct subsidies to job creation in the private sector have been most effective at raising employment rates, particularly when

[10] The 'welfare-to-work' experiments in the United States during the 1980s, for example, required individuals to provide proof of job searches, and attend job search counseling, while providing information on job availability. The imposition of welfare recipiency requirements was found to reduce the amount of time spent claiming unemployment benefits, although it has been suggested that the threat of losing UIB was more effective than job counseling or training at inducing higher rates of employment.

combined with subsidised 'on-job-training' and job-search assistance. At the other end of the spectrum, however, direct employment programmes in the public sector tend to reduce the long-term employability of participants.

Box 1: Britain's New Deal for the Young Unemployed

In any review of ALMP effectiveness, there are difficulties associated with determining the effect of aspects of labour market interventions, as distinct from the overall impact of the programme. Several studies (Fertig et al. 2002; Jaenichen et al. 2007; Kluve 2006) argue that certain types of interventions are more effective when introduced in tandem.

One such example is Britain's 'New Deal' which is aimed at individuals between 18 and 24, who have been claiming job-seekers allowance for more than 6 months. This package of interventions starts with four months of intensive job-search assistance and basic skills short-courses; if this is unsuccessful, participants have four choices: first, they can undertake a six-month spell in subsidised employment, secondly they can enter full-time education or training, while being paid an amount equivalent to the job-seekers allowance, thirdly, they can work in the voluntary sector for up to six months; finally, they can join the Environmental Task Force (a public works programme), with wages equivalent to or more than the job-seekers allowance. Once this options period has passed, and a job hasn't been found, the individual moves into third stage of the programme. This stage lasts for a further thirteen weeks, and (like the first stage) is aimed primarily at job-search assistance.

Recent evaluations of the programme suggest that the New Deal may be responsible for reducing the unemployment rate of young men by 20%, compared with those not entering the programme. However, the positive impact of the programme may partially reflect the nature of the contract (i.e. that refusing to participate in the process exposes the individual to the risk of losing welfare benefits).

Source: Smith 2006

Labour market interventions are most likely to succeed when the employment opportunity created approximates as closely as possible to private sector employment. This implies that wage subsidies, or subsidised on-the-job training is far more likely to improve employment probabilities than, for example, classroom training. Wage subsidies are an appealing form of intervention because, unlike direct employment creation programmes, they serve to foster productive employment in the private sector labour market. Furthermore, unlike training programmes which can show benefits in the longer term, the impact of a wage subsidy is more immediate.

Wage Subsidies

A wage subsidy can be implemented for a variety of reasons: to promote labour demand by reducing the cost of labour (typically employer-side subsidies), promote labour supply by increasing the returns to labour (typically employee-side subsidies), reduce poverty by raising the incomes of the 'working poor', and as method of bringing disadvantaged groups into the formal economy. Wage subsidies can be general (untargeted), targeted at specific industries or groups, marginal, or take the form of direct employment creation (i.e. public works programmes).

General Wage Subsidies

General wage subsidies aim to reduce labour costs directly, or indirectly by reducing the tax wedge created by social security contributions. Most reviews of the effectiveness of such subsidies show a limited impact on employment, although this may be partially a result of the difficulties of determining economy-wide employment effects. General wage subsidies also exhibit high dead-weight losses[11] (over 50% depending on wage elasticities of labour supply and labour demand), and strong substitution effects[12]. However, general wage subsidies do appear to have significant effects on the earnings of low-income individuals. As such, they can play an important poverty-reduction and income redistribution role.

Although targeted subsidies (see below) are more common, there are well-known examples of untargeted subsidies (Smith 2006): the New Jobs Tax Credit (NJTC) used in the United States of America (1977-78) gave a tax credit 50% for the first $4200 of wages for additional employment at lest 2% above the previous year's employment level, and capped at $100 000 per firm. Although its effects in producing gains in employment are thought to be limited, particularly due to the low cap which made the subsidy unappealing to large-scale employers, it is thought that over 50% of firms made use of the subsidy, going to approximately 4 million workers.

Targeted Wage Subsidies

Targeted subsidies are typically aimed at raising employment in certain sectors or geographical areas, or to raise the employability of disadvantaged groups. In theory, targeted subsidies are more appealing than general subsidies, because they are likely to be more fiscally efficient. However, in practice, these subsidies are often too small to induce firms to take on 'risky' workers (e.g. long-term unemployed), particularly if the subsidy requires a commitment on the part of the firm to maintain employment of subsidised individuals for a given period of time. Targeting a small subsection of the unemployed workforce may even stigmatise these individuals, lowering their probability of finding employment.

The Chilean CHILE JOVEN (started in 1991) programme appears to have been relatively successful in raising the employability of low-income youth (aged between 15 – 24). The subsidy consisted of two parts – the first went to the employer, and covered both the direct and indirect costs of providing on-the-job training, while the participants received a subsidy for transportation costs during class-room training, and an additional subsidy when engaged in on-the-job training. Over 50% of participants were still in employment 90 days after completion of training, often with the firm that had trained them. Similar positive employment effects have been noted for Peru and Uruguay, which have used the

[11] Where 'dead-weight' loss refers to the loss associated with paying a subsidy towards an individual that would have been hired even in the absence of the intervention.
[12] 'Substitution effects', as it relates to wage subsidies, refers to the replacing of un-subsidised labour with subsidised labour, even while the overall effect on employment is neutral.

Chilean model with some minor modifications. However, the amounts are small – 115 000 young people moved through the system over a five year period. The relevance of tightly targeted wage subsidies in South African context may be open to question, given the prevalence of unemployment across all age groups in the South African context.

Marginal Wage Subsidies

Marginal subsidies aim to overcome the problems associated with targeting subsections of the workforce, while reducing dead-weight losses associated with general wage subsidies. This type of intervention subsidises only additional employment above a reference level[13], or to reduce the number of lay-offs in declining industries in times of economic turbulence. Although theoretically appealing, there are considerable difficulties in determining the reference employment level, or in trying to project the rate of lay-offs in the absence of a wage subsidy.

Public Works Programmes

Public employment programmes can be characterised as an extreme form of wage subsidisation, where government subsidises 100% of an individual's wage. Public works programmes typically provide low-skilled, low-income workers with short-term jobs in construction, rural development and community services. Such interventions are no longer the preserve of governments, but are increasingly supplied by NGOs and the private sector. Much of the emphasis of public works focuses on the poverty-alleviation effects of the programmes, and often are concerned with providing 'guaranteed' employment even if the productivity of the employees is low (see Box 2 below). As a tool for spurring employment, however, the evidence is far less positive. Public works programmes appear to have no longer-term effect on the employability of participants, or to raise labour force participation. In some, instances, public works programmes in developing countries were found to negatively impact the probability of future employment (Betcherman et al. 2004).

The Expanded Public Works Programme (EPWP), launched in 2003 providing low-wage employment in infrastructure projects and training, aims to create one million jobs over a five-year period (2004/5 to 2008/9) (Altman and Hemson 2007). The EPWP has a broad range of objectives, including drawing significant numbers of unemployed into employment in order to reduce poverty, provide new skills and training to unemployed individuals, and raise the employability of individuals beyond the programme.

The programme has generated 716 400 work opportunities in its first three years (Altman and Hemson 2007). If measured in terms of full-time equivalent jobs (i.e. 230 hours per year), this amount falls to 220 000 jobs generated, against a target of 660 000. In 2006/07, the EPWP generated approximately 317 000 jobs, equivalent to around 7% of

[13] Knabe et al. (2006) provides an interesting proposal for a marginal subsidy: If a firm hires a formerly unemployed worker in excess of its reference employment level, it receives the subsidy not only for the new employee, but also for one incumbent employee, thereby improving efficiency and reducing the likelihood of labour substitution.

unemployment. The wages earned per job opportunity has fallen from R4 708 in 2004/05 to R2 673 in 2006/07 in real 2000 terms. In terms of average work days per opportunity, the different sectors of the programme provide between 51 and 165 days of work. In line with international literature, there is evidence that the jobs allowed the transfer of new skills, but had very limited impact on promoting employment in sustainable private-sector jobs.

Box 2: The Maharastra Employment Guarantee Scheme

The Maharastra Employment Guarantee scheme provides unskilled manual job opportunities to rural labourers in the Maharastra state of India. Started in 1965, the programme initially aimed to take up the employment slack in the agricultural sector during the off-season. The scheme effectively guarantees a job with piece-rates that are fixed, so that working for seven hours would provide an earnings equivalent to the minimum wage prescribed for agricultural labour in that zone. Typically, workers are involved in water conservation, road building or afforestation projects.

The argument for the introduction of a guaranteed employment scheme is two-fold: firstly, the requirement that manual labour is required to access the funding means that the system is relatively efficient, in that it is self-targeting and will likely exclude relatively affluent individuals; Secondly, that the work-requirement avoids the problem of welfare-dependency associated with other forms of public income support. As a poverty-reduction policy, EGS has been reasonably successful, with earnings comprising between 18 and 40% of the incomes of poor households.

In practice, however, the programme has been relatively inaccurate at targeting poor individuals. Evidence suggests that, in some years, more than 50% of EGS workers were form non-poor households (reasons: difficult registration procedures; long distances to work). Reviews of the EGS schemes also suggest that many of the productive assets (e.g. wells) generated by the scheme were appropriated by wealthier households, sometimes 'crowding out' private investment. Finally, some evidence suggests that guaranteed minimum wages associated with EGS put upward pressure on reservation wages in the private agricultural sector, with detrimental effects on private employment.

The MEGS has not acted as a true guaranteed employment scheme, with its size being typically rationed, particularly when the minimum wage has been raised (Murgai and Ravallion 2005). In addition, where wages have been raised, the targeting of the system has deteriorated. The costing of the schemes has typically been ad hoc with very little evidence on the cost-effectiveness of such schemes. In an attempt to fill this gap, Murgai and Ravallion (2005) estimate that, if the current MEGS were to be applied nationally, the scheme would reduce rural headcount poverty rate by around 14 percentage points (i.e. from 34% to 21%) at a very considerable cost – around 5% of GDP.

Source: Overseas Development Institute (2006); Murgai and Ravallion (2005)

Determining the likely effectiveness and appropriateness of wage subsidies in South African context is hampered by two factors. Firstly, the vast majority of evaluation studies focus on OECD countries, and typically measure the effectiveness of wage subsidies in reducing welfare-dependence. Secondly, the literature on developing country ALMPs is extremely limited, and exhibits serious data integrity problems. These concerns aside, there do appear to be broad lessons to take from the international literature:

- While initially negative (see Dar and Tzannatos 1999, Betcherman et al. 2004), more recent evaluations of the employment impacts of subsidies have been increasingly

positive (see Jaenichen et al. 2007, OECD 2006, Lee 2005). A majority of the evaluations found that wage subsidies were successful at raising the employability of programme participants, compared to those in open unemployment.

- Wage subsidies were also found to play an important poverty reduction role, by significantly lifting the income of the 'working poor'. The Earned Income Tax Credit (EITC) in particular has been found to significantly raise labour supply of the targeted group (in this case, low-income individuals with children), while helping to reduce poverty. In 2004 alone, there were more than 20 million EITC recipients.

- Finally, wage subsidies were highly unsuccessful at bringing marginalised groups into the economy. This is likely because, firstly, wage subsidies were given to 'hard-to-place' workers with low employment probability, secondly, because giving the subsidy to certain sub-sections of work-force stigmatised these individuals as 'risky' employees and, thirdly, because targeted individuals were often given employment on demanding conditions.

A Wage Subsidy for South Africa

A review of the international literature provides an important guide for the design of a wage subsidy scheme in the South African context:

Firstly, on average, targeted employee-side subsidies appear to have the greatest success at raising employment. However, these subsidies are typically aimed at reducing welfare dependency, and do not reflect the unemployment environment in South Africa. With such wide-spread unemployment and an over-supply of low-skilled work-seekers, there appears to be a far stronger case for the introduction of an employer-side subsidy to boost labour demand.

Secondly, targeted subsidies (while being more cost-efficient and effective) typically are aimed at those subsections of the workforce exhibiting particularly high unemployment rates. In South Africa, unemployment is so prevalent that it makes sense not too target too narrowly, particularly if this intervention is also intended to be an important poverty reduction mechanism. Nevertheless, there may be an argument on efficiency grounds for the introduction of wage subsidy targeted at the youth (see Box 3 below).

Thirdly, in order for employer-side subsidies to be effective, they must be relatively generous and administratively simple, with limited administration costs borne by the employer. In addition, the subsidy is unlikely to have any impact where there are uncertainties about eligibility (i.e. where the subsidy is too 'narrowly' targeted), or if accessing the subsidy would require a minimum employment time period guarantee. The proposed subsidy described in the following section avoids these issues by being broadly targeted at low-income individuals, does not require an employment guarantee to be accessed, and can be administered through the Pay As You Earn (PAYE) taxation system.

Finally, subsidies can have a significant positive effect on the earnings of low-income workers, even where employment effects are unclear or limited. As such, the proposed subsidy is targeted at those earning below R45 000 per annum.

Box 3: A Targeted Wage Subsidy for South Africa

In 2006 there were over 1.7 million youths unemployed (one-third of total unemployment), and the rate of youth unemployment exceeded 50 per cent. Whilst the ratio of youth to adult unemployment may be comparable to other countries, it is the sheer magnitude of youth unemployment in South Africa – where one-in-every-two youths are unemployed – that makes South Africa an outlier from an international perspective. In addition, evidence suggests that the 'intensity' of unemployment (defined as the rate of unemployment multiplied by the share of unemployment) is higher for youth (15 to 24 years) than for older age cohorts (i.e. 25 'plus'). These findings suggest that a youth wage subsidy may be more effectively targeted than the relatively general subsidy proposed in this paper.

Levinsohn (2007) and Banerjee et. al. (2006) have emphasised that once an individual finds employment they tend to stay employed, even while there is significant churning in the formal labour market. However, at present, there are a large number of school-leavers remaining in unemployment for extended periods of time, with significant negative effects on life-time employment probability and earinings. As such, a (time-limited) wage subsidy may provide an opportunity to improve the employment probability of youths, thereby allowing them to gain experience in the labour market, and to raise life-time earnings by remaining attached to the formal labour market.

For a more complete discussion of the debate so far, refer to Annexure A.

In sum, the wage subsidy outlined in this paper is relatively broad, and not limited to an industry, age-group or geographical area. At the same time, however, the subsidy can only be paid to those earning under R45 000, implying that the subsidy is explicitly redistributive, targeted towards the working poor. In addition, the subsidy will likely avoid problems of low take-up on the part of private firms, given that accessing the wage subsidy will be administratively simple (through the PAYE system), there will be limited concerns around eligibility, and that access would not require employment guarantees on the part of the employer.

Subsidy Design and Employment Effects

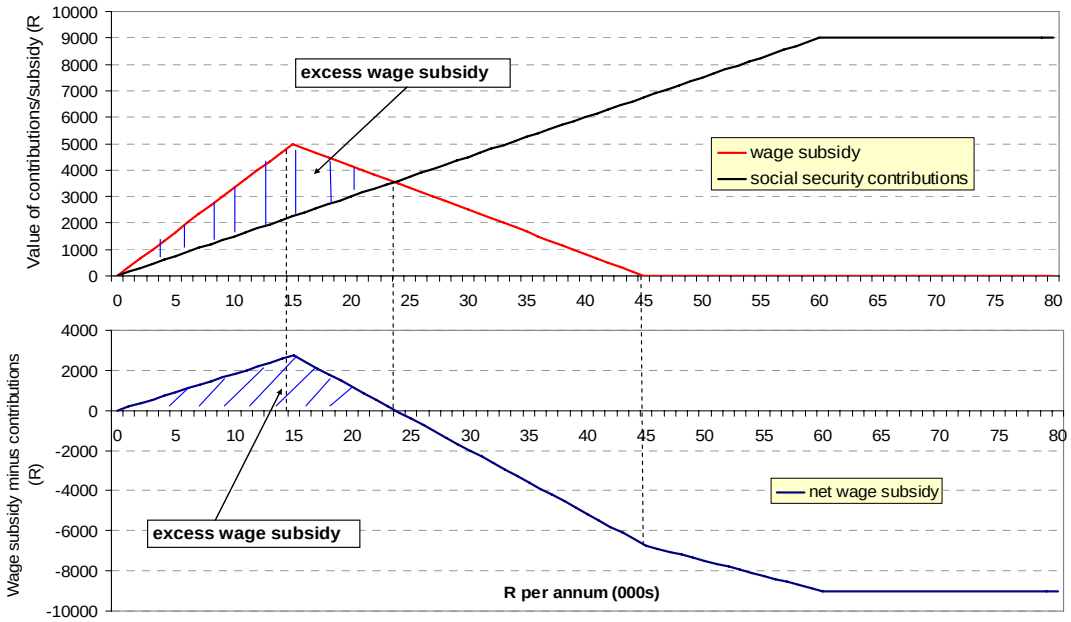
The general wage subsidy, introduced as part of the announced comprehensive social security system in Budget 2007 aims to raise employment in two ways: firstly, by offsetting the costs of social security contributions for low wage employees and, secondly, by reducing the redusing the overall wage bill for low-income employees. The illustrative wage subsidy design, published as part of the Budget 2007 documentation, is calculated in relation to the gross wage paid to employees earning below an income tax threshold of R45,000 per annum and is set out as follows:

- For a wage less than R15,000 per annum, the subsidy is equal to one-third of the wage
- For a wage of R15,000 a year, the subsidy equals R5,000 per annum (maximum subsidy)

- For a wage between R15,000 and R45,000 per annum, the subsidy equals R7,500 minus one-sixth of the wage
- For wages greater than R45,000 per annum there is no subsidy

The wage subsidy operates within the broader framework of a comprehensive social security system that has compulsory contributions of 15 per cent of gross earnings up to a ceiling of R60 000. The interaction between the wage subsidy and compulsory social security contributions is shown graphically below.

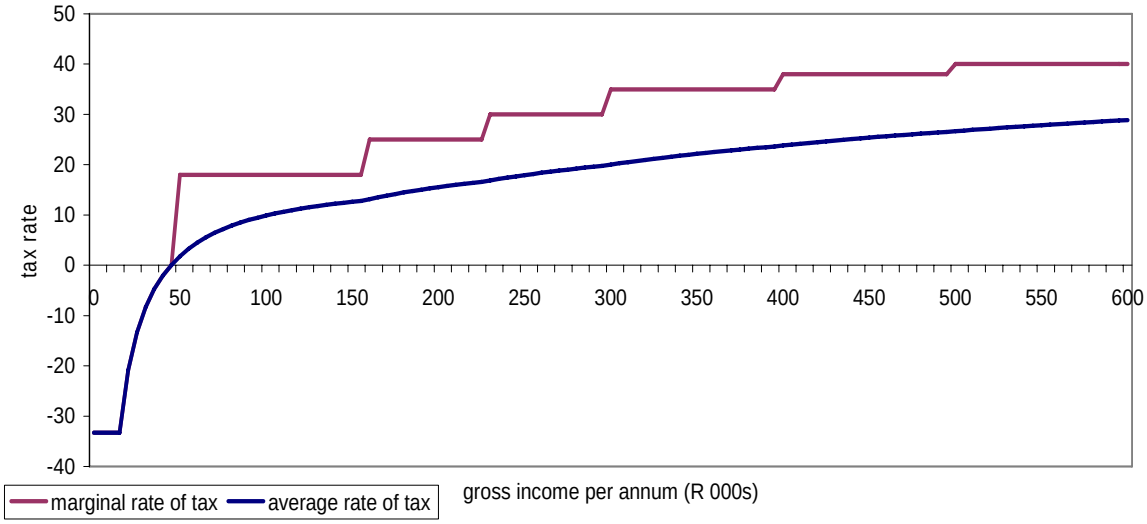
Figure 2: The interaction of the illustrative wage subsidy with social security contributions



The wage subsidy will, firstly, be directed towards offsetting the burden imposed by social security contributions on workers with low earnings. In doing so it will partially or fully negate the tax wedge deriving from the mandatory social security contributions, reducing employment costs. Pre-existing pension and/or retirement savings arrangements with employers will migrate to cover the costs of social security contributions where there is a partial offset. The shaded area, labelled "excess wage subsidy", illustrates where the value of the wage subsidy exceeds the value of social security contributions. Employers employing workers earning below R24 000 per annum will receive a subsidy that reduces wage costs and facilitate employment creation. It is the excess wage subsidy between R0 and R24 000 that will generate employment and thus satisfy the secondary objective of the wage subsidy.

In effect, the wage subsidy operates as an extension of the progressivity of the personal income tax schedule below the tax threshold. This can be represented graphically:

Figure 3: The wage subsidy as an extension of the progressivity of the personal income tax schedule



The macroeconomic impact: employment, GDP, poverty, inequality and fiscal cost

In modelling the macroeconomic impact of the wage subsidy two separate methodologies and approaches have been adopted. These are outlined in more detail in Annexure B. The first approach (Sapere Aude[14], NT_1) focuses on the impact lower wages, due to the wage subsidy, has on employment in the formal sector of the economy. The modelling methodology projects forward employment and the earnings distribution to determine the impact of the illustrative wage subsidy on wage costs and subsequently employment creation in 2010 and beyond. The second approach utilises the National Treasury's Computable General Equilibrium (CGE) and Microsimulation models. The CGE approach models the inter-linkages within the system of national accounts and therefore allows analysis of the entire economy (including the informal sector) impact of the wage subsidy (including indirect employment effects through spillovers, increased consumption and aggregate demand, and complementary increases in the demand for capital and skilled labour). It can therefore present estimates for the impact on employment creation and other macroeconomic variables such as GDP. The microsimulation model produces estimates relating to the impact on poverty and inequality. Both approaches provide estimates for the fiscal cost of the wage subsidy.

The estimates of employment creation vary significantly between the three modelling approaches. Employment creation estimates range between 1 per cent (NT_1) and 3.6 per cent (Simkins). The difference between these estimates reflects differences in the hypothetical earnings distribution in 2010 and in the implicit assumptions concerning the

[14] The Sapere Aude methodology refers to the social security projections model constructed by Professor Charles Simkins, which includes a labour force module that models the impact of the wage subsidy.

substitutability of different types of labour.[15] The CGE model produces a mid-range estimate of employment creation of 1.8 per cent.[16] Both the NT_1 and Simkins methodologies are unable to capture the general equilibrium effects of the wage subsidy such as spillovers, increased employment due to higher aggregate demand, and complementary employment of higher skill labour. As such these estimates will to some extent underestimate potential employment creation.

Employment creation from the different modelling exercises

	Employment creation	
	%	Number (000s)
Simkins	3.6	300 to 350
NT_1	1.0	100
CGE / Microsim	1.8	200

Within the CGE model households benefit from the wage subsidy as household income rises. This increase in demand for lower skilled labour due to the wage subsidy also increases demand for high-skilled workers due to complementarities in labour demand. Through increased incomes, consumption and aggregate demand, the CGE model estimates that the wage subsidy will increase GDP in the economy by 0.65 per cent.

The microsimulation model enables estimation of the poverty impact of the wage subsidy. The model finds that households are better off and their welfare increases. Overall poverty and inequality decline, with regional poverty rates also showing a reduction. In particular, poorer households are the "winners" – the per capita income of the lowest 40 per cent of the population on average increases by 60 per cent as compared to the richest households where per capita income increases approximately 9 per cent.

All three methodologies estimate similar fiscal costs in terms of the wage subsidy. The total cost of the subsidy, which includes the portion that helps to alleviate the increased employment costs associated with the mandatory social security contributions, ranges from R16.2 billion (NT_1) to R19.7 billion (CGE). In the methodologies projecting forward the earnings distribution, the value of the wage subsidy that reduces wage costs (and therefore determines employment creation) is R4.9 billion (NT_1) and R5.5 billion (Simkins 2007).

The microeconomic impact: sector and demographic effects

[15] NT_1 assumes low rates of substitution between different types of labour and therefore the fall in wages for low wage workers can only partially be exploited. The Simkins methodology assumes full substitution of labour types. Imposing full substitutability of labour types on the NT_1 modelling raises the estimate of employment creation to 2.3 per cent or 230 000 jobs.

[16] As an alternative scenario the role union power and union bargaining has been included in the model with unions capturing 50 per cent of the wage subsidy. This reduces employment creation and GDP increases by more than half.

Through projecting the earnings distribution to 2010, the NT_1 modelling approach provides some intuition into the distributional impact of the illustrative wage subsidy – i.e. 'who' the wage subsidy impacts on. In total it is estimated that 29 per cent of all formal sector workers will be eligible for a subsidy that fully offsets social security contributions whilst 55 per cent will receive some level of subsidy.

The distributional impact of the wage subsidy by sector, province and demographic sub-group

	Share of sub-group eligible for ...		Numerical estimate of sub-group eligible for ...	
Sub-groups	Full offset	Wage subsidy	Full offset	Wage subsidy
Sector				
Agriculture, Hunting, Forestry and Fishing	0.778	0.871	470	530
Mining and Quarrying	0.100	0.455	40	180
Manufacturing	0.257	0.606	410	960
Utilities (Electricity, Gas and Water Supply)	0.086	0.369	10	50
Construction	0.452	0.748	330	540
Wholesale and Retail Trade	0.387	0.684	900	1,590
Transport, Storage and Communication	0.179	0.472	92	240
Financial Intermediation, Insurance, Real Estate and Business Services	0.217	0.508	300	700
Community, Social and Personal Sevices	0.148	0.314	330	690
Province				
Western Cape	0.259	0.569		
Eastern Cape	0.321	0.572		
Northern Cape	0.434	0.630		
Freestate	0.353	0.560		
KwaZulu Natal	0.313	0.571		
North Western	0.324	0.561		
Gauteng	0.208	0.496		
Mpumalanga	0.385	0.616		
Limpopo	0.383	0.583		
Population group				
African	0.380	0.672	2,380	4,200
Coloured	0.300	0.623	380	781
Indian/Asian	0.095	0.360	40	160
White	0.004	0.166	80	310
Age group				
15-19	0.630	0.932		
20-24	0.468	0.779		
25-29	0.381	0.668		
30-34	0.298	0.555		
35-39	0.243	0.499		
40-49	0.220	0.452		
50-64	0.194	0.448		
Skill level				
Skilled	0.032	0.178		
Semi-skilled	0.128	0.619		
Unskilled	0.374	0.866		
TOTAL	0.291	0.553	2,900	5,400

In terms of the distributional impact we see that the agriculture and construction industries (relatively labour intensive sectors), low-paid African workers, the unskilled and the young will be the principle benefactors. The wage subsidy will therefore benefit sections of the labour market that persistently identified as needing to be addressed. The wage subsidy will therefore achieve much of its primary objective of assisting low-wage earners in the formal sector who will now face compulsory social security contributions. The table on the following page provides a summary of the distributional impact of the wage subsidy. It shows the share of each sub-group that will eligible for the wage subsidy and numerical estimates for the sector and population sub-groups.

The introduction of a wage subsidy for South Africa will have significant microeconomic and macroeconomic impacts. The scale of employment creation is a hotly debated subject since the success of any wage subsidy will primarily be measured by its success at creating jobs and raising employment. The general wage subsidy is, however, one type of wage subsidy that could be implemented to try and ameliorate the current problems in the South African labour market, while also serving to address poverty amongst the working poverty.

Conclusion

The South African economy has been growing strongly over the past decade, with a resulting decline in unemployment. However this decline, if it continues at its present level, is not enough to make a reality the 2014 deadline of halving unemployment. Nor would a sustained high growth rate of 6% per annum, create the conditions where the labour market alone could absorb the growing number of individuals entering the workforce. On these grounds, there appears to be substantial space for the introduction of an active labour market policy to make giving employment more attractive to potential employers, and to include a higher number of individuals in value-adding labour.

The wage subsidy proposed in this paper has three primary aims: reduce the tax wedge associated with the introduction of mandatory social security, raise the demand for low-income labour, and reduce both poverty and income inequality in the formal labour market. For these reasons, the subsidy is broadly targeted at those earning below R45 000 per annum, and is not restricted to an industry, geographical area or age cohort. In its current form, the implementation of the wage subsidy is anticipated to raise employment by 200 000 to 300 000 jobs, at a cost of approximately R17 billion. In addition, the wage subsidy should have significant positive impacts on the earnings of the lowest-paid workers in the South African economy.

Annexure A

A targeted wage subsidy for the youth

A targeted wage subsidy is an alternative approach to adopt and was a policy recommendation from the International Panel[17]. A policy paper from Levinsohn refers to the earlier labour market study by the International Panel (Banerjee et. al. 2006)[18] in justifying a wage subsidy targeted to the youth. Banerjee et. al. analyse why unemployment has risen in South Africa through examining labour market dynamics. Their results show that despite a significant degree of churning in the labour market, once workers get a job, particularly in the formal sector, they tend to stay employed. Levinsohn argues that such a pattern points to getting younger workers into employment as soon as possible, potentially through a subsidy targeted at the youth. Levinsohn also attests to the social externalities – such as crime and disengagement – that derive from having unemployment at such high levels. From this perspective, it is absolutely crucial that labour market policy re-engages with this demographic cohort. Abstracting away from these policy justifications for the moment, it is worthwhile to determine to what extent youth unemployment is a problem in South Africa.

In documenting the scale and nature of unemployment in South Africa it has already been shown that youth unemployment in South Africa is extremely high. In 2006 there were over 1.7 million youths unemployed, one-third of total unemployment, and the rate of youth unemployment exceeded 50 per cent. These statistics illustrate that youth unemployment is undoubtedly a problem in South Africa. However, relatively higher rates of youth unemployment are by no means peculiar to South Africa. Youths entering the labour market are less experienced than older individuals and therefore there is a natural bias against employing younger workers.

Cross-country comparisons of the ratio of youth unemployment to adult unemployment in 2004/05). indicates that South Africa's youth-to-adult unemployment ratio is 2.4 (i.e. the youth unemployment rate in SA is almost two and a half times larger than the adult unemployment rate).[19] This is in-line with experience in the selection of developed and emerging market economies shown. The *relative* magnitude of youth unemployment is therefore not an anomalous characteristic of South Africa's labour market. Indeed the ratio of youth to adult unemployment in South Africa is lower than the average for the sample (approximately 3) and lower than for four members of the G7 (France, Italy, the United Kingdom and the United States). This finding may imply that focusing on the youth is perhaps misplaced since from a relative sense, youth unemployment is no bigger problem than for most other countries.

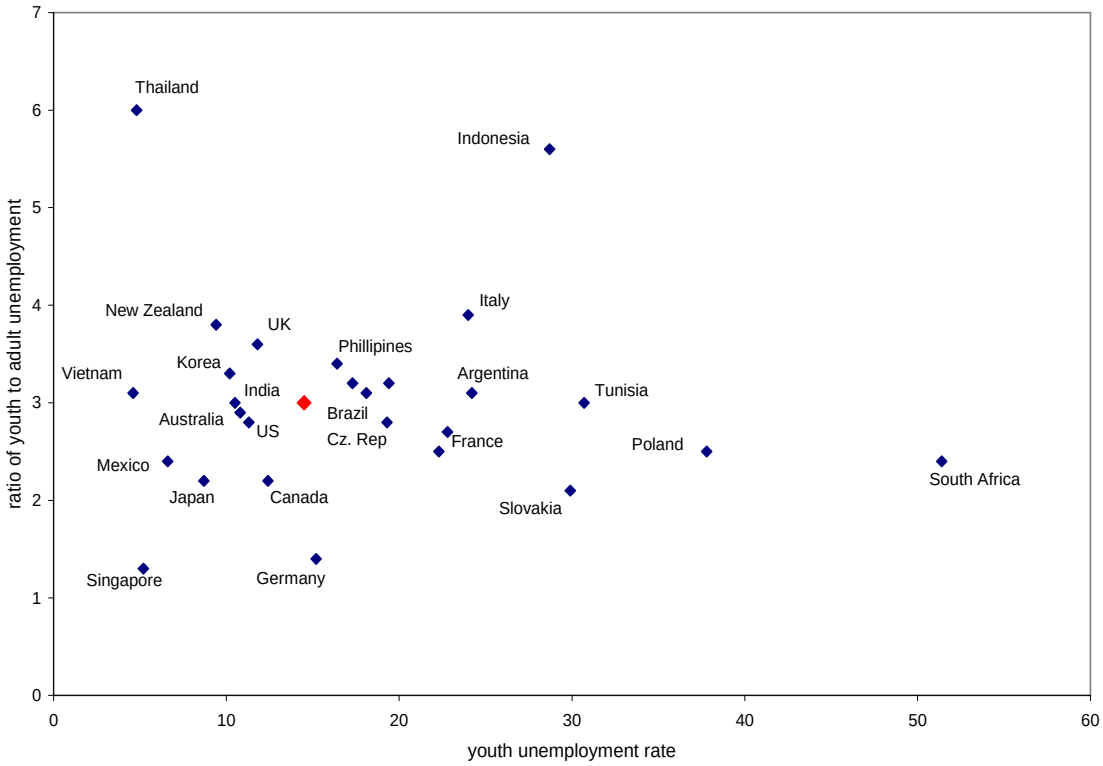
[17] Social Security and Retirement Reform Workshop, Sheraton Hotel, Pretoria, May 2007

[18] Banerjee, A., Galiani, S., Levinsohn, J. and Wollard, I. (2006) Why Has Unemployment Risen in the New South Africa? CID Working Paper No. 134

[19] Data taken from the International Labour Organisation (ILO) and the StatsSA Labour Force Survey (September 2005)

However, to infer this would be to ignore the absolute magnitude of youth unemployment. Higher ratios of youth unemployment, whilst an area for policy to address, are perhaps more palatable if youth unemployment is between 9 and 12 per cent as it is in Australia, Korea, New Zealand, the UK and the US. Whilst the ratio of youth to adult unemployment may be comparable to other countries, it is the sheer magnitude of youth unemployment in South Africa – where one-in-every-two youths are unemployed – that makes South Africa an outlier from an international perspective. This is shown in the figure below, which provides a scatter plot of the ratio of youth-to-adult unemployment against the rate of youth unemployment for a selection of developed and emerging market economies. The red point represents the average for this sample of countries.

Figure A1: *Ratio of youth to adult unemployment vs. the rate of youth unemployment*



Source: ILO Key Indicators of the Labour Market; StatsSA Labour Force Survey (September 2005)
Note: All ratios for 2005 except Brazil, India and Vietnam (2004)
♦ shows the average for the sample

Whilst the magnitude of the youth unemployment rate is one justification, the LFS (September 2006) also shows that one-in-five over the age of 25 are unemployed – this is also significant proportion. In this regard, it is useful to construct and consider the empirics underlying the 'intensity' of unemployment by age cohort where the 'intensity' of unemployment is defined as the rate of unemployment multiplied by the share of unemployment.

By investigating the intensity of unemployment, one is able to allow both for the unemployment rate and the weight of that unemployment in an economy's overall unemployment. This allows the analysis to incorporate the share of unemployment and thus allows the role and influence of participation to be taken into account. For example, high unemployment rates for those aged between 15 and 19 years (55 per cent in South Africa) must be weighed against the fact that the youth represents a smaller proportion of the labour force (3 per cent) and a smaller proportion of the unemployed (6 percent) since many remain in full time education. As such, the intensity of unemployment it is a useful guide to where unemployment is "worse" and hence where policy can have a larger or more important impact.[20]

Applying the intensity of unemployment concept to South Africa, youth unemployment is a bigger issue than adult unemployment. The intensity of youth unemployment (15 to 24 years) is 0.172 whilst the intensity of adult unemployment (25 'plus') is 0.143. This finding favours a wage subsidy targeted towards the youth. However, the very high intensity of adult unemployment relative to other countries (indicates that policy should not disregard addressing the problem of adult unemployment also.[21]

If one disaggregates the intensity of unemployment by age cohort in ten year intervals, there is further evidence supporting the advantage of targeting the youth and indeed implies that youth unemployment is the most pressing issue. The relatively high intensity of unemployment for those aged between 25 and 34 does however intimate that perhaps that the age cohort slightly older than youths would also be an appropriate target for some sort of labour market programme.

Intensity of unemployment by ten-year age cohort					
	15-24	**25-34**	**35-44**	**45-54**	**55-64**
Intensity of unemployment	0.172	0.122	0.029	0.010	0.002

In asking where a targeted wage subsidy is best placed, it would is appropriate to consider the effectiveness of such a subsidy. The slow decline in the rate of unemployment by age and the prevalence of long-term unemployment in South Africa suggests that unemployment is persistent. The wage subsidy to the youth could have the potential to arrest or lower this persistence somewhat by intervening when workers are young. Levinsohn (2007) and Banerjee et. al. (2006) have emphasised that once an individual is employed they tend to stay in work and as such a (time-limited) wage subsidy that allows youths to gain experience in the labour market and become a viable supply of labour to employers could well be effective and appropriately targeted.

[20] The intensity of unemployment can be adapted to allow for political/policy bias. For example, if the magnitude of unemployment is more important to policy makers than differential unemployment rates then it is possible to ascribe a higher weight to the share of unemployment than the rate of unemployment.

[21] Many developed and emerging market economies have intensities of adult unemployment half that which is observed in South Africa.

The evidence from the LFS on the duration of unemployment illustrates the predominance of long-term unemployment older age cohorts. For those over the age of 35 years, 50 per cent of the unemployed have been unemployed for over three years. Given the nature of long-term unemployment, one may suggest that subsidising wages could still not make these individuals feasible options for employers in the labour force and that other active labour market intervention, such as re-training programmes or public works programmes, may be more appropriate. Therefore, from an effectiveness perspective, focusing a targeted subsidy on younger workers who are less likely to have experienced significant deskilling may also be appropriate. The National Treasury is at present performing further modelling to improve understanding into the potential employment creation and wider economic impact of introducing a wage subsidy targeted to the youth.

Annexure B

Modelling methodologies

Using 2005 as the base, the Simkins methodology is based fundamentally on modelling and projecting South Africa's population, labour force and formal employment going forward for 75 years. The central theoretical tenet is that in lowering wage costs, a wage subsidy stimulates job creation. In a modelling sense this is determined by calculating the (percentage) fall in wage costs and applying a wage elasticity of employment. The wage elasticity of employment describes how employment changes for a given change in wages. Prior to imposing the wage subsidy and estimating its potential employment creation, employment and earnings growth to 2010 must be estimated.

Formal employment growth between 2005 and 2010 is underpinned by assumptions regarding (a) the output elasticity of employment (0.425), which describes how employment changes for a given change in output, and (b) the rate of output growth in the economy (5 per cent per annum). The combination of these assumptions and base for formal employment (8.7 million in 2005) is that formal employment increases to 9.7 million in 2010. Simkins' methodology disaggregates the earnings distribution into the 13 earnings ranges available from the Labour Force Survey. The mean earnings for each range is assumed to be the mid-point of the range multiplied by 12 to reach an annual figure. Aggregate labour incomes are assumed to rise in line with output growth but are shared between increased employment and a rising wage level. This explains why the output elasticity is less than one. Mean earnings grow at a rate equal to output growth (growth of aggregate labour income) once employment growth is accounted for. Earnings in 2010 are estimated to be approximately 15 per cent higher in 2010 than in 2005.

The wage subsidy and social security contributions introduced to the Simkins model are consistent with the illustrative example provided in the Budget documentation and 2nd discussion document on social security reform. The model adopts a wage elasticity of employment of -0.7, consistent with the economy-wide estimate from Fallon and Lucas (1998). The wage elasticity is imposed on a secular basis and as such the fall in wages for the lower income workers is considered to only affect the employment cost of these low

income workers. Therefore the model predicts a 14.7 per cent fall in wage costs for those earning below R24 000. Applying the wage elasticity of -0.7, this translates into employment creation of over 10 per cent. The implicit assumption here is that there is perfect substitutability of labour and that the fall in the wage costs of lower income, and by implication lower skilled, workers raises demand for that low skilled, low income labour.

National Treasury (NT_1)

The National Treasury's projection of the earnings distribution follows a similar methodology to the Simkins methodology in that employment and earnings growth is estimated up to 2010. The assumptions underlying the projections are, however, different. NT_1 makes assumptions on (a) wage settlements going forward to determine changes in the earnings distribution and (b) government achieving employment growth consistent with its target of halving unemployment by 2014 to model formal employment growth. The process is different but the end result is essentially the same; a hypothetical earnings distribution and estimated level of unemployment for 2010 upon which the wage subsidy can be imposed.

To estimate the fall in wage costs, NT_1 implicitly assumes there is a low substitutability of labour as firms find it difficult in the short run to shift their production processes towards becoming more labour intensive. The fall in wage costs due to the subsidy is therefore compared to the entire wage bill and hence the percentage fall in wage costs is significantly smaller than when applied in a secular fashion (as in the Simkins methodology). A range of sector specific wage elasticities of employment, taken from the empirical literature, are then applied to estimate employment creation.

CGE/Microsimulation model

The economic impact of the wage subsidy combined with a social security tax, modeled using a Computable General Equilibrium (CGE) approach, is based on 2003 data. A 10 per cent ad valorem wage subsidy was imposed on the wage bill of employers of medium and low skilled employees in the formal sector. These two employment categories combined make up more than 50 per cent of total employment. The value of the wage subsidy imposed is R18,9 billion which is roughly 1½ per cent of GDP, with two thirds of the wage subsidy financed through social security taxation. The rest of the cost is assumed to be absorbed via an increase in the government deficit.

Three scenarios assuming low, medium and high elasticities of substitution between factors of production are performed to illustrate the employment creating potential of a wage subsidy in an environment where technology and institutional constraints (such as labour market inflexibilities) are becoming less of a labour-movement-inhibiting-factor.[22]

[22] A translog production is used to simulate the substitution between different production factors in the production process – low skilled is less substitutable with high skilled labour, while high skilled labour and capital are complements to some degree. The higher the elasticities of substitution in production activities the easier it is for factors to move between activities. The employment creating potential is larger.

In the presence of technological constraints and labour market rigidities the elasticities of substitution would be rather low - as may be the case in South Africa. As technology improves and/or labour market rigidities are removed the elasticities of substitution increase and the employment creating potential of a wage subsidy is larger.

A social security tax is imposed to offset two thirds of the wage subsidy cost[23]. The social security tax is imposed on income groups earning between R24 000 and R100 000. When converted to 2003 values it implies that household deciles 6, 7 and 8 will be taxed to partially finance the wage subsidy. Medium and low-skilled employees in the formal sector receive the wage subsidy. However, the household deciles to be taxed (6,7, and 8) only receives 41.27 per cent, 38.22 per cent and 34.10 per cent of their income from medium and low-skilled labour. The social security tax is therefore somewhat progressive and redistribution from households 6,7 and 8 to lower decile households should occur. To finance the wage subsidy the effective average tax rate for household deciles 6, 7, and 8 increases by 33 per cent.

Using the results from the CGE model, a microsimulation model based on 2000 IES and LFS data is then used to estimate the poverty impact of the wage subsidy combined with the social security tax.

[23] This section looks at the specific proportion of the social security tax framework that will be used to finance the wage subsidy. It is not clear to what degree the social security tax would be a "substitutive tax" for existing tax and savings instruments or to what degree it would be a new tax. The wage subsidy component of the proposal, however, is new and would require financing.

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