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The success of learnerships?

Lessons from South Africa's training and education programme

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Abstract: Vocational training programmes, like South Africa’s learnership programme, which combine classroom learning and on-the-job training seem like the type of intervention which can create skills, get young people into jobs quicker, and reduce youth unemployment. This paper uses a longitudinal dataset of young people over four years—some of whom participate in the learnership programme—and firm level data to assess whether the programme meets its objectives, and based on this draws lessons for similar programmes in other countries. The results are disappointing: young people completing learnerships are more likely to be employed but this fades quickly; they do not get better jobs; and the way the programme is funded, as well as the nature of the firms which undertake subsidized training, means that the programme redistributes resources from smaller to larger firms and from more labour-intensive firms to less.

Keywords: vocational training, youth employment, South Africa, learnerships

JEL classification: I25, I28, J24, O15

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1 Introduction

Technical and vocational education and training (TVET) is viewed by many countries and multi-lateral organizations as a key requirement for developing skills, increasing productivity, improving employability and creating ‘decent work’ for young people. The African Development Bank’s High Level Panel recommendation on skills development concludes that, ‘Well targeted vocational training will better align worker skills with the demands of the job market. A key goal would be to increase the percentage of secondary students receiving vocational and technical training in Africa, currently the lowest in the world’ (AfDB, OECD 2008: 58). This enthusiasm for TVET is also visible at a country level—almost all African countries do have formal TVET programmes in place and, at the time of writing, seventeen countries in sub-Saharan Africa (SSA) had draft, comprehensive, sector-wide education plans for TVET.

Most TVET programmes in SSA countries are relatively small. One of the largest and best established is South Africa’s learnership programme which combines classroom learning with on-the-job training. This programme is large-scale, well-funded and has been an official government initiative for over 10 years. Its primary aim is to train low-skilled young people in the skills which firms require, and facilitate their entry into jobs. Firms collaborate with Sector Education and Training Authorities (SETAs) and training providers to design programmes to suit their needs. The wages of learners are subsidized and firms have no obligation to hire the participants after a learnership. This means that firms can trial potential future employees in order to ascertain their productivity, employability, and fit with the job.¹ The programme is neither targeted at specific sectors, although the SETAs operate at the sector level, nor at specific firms and the types of training provided is driven by the needs of firms.

At face value learnerships seem like a good solution to South Africa’s high rates of youth unemployment. Those without jobs usually have low levels of skills and limited previous work experience and firms complain that a lack of skills is a constraint to their growth. Learnerships tackle these issues by providing useful skills (since the type of training is demand-driven by the firm) and work experience, and firms do not pay the full costs of training or employment. However, despite its longevity and cost there is very little research which investigates whether the programme is meeting its goals and what the consequences of the structure of the programme and its funding are.

The most comprehensive study to date is by the Human Sciences Research Council (HSRC). This study surveyed a cohort of people who had enrolled in a learnership in 2005 and then interviewed them in 2007 and 2010 (Kruss et al. 2012). This paper complements the HSRC study in that it follows a group of young people over four years from 2009 to 2012, some of whom were enrolled in learnerships. We are thus able to compare the outcomes of those who took part in learnerships and those who did not (unlike the HSRC study which only follows those who enrolled in a learnership). Using this data we attempt to determine the impact of completing a learnership on young people through matching those who took part in learnerships to those with observably similar characteristics who did not. In addition to investigating the outcomes of individuals we also use firm level data which includes information on general and SETA-accredited training (which we use as a proxy for learnerships), to investigate the types of firms which take part in training. This allows us to ascertain how the potential costs and benefits of learnerships may be distributed across firms.

¹ Many firms view South Africa’s labour regulations as a constraint to hiring since getting rid of employees who are bad fits is viewed as difficult—see Rankin (2006) for a discussion.

The findings of this research indicate that learnerships are not effective in achieving the stated goals of the programme. Although those completing learnerships are more likely to be in employment than others soon after completion, this benefit fades rapidly. Learnerships do not seem to target those with the lowest skills levels but favour those with higher levels of skills and education. There is no evidence that firms which participate in SETA training expand employment more rapidly than those who do not. Lastly, given that larger firms are much more likely to participate in this type of training but that the training is paid for by a 1 per cent payroll tax (which as a proportion of revenue is higher on average for small firms), learnerships are a cross-subsidization of training and wages in bigger firms by smaller firms. The current structure of the programme raises the relative cost of employing lower skilled workers in smaller firms. These results provide valuable lessons for the design of similar TVET programmes in other African countries, particularly in terms of how these programmes are funded.

The paper is structured as follows: Section 2 discusses the role of learnership-like programmes in other countries; Section 3 summarizes the challenges of youth unemployment in South Africa and how the learnership programme attempts to address these challenges; Section 4 investigates the relationship between learnerships and individual level outcomes; Section 5 examines the relationship between SETA-accredited training and firm level outcomes; and, Section 6 concludes and draws policy lessons for other African countries.

2 The role of learnership-like programme in other countries

Vocational education and training programmes, which combine theoretical instruction with practical firm-based experience, are often seen as an important solution to get young people into jobs. This is especially the case for young people who do not complete formal schooling or who are unable or unwilling to continue into other forms of higher education. These types of programmes are often demand-driven and align the skills taught with the requirements of the job, helping to improve the match between workers and firms and the lack or mismatch of skills which is often given as an explanation for unemployment in developing countries (Almeida et al. 2012).

The well-established programmes of central Europe (including Austria, Denmark, Germany, and Switzerland) are often used as the model for these types of interventions (Eichhorst et al. 2012). However, despite their prominence Eichhorst et al. (2012) argue that, once selection is taken into account, these types of programmes generally improve early labour market transitions but the benefits of these programmes diminish with time as non-participants begin to gain a foothold in the labour market. The nature of the training, types of jobs transitioned into, and country-specific characteristics also seem to matter. Eichhorst et al. (2012) note that in countries where these types of programmes are not seen as the last resort option for low-skilled individuals, an apprentice system can negate the impact of low school performance on labour market outcomes.

Although almost all African countries have some formal TVET programmes in place and at least seventeen countries in SSA have draft, comprehensive, sector-wide education plans for TVET (AfDB, OECD 2008). Rother (2007) finds only six countries which provide formal vocational training and apprenticeships for young people. These include programmes in Côte d'Ivoire, Namibia, and Zimbabwe. In Benin and Mali, these types of programmes are relatively small and have been tied to the traditional craft sector and participants spend between 15-20 per cent of their time in formal training and the rest gaining practical experience. Countries like Gambia and Ethiopia have also implemented these types of TVET programmes in the last 20 years but the scale remains small (Eichhorst et al. 2012). On the whole, most of these types of programmes in SSA are limited in scale and many are pilot projects and collaborations with NGOs. South

Africa's learnership programme thus stands out—it is relatively large-scale, well-funded, and has been an official government initiative for over ten years.

Evaluation of these programmes, and thus any indication of their success, is generally limited. Of the six programmes Rother (2007) surveys only two have any information on the gross outcomes of the interventions, including statistics like numbers who found a job and improvements in earnings, and none conduct any more rigorous impact evaluation to determine net benefits compared to a control group or cost-effectiveness.

Informal training systems, such as apprenticeships, are relatively more common in SSA. In these arrangements, young people generally enter a period of training with a 'master' or 'mistress'—an experienced person in the field, at no or low rates of pay. This arrangement is mostly negotiated between the parents or guardians of the potential apprentice and the master/mistress and may involve paying a fee to the master/mistress. The training can last several years and is fairly specific to the firm or the products or services which the firm produces. Many apprentices indicate that they wish to start their own businesses once their training is completed but this requires access to a substantial amount of start-up capital (Monk et al. 2008). There is evidence from Ghana, where apprenticeships follow a model typical in West Africa, that there is selection into apprenticeships but the currently employed who have completed apprenticeships but with no formal education, earn 50 per cent more than similar employed people who have not undertaken apprenticeships (Monk et al. 2008). Since selection into this type of training may be important, it does not necessarily follow that scaling-up apprenticeships of these types will lead to higher wages. However, given that the apprenticeship system is the most widespread form of training and continues with no government support suggests that it is playing a crucial role in the labour market.

3 The South African employment challenge and the learnership programme

Unemployment rates for young South Africans are high—more than half of those aged 20-29 years who want to work do not have a job. Although unemployment has increased since 2008 due to the knock-on effects of the global financial crisis as young people have struggled to get into jobs (Rankin et al. 2012), youth unemployment has historically been very high in South Africa. (Yu 2013) shows that since 2000 broad unemployment rates were never below 40 per cent and were above 50 per cent for most of the 2000-11 period. In addition to youth unemployment being high, labour force participation by young people is low. This means that in South Africa approximately one person in eight below the age of 25 is employed compared to an average of about two in five in other emerging countries (National Treasury 2011).

A strong correlate with unemployment is low levels of education (generally incomplete secondary school or lower) and low skills. The unemployed are also less likely to have any previous work experience. Firms on the other hand, report that a shortage of skills is one of their most pressing constraints.² South African unemployment is thus characterized by the twin dilemmas of large numbers of unemployed individuals with low-skilled levels but demands from firms for more skilled workers.

In addition to the mismatch between the low levels of skills among the unemployed and the demand for skilled employees from firms, weak employability signals given by school

² For example, lack of skilled staff was ranked third as a constraint by respondents in a 2012 survey of small and medium firms (SBP 2013) and third in the World Bank's 2007 Investment Climate Assessment survey (World Bank 2011).

qualifications also create uncertainty. This is particularly the case for young people with no job experience to act as a productivity signal. A wage floor in South Africa means that wages cannot fall to compensate for this uncertainty. This wage floor is a result of institutional factors including the structure of collective bargaining which sets minimum wages and labour regulations, and the spatial legacy of apartheid which means that most of the unemployed and low-skilled are located far from jobs and consequently transport costs are high. Firms are thus unwilling to employ young people since at current wage rates it is difficult and costly to ascertain whether they will contribute positively to the firm. An initiative introduced in late 2013 to compensate firms for employing new young workers is a wage subsidy through a tax incentive, formally known as the Youth Employment Tax Incentive.

South Africa's learnership programme is a long running intervention which aims to address the low levels of skills and weak productivity signals which characterize the unemployed. This programme was implemented in 2001 as part of the National Skills Development Strategy and combines classroom learning with on-the-job training and practical experience and leads to a formal qualification. Learnerships usually take a year to complete but the time length can depend, based on the nature of the programme and the previous experience and qualifications of the individual.

Learnerships are administered and managed by, currently, SETAs. These SETAs are sector-specific and have a board comprised of representatives from organized business, organized labour, and the Ministry of Higher Education. Firms and workers who are not formally organized, or whose organizations do not have formal recognition, are thus unlikely to be represented at the board level. It is estimated that the learnership system caters for between 44,000 and 55,000 people per year (Kruss et al. 2012).

The learnership programme is expected to both facilitate skills development in the formal sector, through a demand-led process, and assist new entrants into employment (Visser and Kruss 2009). It was not intended to target a specific group but rather be open to all skills levels, all sectors, and ages but also to address specific vulnerable groups—the youth, women, and the unemployed (Visser and Kruss 2009). In practice though, learnerships are only available to those aged 16-35 years and many SETAs, such as the HWSETA, report the primary aim of a learnership as a 'provision of skills to unemployed or employed but unskilled individuals' (HWSETA 2013). Visser and Kruss (2009) also acknowledge that the learnership system is increasingly prioritizing employment creation, especially through providing skills development for young Africans with low levels of skills.

The funding for this programme is derived from a payroll tax of 1 per cent on employers. 80 per cent of this revenue is then channelled through SETAs to fund demand-led development and training. In the 2011/12 tax year the South African Revenue Service (SARS) collected approximately R10 billion (approximately US\$1.4 billion) in payroll and workforce taxes—an increase of 17 per cent over the previous tax year (National Treasury and South African Revenue Services 2012). This is a substantial real increase given that inflation in 2012 was approximately 5.6 per cent compared to 2011.

The learnership programme is intended to be demand-driven—firms identify the skills which they need and they approach SETA for their sector to initiate the learnership.³ SETA will provide a grant for the learnership provided the firm meets certain criteria. The firm then

³ This information is taken from a number of SETA, and the Department of Labour's websites. For example www.merseta.org.za/SkillsDevelopment/LearningProgrammes/Learnerships.aspx; www.labour.gov.za/DOL/find-more-info/all-about-learnerships/.

identifies a training provider which is accredited with SETA they have applied to and then advertises for candidates for the learnership and who go through the company's recruitment process. The Department of Labour does have a database on which prospective candidates can register and those on this database are supposed to be notified when appropriate learnerships become available. This is one of the functions which the Department of Labour's Labour Centres carry out. Once suitable candidates have been identified the learner, employer, and training provider sign the agreement and the firm must register the position with the requisite SETA in order to claim tax back. The learner undergoes a number of assessments during the learnership and if completed successfully receives a nationally accredited qualification. The employer does not have an obligation to employ the learner upon completion of the learnership.

Despite the importance of learnerships as a policy initiative in South Africa, there has been relatively little work on the effectiveness of the programme. The HSRC has conducted a large study of learnerships and apprenticeships, surveying a cohort of people who had enrolled in a learnership in 2005 and then interviewing them in 2007 and 2010 (Kruss et al. 2012). Whilst this provides considerable information on the trajectories of people who have been exposed to learnerships, it does not allow for any comparison between these individuals and those who have not undertaken learnerships. This means that nothing can be said about whether the trajectories of those who come through learnerships are any different to those who do not.

The HSRC study shows rates of completion of learnerships of 65 per cent two years after enrolment, with 15 per cent dropping out without completion, typically during the first six months of the programme, and the balance still enrolled in longer programmes. Transitions from learnerships to employment were high—86 per cent of those surveyed who had completed learnerships were employed (not necessarily in the company where they completed their learnership) and 90 per cent of these were in permanent positions. The HSRC work also indicates that those who have completed learnerships experience 'uncomplicated' trajectories into work, mostly experiencing only a single transition into work after completing the programme. Successful transition into employment after the learnership differs by the level of qualification (Visser and Kruss 2009). However, for those learners who were unemployed prior to the programme, only 43 per cent of those who registered for a low-skills qualification (National Qualification Framework, NQF 1-3) found employment, compared to 76 per cent of those in the medium-skills group (NQF 4) or 64 per cent for the high-skills level (NQF 5-8). Enrolment in low-skills programmes is significantly larger than for the other groups and this low conversion rate is, according to Visser and Kruss (2009), a 'significant failure'.

The existing work in South Africa indicates that learnerships may most benefit those with previous work experience and with higher skills. This work also does not indicate whether the individuals who participated in a learnership are any better off than observably identical individuals who did not. To do this requires data on both those who participated in learnerships and those that did not.

In order to evaluate the learnership programme we need to identify indicator variables for the two broad goals of the programme: (1) skills provision and (2) increased entry into jobs. If the learnership programme is successful we should observe higher skills levels among firms and better firm performance—if a lack of skills is a limiting constraint for those firms benefiting from the programme—faster transitions into employment and better labour market outcomes for those people taking part in learnerships. Since many SETAs also state that an aim of the programme is the provision of skills to those with low skills levels, we anticipate that a successful programme would target these types of individuals and improve their outcomes. In the next two sections we compare the outcomes of individuals for those taking part in learnerships, and those not, in terms of labour market status and other measures, and the outcomes for firms who

undertake SETA-accredited training and those who do not. We also attempt, where possible, to differentiate outcomes by skills group.

4 Learnerships and young people

4.1 The data used

In order to understand the impact of learnerships on labour market outcomes for young people in South Africa we use a unique dataset which tracks African individuals initially aged between 20 and 24 years. The first round of the Labour Market Entry Survey (LMES) was collected in 2009 and individuals were re-interviewed every year until 2012. Individuals were selected based on a stratified random sample drawn from areas in Johannesburg, Durban, and Polokwane and surroundings and were followed even if they moved out of these areas. The sample is predominantly urban but some individuals in the rural areas surrounding Polokwane were interviewed. Approximately one-third of the sample was drawn from databases of young people looking for work provided by the Department of Labour's Labour Centres in these areas (see Levinsohn et al. 2013, for more detail on the sampling). One function of these Labour Centres is to advertise learnerships and this, together with the urban nature of the sample, means that it is likely that learnership participation in the sample is over-represented compared to the population as a whole. The LMES dataset differs from the data used by Visser and Kruss (2009) since it is a sample of the broader youth population and not only of those who have chosen to enrol in learnerships. As such we are able to compare the outcomes of those who participated in learnerships to the outcomes of those who did not.

In 2010 a randomly chosen subset of the individuals were allocated vouchers which entitled any firm which employed them to claim back up to half their wages for a period of six months. (Levinsohn et al. 2013) show that these vouchers did increase employment probabilities both one-year and two-years after allocation. Thus the dataset we use includes this employment improving intervention, however, the focus of this paper is not on the impact of this intervention. We have chosen to keep those individuals who were part of this experiment in the sample for two reasons: first, dropping them cuts the sample size in half and makes the number of those with learnerships relatively small; and second, our analysis indicates that this intervention did not affect the probability of young people undertaking learnerships. In addition to this, when we undertake our analysis we use control variables for characteristics prior to the wage subsidy voucher allocation.

Table 1 shows the descriptive statistics from the sample for the last two rounds of the survey, 2011 and 2012. We confine our analysis to these rounds since these were the rounds where the bulk of the learnership questions were asked, and during these rounds individuals were older and more likely to have completed education and be transitioning into employment. These statistics show that the average age of those in the sample was 24 years in 2011 and 25 years in 2012, that almost 60 per cent of the sample are female, and more than 70 per cent have completed secondary school (matric). Half the sample took part in the wage voucher experiment and approximately one-third were in employment in each round.

Table 1: Sample descriptive statistics

	Age	Male (%)	Complete matric (%)	Wage voucher (%)	Employed (%)	Started and completed a learnership between 2009 and 2011 (%)	Ever enrolled in a learnership (%)	Ever completed a learnership (%)
<i>2011</i>								
Mean	24.18	0.44	0.71	0.51	0.34	0.02	0.08	0.05
Std. dev.	1.51	0.50	0.45	0.50	0.47	0.15	0.26	0.21
N	2358	2358	2358	2358	2358	2358	2357	2357
<i>2012</i>								
Mean	25.16	0.43	0.72	0.51	0.33	0.03	0.03	0.01
Std. dev.	1.51	0.49	0.45	0.50	0.47	0.16	0.16	0.10
n	2106	2107	2107	2106	1866	2107	1762	1762
<i>Total</i>								
Mean	24.64	0.43	0.72	0.51	0.33	0.02	0.06	0.03
Std. dev.	1.59	0.50	0.45	0.50	0.47	0.16	0.23	0.18
n	4464	4465	4465	4464	4224	4465	4119	4119

Source: Authors' calculations.

These statistics show the limited reach of the learnership programme among young people. Only 2.5 per cent of our sample enrolled in and completed a learnership during the period between the first round of the survey (in 2009) and the third round (in 2011). Figures for enrolment and completion of learnerships outside this period are higher—8 per cent of the sample claimed to have ever enrolled in a learnership prior to 2011 and 3 per cent in 2012, and 5 per cent claimed to have completed a learnership prior to 2011 and 1 per cent in 2012. Despite the relatively small proportions undertaking learnerships, if these are scaled by the number of young people in these age groups in South Africa this indicates that approximately 50,000–200,000 young people complete a learnership every year. These estimates are higher than Visser and Kruss (2009) for at least two reasons. The first is the inherent bias in the sample towards those types of individuals who are most likely to be enrolled in learnerships and the small sample sizes means that these overestimates at the sample level are magnified once scaled-up to the aggregate level. The second is that actual numbers of enrolments in learnerships have increased since the HSRC study.

4.2 What characteristics are associated with participating in a learnership?

The first question we ask is whether those who participate in learnerships are different from those who do not and what characteristics are associated with participating and completing a learnership? The HSRC study suggests that learners may have different characteristics to those in the general population but they do not systematically compare the two groups. In Table 2 we investigate whether those who have enrolled in a learnership are different in terms of age, gender, and education.

A robust finding is that those with matric (completed grade 12), the South African school leaving certificate, are more likely to participate in, and complete a learnership compared to those who have not completed secondary school. The size of the effect varies by 2.3 percentage points for enrolling and completing a learnership during the 2009–11 period to 5.8 percentage points for ever participating in a learnership. This relationship between education and learnerships is despite the fact that learnerships are, at least in theory, available to those with less than grade 12 and that Visser and Kruss (2009) show that approximately two-thirds of their sample are enrolled in learnerships with the NQF levels less than matric. There may be a number of reasons why our results differ. One may be that enrolments have changed since 2007 and that now fewer learnerships are offered for those with lower levels of education. The lower likelihood of becoming employed for these individuals, when compared to other higher level learnerships, as shown by Visser and Kruss (2009), could be a factor contributing to that. The second reason may be that these types of learnerships are concentrated in geographical areas where the participants in the LMES are not drawn from. The third is that those who take part in these types of learnerships are less likely to report them as learnerships. At this stage it is difficult to disentangle which of these explanations are correct. What this data does illustrate is that, certainly in this sample, learnerships are not undertaken by the least educated, who arguably could be the most in need of this type of intervention.

Table 2: Characteristics associated with participating in a learnership, OLS regressions

	(1) Ever enrolled in learnership	(2) Ever completed learnership	(3) Enrolled and completed learnership (2009-11)
Age	-0.000854 (0.00239)	0.00424** (0.00184)	-0.00183 (0.00156)
Male	0.00141 (0.00721)	-0.00138 (0.00557)	-0.00597 (0.00471)
Matric	0.0576*** (0.00823)	0.0336*** (0.00636)	0.0227*** (0.00538)
Wage voucher experiment	0.000793 (0.00704)	0.00367 (0.00545)	-0.00446 (0.00460)
2011 wave	0.0489*** (0.00743)	0.0424*** (0.00574)	-0.00189 (0.00481)
Observations	4,118	4,118	4,464
R-squared	0.058	0.048	0.061

Note: Standard errors in parentheses, sampling cluster controls included but not reported; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: Authors' calculations.

There is no evidence that learnership participation differs by gender or age and no indication that individuals who were part of the wage subsidy voucher experiment discussed earlier were more likely to enrol in a learnership. The data does indicate that older individuals in the sample were more likely to have completed a learnership. This is expected since many of the younger individuals enrolled in learnerships may still be busy with them.

4.3 Are learnerships associated with a higher probability employment and better labour market outcomes?

The key question to answer in order to understand whether learnerships are an effective intervention to get young people into jobs is whether those who have undertaken a learnership are more likely to be employed. In order to do this we use two analytical approaches. The first is to estimate the following specification using ordinary least squares (OLS):

$$Employment_{it} = \alpha_t + \beta_1 Learnership_i + \beta_2 Learnership_i \times 2012 + X'_{it} \delta + \varepsilon_{it}$$

where: $Employment_{it}$ is a dummy variable which captures whether the individual (i) is in wage employment during period t ; α_t is a constant term which varies with time; $Learnership_i$ is a dummy variable which captures whether the individual participated in and completed a learnership between 2009 and 2011; $Learnership_i \times 2012$ is an interaction variable between completing the learnership and the 2012 round of the survey; X'_{it} is a vector of control variables including gender, age, education, and controls for the area in which the individual was sampled; and ε_{it} is a standard error term.

The coefficient estimates of interest are β_1 , which measures the relationship between learnerships and the probability of being in wage employment, and β_2 , which measures whether this relationship continues into 2012.

The second approach is a propensity score matching (PSM) method which balances the covariates between a treatment (in this case learnership) group and a control group based on their predicted probabilities of being in the treatment group (Rosenbaum and Rubin 1983). Essentially this technique creates an observationally similar group of individuals to serve as a control group for those who enrolled in a learnership and then compares the outcomes between these two groups. We use a set of characteristics for the individuals obtained from the 2009 round of the survey which pre-dates their participation in a learnership. These characteristics are:

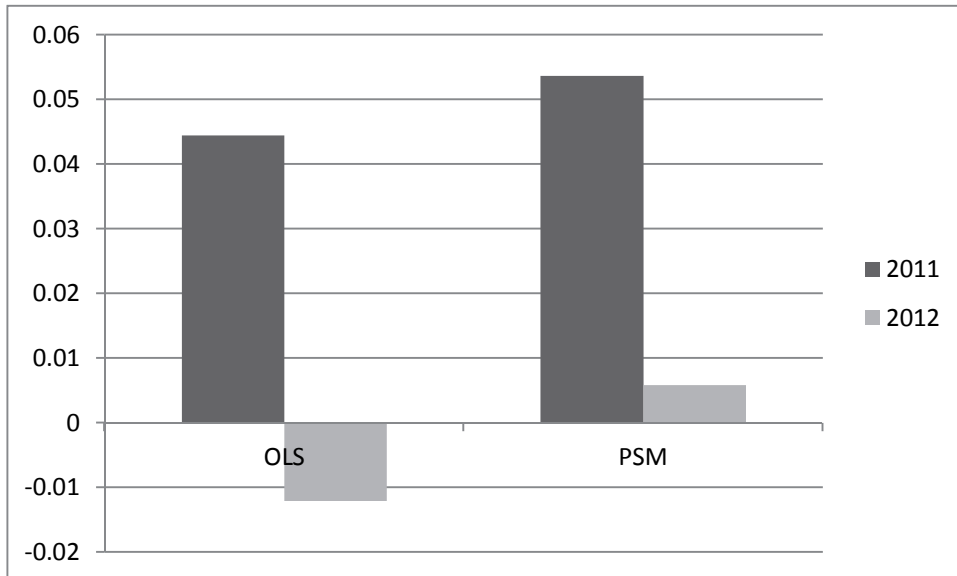
- their employment in 2009
- gender
- education level
- age
- how many earners they lived with in 2009 (to proxy for connection to the labour market)
- the province they were sampled in
- whether they were sampled from a Labour Centre database
- and whether they took part in the wage subsidy voucher experiment.

Individuals are matched using a kernel matching method and only one individual is not matched since they differ substantially from the others.

The results obtained from both methods are similar (Table 3 presents the OLS regression results, Table 4 the first stage of the PSM method, and Table 5 presents the average differences in outcomes between the matched groups). These differences are summarized in Figure 1. Although both methods indicate an effect of an increase in employment probability by 4-5 percentage points in 2011, neither of these estimates are significant at the 10 per cent significance level. Both methods also indicate that by 2012, at least one year after completion of the learnership, those who completed a learnership are no more likely to be in wage employment

compared to others. This indicates that learnerships have no impact on employment probabilities except for during and potentially immediately after completion of the learnership.

Figure 1: The difference in employment probabilities between those who participated in and completed a learnership between 2009 and 2011



Source: Authors' calculations.

A change in the probability of being employed is only one potential way to measure the success of a learnership for an individual's perspective. In order to investigate other aspects of success we consider three other outcomes: whether (1) the individual reports being happy in their job; (2) whether they have had any promotions; and (3) their monthly earnings. These results, presented in Table 6, indicate that there is a relationship between happiness in the job and completion of a learnership although this relationship diminishes with time. There is no evidence that undertaking a learnership increases the probability of being promoted and there is some evidence that those who completed a learnership may have higher levels of earnings in 2012, although this estimate is not significantly different from zero. Taken together, these results indicate that the benefits of a learnership to an individual are relative short term.

Table 3: Learnerships and wage employment, OLS regressions

	(1)	(2)	(3)	(4)
Ever enrolled in learnership	0.186*** (0.0321)			
Ever completed learnership		0.0893** (0.0417)		
Enrolled and completed I learnership (2009-11)			0.0190 (0.0468)	0.0445 (0.0622)
Enrolled and completed learnership (2009-11) X 2012				-0.0566 (0.0910)
Age	0.0229*** (0.00488)	0.0224*** (0.00490)	0.0223*** (0.00486)	0.0223*** (0.00486)
Male	0.104*** (0.0147)	0.105*** (0.0148)	0.112*** (0.0147)	0.112*** (0.0147)
Matric	0.0997*** (0.0169)	0.107*** (0.0169)	0.105*** (0.0168)	0.105*** (0.0168)
Wage voucher experiment	0.0490*** (0.0144)	0.0489*** (0.0145)	0.0512*** (0.0143)	0.0511*** (0.0143)
2011 wave	0.0352** (0.0153)	0.0405*** (0.0153)	0.0337** (0.0151)	0.0322** (0.0152)
Observations	4,118	4,118	4,223	4,223
R-squared	0.071	0.065	0.063	0.063

Note: Standard errors in parentheses, sampling cluster controls included but not reported; *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' calculations.

Table 4: Probit estimates of determinants of participation in a learnership, first stage of PSM

	(1)	(2)
Wage voucher experiment	-0.0547 (0.117)	-0.0873 (0.123)
Employed in 2009	-0.261 (0.236)	-0.687* (0.364)
Male	-0.00992 (0.118)	-0.0462 (0.124)
Age	-0.0350 (0.0403)	-0.0313 (0.0422)
Number of individuals employed in household in 2009	0.0143** (0.00678)	0.0132** (0.00668)
Matric	0.644*** (0.192)	0.511*** (0.184)
Labour Centre sample	0.330*** (0.123)	0.365*** (0.130)
KwaZulu-Natal	-0.600*** (0.209)	-0.553*** (0.213)
Limpopo	-0.397*** (0.137)	-0.410*** (0.143)
Constant	-1.609 (0.982)	-1.513 (1.062)
Observations	2,358	2,106

Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' calculations.

Table 5: Impact of a learnership on the probability of being in employment, PSM

	(1)	(2)
Average treatment effect on the treated (ATT)	0.0768 (0.0629)	0.00532 (0.0687)
Observations	2,358	1,865

Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' calculations.

Table 6: Other measures of success and learnerships, OLS regressions

	(1) Happy in job	(2) Promotion	(3) Ln (monthly earnings)
Enrolled and completed learnership (2009-11)	0.300*** (0.0887)	-0.0558 (0.0487)	-0.0401 (0.140)
Enrolled and completed learnership (2009-11) X 2012	-0.163 (0.145)	-0.00932 (0.0798)	0.285 (0.242)
Observations	1,728	1,728	1,667
R-squared	0.063	0.051	0.133

Note: Standard errors in parentheses, sampling cluster controls included but not reported, regressions also control for age, gender, matric, wage subsidy voucher and year; *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' calculations.

5 Learnerships and firms

The funding for, and implementation of learnerships happens at a firm level. It is therefore important to consider how the costs and benefits of the programme differ across firms of different characteristics. To do this we use firm level data collected by the World Bank in 2007/8 as part of their Investment Climate Assessment Survey. This survey collects information on firm characteristics including output, labour costs, employment, and training from predominantly manufacturing firms in the major metropolitan areas in South Africa. With this data we can examine whether certain firms are likely to contribute more to learnerships through payroll taxes and which types of firms are likely to benefit most from SETA-accredited training. By so doing we can get an indication of how the costs and benefits of the programme are distributed across firms.

5.1 Do labour costs, and therefore the relative cost of a payroll tax, differ across firms?

To ascertain whether labour costs differ by firm characteristics we regress labour costs as a proportion of firm level output on employment, the capital-labour ratio, the proportion of non-production workers employed (a proxy for high-skilled workers), and sector and location controls. Table 7 shows these results. Smaller firms have a significantly larger share of labour costs to output than larger firms even after controlling for capital intensity, the skills composition of their workforce, and their sector and location. This relationship is of relatively large magnitude—a firm which employs 100 people has 2 percentage points (9 per cent) lower labour costs as a share of output than a ten employee firm, and the difference between a 500 employee firm and a ten employee firm is 3.8 percentage points (15 per cent). Payroll taxes add 1 per cent to labour costs and thus fall proportionally more on smaller firms given these firms have higher relative labour costs. Although the magnitude of this effect may appear small it is a retrogressive tax on smaller and more labour-intensive firms and changes relative prices, making labour more expensive relative to capital. This raises the costs of smaller firms and makes it more difficult for them to compete against larger firms. It also encourages the substitution of labour with capital if this is possible.

Table 7: Labour costs as a proportion of output, and firm characteristics, OLS regressions

	(1)	(2)	(3)	(4)
Ln (employment)	-0.0113*** (0.00309)	-0.0109*** (0.00311)	-0.00886*** (0.00301)	-0.00970*** (0.00308)
Ln (capital/employment)			-0.0181*** (0.00247)	-0.0172*** (0.00255)
Non-production workers/employment		-0.0321 (0.0287)	-0.0275 (0.0277)	-0.0173 (0.0288)
Sector controls:	No	No	No	Yes
City controls:	No	No	No	Yes
Observations	680	680	677	672
R-squared	0.019	0.021	0.093	0.121

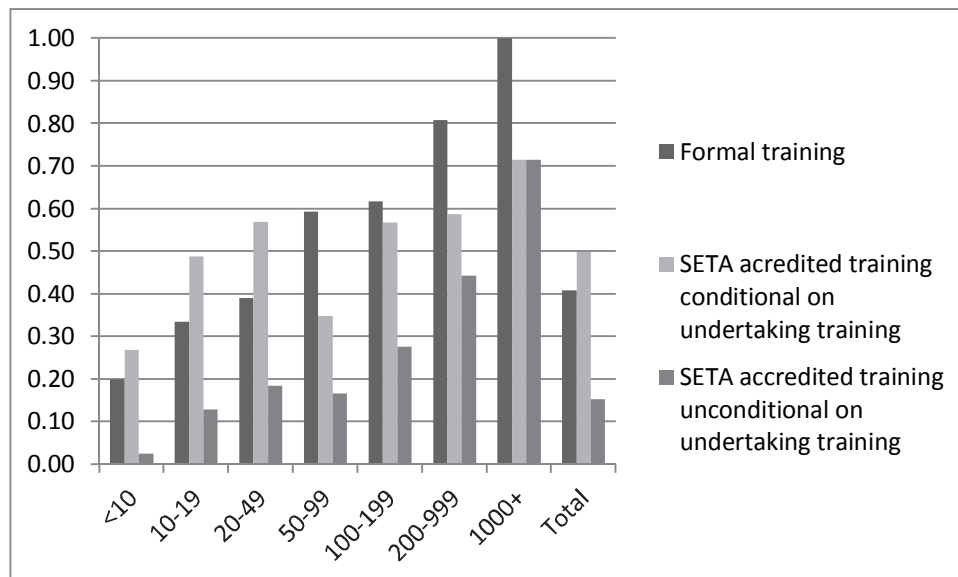
Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' calculations.

5.2 Are certain types of firms more likely to engage in learnerships than others?

Smaller firms pay a higher proportion of their output to fund learnerships but this would balance out if they were more likely to engage in learnerships or other SETA-accredited training and thus claim some of these funds back. Figure 2 shows that this is not the case—larger firms are much more likely to engage in training in general and SETA-accredited training in particular. Only 13 per cent of firms in the 10-19 employee category partake in SETA-accredited training, compared to 44 per cent in the 200-999 employee group. Furthermore, smaller firms are much less likely to engage in SETA-accredited training even if they engage in training. There are a number of reasons why SETA training favours larger firms. The first is that smaller firms may not have the resources to implement or administer these programmes. The fixed costs associated with these programmes may require a certain sized firm to achieve economies of scale. The second is that the content or recognition of learnerships and other SETA training programmes may be biased in favour of large firms. This is likely to be the case where business organizations and organized labour, which predominantly represent larger firms, are strongly involved with the SETAs.

Figure 2: Proportion of firms engaged in training



Source: Authors' calculations.

As the individual data illustrates, those at the bottom of the skills distribution are the least likely to enrol in learnerships. The firm data also indicates a bias against lower skilled workers. Firms with higher proportions of production workers,⁴ a proxy for low-skilled workers, are less likely to engage in SETA-accredited training. A firm where 65 per cent of its workforce are production workers (this is approximately the 25th percentile in the sample in terms of the ratio of production workers to total employment) is approximately 6 percentage points more likely to train than one with 85 per cent production workers (the 75th percentile).

One further argument for SETA-accredited training is that it may help firms overcome a shortage for skills and thus expand employment. There is no indication in this dataset that firms

⁴ Production workers are those who are actually involved in the production process and does not include management or support workers.

which undertake SETA-accredited grow employment faster than those that do not, once the initial level of employment is controlled for. These results are reported in Table 8.

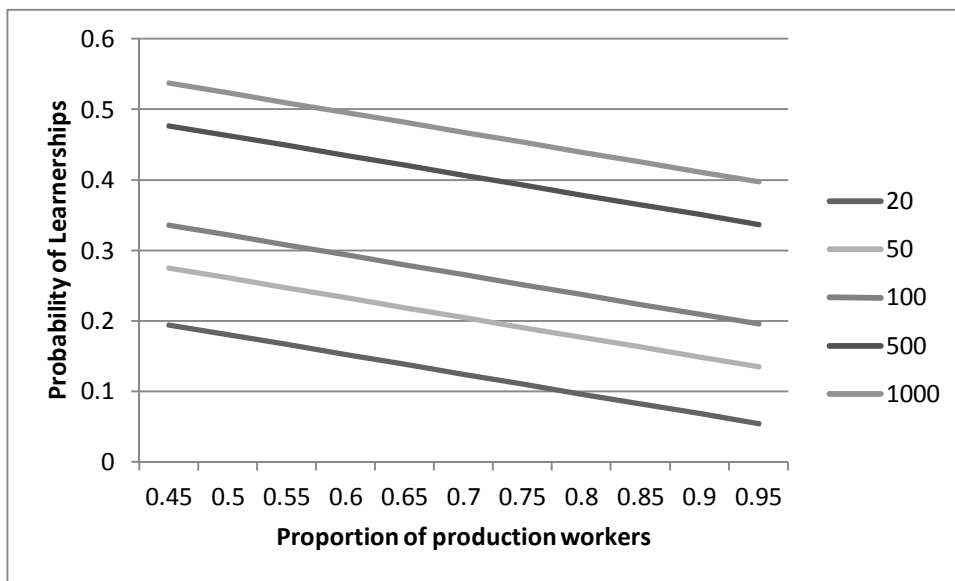
Table 8: Change in Ln (total employment) between 2005 and 2008 and SETA-accredited training, OLS regressions

	(1)	(2)
Ln (total employment ₂₀₀₅)	-0.0473*** (0.00764)	-0.0624*** (0.00811)
SETA-accredited training	0.0102 (0.0307)	0.0341 (0.0308)
Constant	0.375*** (0.0245)	0.354*** (0.0525)
Sector controls:	No	Yes
City controls:	No	Yes
Observations	747	746
R-squared	0.053	0.126

Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Source: Authors' calculations.

Figure 3: Predicted probability of engaging in SETA-accredited training by firm size and the proportion of production workers



Notes: Predicted values based on an OLS regression of whether a firm engages in SETA-accredited training or not on ln (firm size) and the proportion of production workers in the total workforce. All coefficient estimates are significant at the 1% level.

Source: Authors' calculations.

These firm level results indicate that the system of funding learnerships is biased against smaller and more labour-intensive firms. In addition to this, it is precisely these types of firms and those with higher proportions of production (low-skilled) workers which are less likely to engage in SETA-accredited training. Small firms are thus disadvantaged twice by the programme—they pay relatively more through the payroll tax and they are less likely to benefit. The design of the

current learnership programme is thus regressive and amounts to a subsidy of training of higher skilled workers in larger firms by smaller more labour-intensive firms. In addition to this redistributive (in the wrong way) aspect, the way the programme is funded through a tax amounting to a fixed proportion of wages changes the relative prices of labour and capital. As Behar (2010) has shown, capital and labour are substitutes in South Africa and an increase in the price of labour, such as caused by this tax, reduces its demand relative to capital. The programme design is thus wrong if it wants to encourage training and employment of the lower-skilled in smaller firms—the type of employment South Africa needs if it is to create jobs for the currently unemployed.

6 Conclusions and lessons for other countries

Africa is likely to face a growing bulge of youth unemployment in the future as the rate of formal job creation does not keep pace with the entry of young people into the labour market (see Filmer and Fox, 2014, for the challenges of youth employment in sub-Saharan Africa). South Africa is already facing this challenge with high and rising rates of youth unemployment. The outcomes of its policies to reduce youth unemployment can thus provide lessons for the rest of the continent.

A potential reason why young people remain unemployed is that they lack the practical skills and work experience required in a job. Uncertainty about the productivity of young people and wages which do not or cannot fall to compensate for this uncertainty results in unemployment. One type of intervention which could overcome this market failure would be a combination of class-based learning, practical training, and work experience. In these types of programmes individuals learn practical and relevant skills, are better able to signal their actual productivity to firms since they are working in an actual firm environment and may also get a certificate upon completion which would signal their abilities to other firms. Firms get subsidized training which may enable them to train individuals in skills specific to the sector or firm and have an opportunity to assess the match between them and a potential employee at a lower cost and with limited costs should the match not work. The TVET programmes of central Europe (including Austria, Denmark, Germany and Switzerland) are often used as the model for these types of interventions (Eichhorst et al. 2012). South Africa's learnership programme provides an example of this type of programme in Africa.

Using data from both a longitudinal survey of young people initially aged 20-24 years and firms in the manufacturing sector we are able to investigate whether those who participate in and complete learnerships are any better off in the labour market than those who do not, and how the costs and benefits are distributed across firms. Our results suggest that there is a selection of people with school leaving certificates (matric) in these learnership programmes and thus those at the lower end of the skills and education distribution may be left out. This might be because firms want the types of skills which require at least secondary school education, it could be that those with matric have other characteristics (such as motivation) which are also associated with applying for a learnership, or it might be that firms use a matric qualification as a sorting mechanism to reduce the number of applicants for a position to a tractable number. Regardless of the reason, these results suggest that those with low education levels are less likely to benefit from the programme which is contradictory from the stated aims of the intervention.

Learnerships do seem to facilitate the transition into jobs, another goal of the programme. Those who complete a learnership are more likely to be in employment directly after completion than those who do not enrol in learnerships but, similar to the research summarized by Eichhorst et al. (2012), this advantage fades with time. We find that, at least within the time period we

surveyed these young people, completing a learnership is not associated with a better job, in terms of income or promotion, compared to those who did not participate.

A major flaw in the learnership system is the way it is funded. Learnerships are administered by SETAs which received funding from a payroll tax on companies. This payroll tax of 1 per cent of wages is regressive since smaller and more labour-intensive firms spend a larger relative proportion on wages than larger firms. In addition to the regressive nature of the tax it also changes the relative costs of inputs making labour relatively more expensive compared to capital and thus encouraging substitution away from low-skilled labour.

Not only do the costs of the programme fall disproportionately on smaller and more labour-intensive firms but these types of firms are also least likely to benefit. Firm size is positively associated with taking part in SETA-accredited training as is the proportion of non-production (higher skilled) workers. The unequal distribution of costs and benefits means that this programme, and SETAs more broadly, act to redistribute resources from smaller to larger firms, from more labour-intensive firms to less, and from lower skilled workers to higher. This is the wrong direction of redistribution of resources required in the South African economy to create jobs for the currently unemployed, most of who are young people.

These results suggest a number of lessons for other African countries hoping to implement programmes of this nature. First, the way the programme is funded matters. Funding these types of interventions through a payroll tax is distortionary—it raises the relative cost of labour and falls most heavily on smaller firms whose labour costs are a larger proportion of output than larger firms. A potentially better way of funding would be from the general tax pool or as a tax incentive for those firms who undertake training of this nature. Second, these types of programmes may be subject to institutional capture by those constituencies, such as larger firms and more skilled workers, who will benefit the most. This is not necessarily a bad thing if these are the types of firms and workers an economy is lacking, or if this reduces the coordination costs which may be associated with programmes of this nature, but these types of firms may be training anyway. Third, these interventions by themselves are unlikely to create the large numbers of new jobs for young people who African economies will need to reduce unemployment and raise incomes significantly. Evidence for South Africa and more broadly suggests that they do facilitate entry into jobs for young people but that this impact wears off relatively rapidly. This suggests that these programmes may be just pushing their participants to the front of the job queue and not creating many new jobs.

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