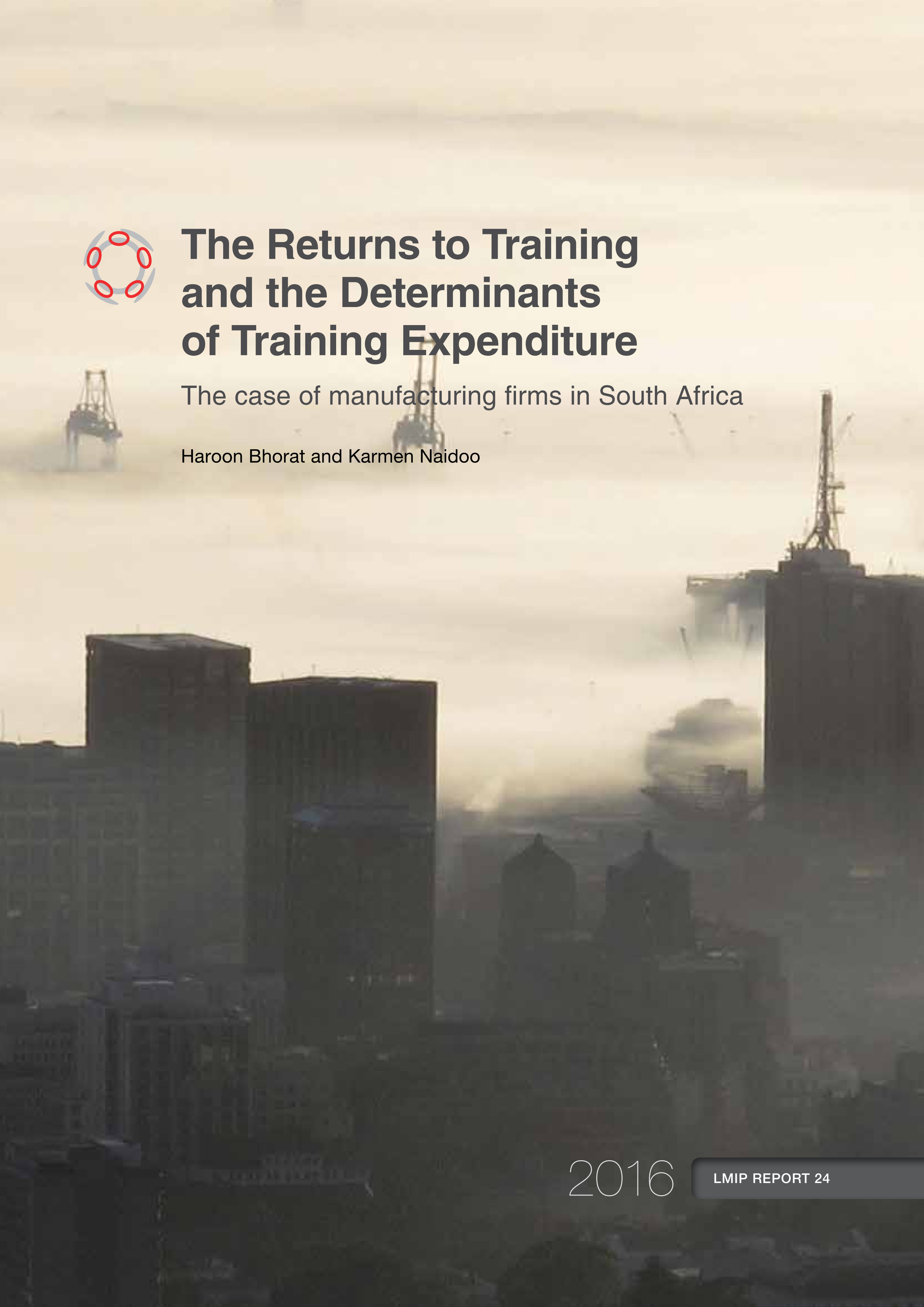

The Returns to Training and the Determinants of Training Expenditure

The case of manufacturing firms in South Africa

Haroon Bhorat and Karmen Naidoo

2016

LMIP REPORT 24

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INTRODUCTION

Human capital has been an important area of research for economic growth and development, spurred on in the economics literature by the development of endogenous growth models. As empirical support, the work of Barro (1997; 2001) also emphasised the significantly positive role of the stock of human capital in economic growth. Furthermore, the earlier work of Becker (1964) was a theoretical breakthrough in linking human-capital accumulation to higher earnings in the labour market. The combination of this work would suggest that individual human capital accumulation – with the goal of improving one's labour market outcomes – could be a key mediating factor between growth and poverty alleviation.

Education, therefore, certainly plays a central role in modern labour markets. Given the existing deficits in the basic education system and unequal access to quality education in South Africa (Spaull 2013; Spaull & Kotze 2015), there is little doubt that improving the quantity and quality of human capital will be beneficial for the growth and development of the domestic economy. In this sense, there is arguably an important role for workplace training to supplement the basic levels of education of those individuals in the labour market who have not been able to access further education, in order to raise their productivity. In addition, given the positive reinforcing relationship between general and specific skills (Acemoglu & Pischke 1998), workplace training can assist in providing industry-specific skills for those who have higher levels of general education (diplomas and degrees). Given the potential benefits of raised levels of productivity, firms would then be internally incentivised to provide workplace training.

This report makes use of a unique survey dataset of manufacturing firms in South Africa to investigate the returns to workplace training. This survey was conducted within a broader national project, the Labour Market Intelligence Partnership (LMIP), which has an important aim of building a national labour market intelligence system (discussed further on). The dataset is comprised of employee-level data for about 6 400 employees from 230 firms, across five geographically diverse manufacturing subsectors and firm sizes. We are therefore able to control for a number of individual and firm-level characteristics to assess the average returns to training, the returns to different types of training, as well as the group-specific returns to training. This is a seminal survey that, for the first time in South Africa, provides detailed descriptive and econometric insight into firm training behaviour and the individual returns to training.

In addition, the survey data also includes firm-level data on training expenditure, the rationale for training, the choice of training institutions and the relationship with the regulatory sector skills authorities, which we use to estimate the determinants of training expenditure. This second estimation is interesting in the context of government subsidies for firms that provide training, and allows us to estimate the relationship between the value of the firm subsidy and the level of training by the firm.

The rest of the report is structured as follows: Section 1 provides additional context to this study and situates it within South Africa's labour market policy environment. Section 2 reviews the existing literature on the theory of workplace training and empirical studies that estimate the returns to training. Section 3 outlines the data and methodology. Sections 4 and 5 provide the econometric approach to estimating the returns to training and discuss the results. These sections are followed by Section 6, which discusses the determinants of training expenditure. Section 7 concludes the report.

1. POLICY CONTEXT

The survey upon which this report is based was born out of a much larger national project (the LMIP) that involves collaborative work between government, researchers and other key stakeholders and has the overarching aim of working towards a credible institutional mechanism for skills planning and skills development in South Africa. This is an important response to the labour market crisis that South Africa currently faces: an unemployment rate of 25% (narrow definition, StatsSA QLFS 2014), underpinned by a skills-biased labour demand trajectory (Bhorat, Goga & Stanwix 2014), a weak basic education system as already referred to above, and a low-growth economic environment. The main government body responsible for this project is the Department of Higher Education and Training (DHET). The fundamental thinking behind this initiative is that a credible base of labour market information – importantly, accurate and disaggregated data – can facilitate the type of research that is needed to create labour market intelligence across the many relevant spheres such as the post-schooling system, adult education, workplace training, and so on. In this vein, this particular project is aimed at piloting a unique survey instrument related to workplace training within a sector of the economy to test whether the data collected is of sufficient quality and can lead to the types of insights that are most relevant at the policymaking level. The underlying policy question is whether this survey should be conducted across all the SETAs as an annual or biannual activity going forward.

Currently, in South Africa, public funding for workplace training is facilitated through approximately 21 different Sector Education and Training Authorities (SETAs) that cover different sectors of the economy. The SETA in focus, merSETA, is the authority for manufacturing, engineering and related services – predominantly automobile and motor parts manufacturers and sellers, as well as metal-related industries. The main activities of each SETA are: i) to collect firm-level data on skills needs and training activities; ii) to collect skills levies from firms, and distribute training grants to firms and bursaries to learners; and iii) to advise firms on which accredited training institutions can meet their training needs. SETAs often engage with industry organisations and firms on issues related to skills and training. The current challenges are that the data collected by the different SETAs varies in quality, quantity and collection methodology. This makes it difficult to compare results across SETAs and questions the validity of results of those SETAs with poor quality data.

Therefore, this project is focused on the first main activity, namely on improving the quality of data that the SETAs currently collect from firms, and an important innovation has been to collect individual employee-level data in contrast to firm-level data as has historically been done. This report is thus the outcome of this survey process, and has the important task of illustrating the type of analysis that can be conducted with this better-quality, disaggregated data. We do this through descriptive statistics, asking the important research question on measuring the private return to training, as well as trying to uncover the determinants of firm-level training expenditure. In this sense, we have merged what is of academic and research interest about this topic with the desired outcomes from the policymakers' perspective.

National enterprise surveys are relatively more common in developed countries, with the United States (US) acting as a benchmark. In addition, the World Bank conducts enterprise surveys in many developing countries, and we have drawn on that methodology here. The work on the survey methodology and process has taken the form of written pieces and discussion forums within the LMIP project and will not be discussed here in depth, since this report is focused on the outcomes of the work. As such, the report proceeds with a literature review of the main topic at hand, the dynamics of the returns to workplace training, followed by an outline of the survey methodology, descriptive results and econometric estimation, before concluding with policy recommendations.

2. LITERATURE REVIEW

The seminal work of Becker (1964) forms the foundation of the large body of literature on workplace training and its relationship with firm-level productivity and employees' wages. An important pillar of Becker's work is the distinction between general training and firm-specific training, in that those who acquire general skills can productively be employed by other firms, whereas specific skills increase the productivity of the employee only for the current employer.

On this foundation, Becker's theory argues that firms have no incentive to pay for general training in a competitive labour market. However, workers do – and will therefore – accept wages below their productivity level during periods of training. This goes some way towards explaining the apprenticeship system that was prevalent some centuries ago in Europe. On the other hand, since firms will benefit from the productivity increases of firm-specific training, they have an incentive to share some (or, in some cases, bear all) of the costs of training.

However, in the past two decades, there has been evidence to contest Becker's standard theory of training (Acemoglu & Pischke 1999). The first strand of this evidence relates to the German apprenticeship system (predominantly general training), where careful calculations suggest that, in some cases, German apprentices were paid competitive wages in the 1990s, wages that reflected their marginal productivity. The second relates to the American temporary-help industry in which the temporary-help firms offered general training to all workers (who took up training voluntarily) and absorbed all the monetary costs.

An underlying factor that questions Becker's theory is that, in practice, skills are rarely 'firm-specific'. At best, they are industry-specific and general in the sense that they are valued by all firms within the same industry. Why do firms, then, still decide to train employees? Acemoglu and Pischke (1998) build on Becker's earlier work to develop a model that answers this question. To elucidate briefly: in a less than perfectly competitive labour market, profits from skilled and unskilled workers are no longer equal, so firms prefer more highly skilled workers, since they generate higher profits. The imperfect competition in the labour market induces a compressed wage structure to allow for this. The sources of wage compression are typically ascribed to matching and search frictions, asymmetric information between the current employer of the worker and other firms in the economy, asymmetric information between the worker and the employer regarding worker effort, as well as the impact of labour market institutions such as minimum wages, strong unions, the availability of unemployment benefits, and high firing costs. Finally, another important reason for the existence of firm-sponsored general training is that specific and general skills interact in a way that enhances the benefits of training. In essence, general and specific skills are complements, which encourages firms to invest in general training, as it is likely to increase the value of specific skills (Acemoglu & Pischke 1998; Bishop 1996; Stevens 1994).

In addition, not only does the type of training impact on employee wages, but so do the individual characteristics of the trainee. Heckman (1999) points out that the impact of training on earnings is dependent on the initial level of education and work experience of the trained employee. His results show that the effect of training on productivity is larger for more highly educated employees.

Regarding the impact of training, the empirical literature is divided into two broad categories. The first aims to assess the impact of training on firm-level productivity and profits using firm-level data, and the second focuses on the impact of training on wages using employee-level data. This study contributes to the second strand of literature. The theory discussed above would suggest that the returns to training are related to the specificity of the training but, in practice, it is not significant to distinguish between the two, as often workplace training comprises both types. Thus, studies that aim to estimate the impact of training on wages typically model training incidence and not the type of training. Most of this literature emanates from the US and Europe.

Barrett and O'Connell (2001) use firm-level survey data from Ireland and aim to assess the impact of training on firm-level productivity growth, whilst distinguishing between general and specific training. Controlling for a range of firm-level characteristics, they find that only general training has a significantly positive impact on firm-level productivity growth, whereas specific training has no such effect. There are other studies that support this result of a positive impact of training on firm-level productivity (Bartel 1994; Boon & Van der Eijken 1997), and some that go further in concluding that the share of returns to training are relatively higher for the worker (in wages) than the firm when training is general, and the opposite when training is specific (Ballot, Fakhfakh & Taymaz 2006). In contrast, using a panel dataset of Belgian firms across different sectors for the period 1997–2006, Konings and Vanormelingen (2010) find that training boosts the marginal productivity of employees by more than it increases wages – where the wage premium is 12%.

Interestingly, when controlling for trainee heterogeneity, the wage premium is reduced but remains significant. Finally, they find significant heterogeneity in the impact of training across different sectors: sectors such as chemicals, rubber and plastics had the relatively largest training effects. Consistent with these results, Conti (2005), using a panel dataset of firms across various sectors for the 1996–1999 period, found that training significantly boosted firm-level productivity but had no such effect on wages in Italy.

Krueger and Rouse (1998) examine the impact of the same workplace education programme (general training) on employee earnings in two different large firms – one manufacturing firm and one services firm. Estimating a fixed-effects model using their pre- and post-training data, they find a small positive and significant impact of the training programme on earnings in the manufacturing firm, and no significant (although positive) impact in the services firm. One of the few African studies on this topic is that by Kahyarara and Teal (2008), which is based on a dataset of Tanzanian firms, with the main aim of comparing the returns to academic education and vocational training, with a cursory focus on the returns to on-the-job training. They find that, in large firms, there is a relatively larger positive return to current training and short training courses (as opposed to past training) compared with small firms, although with no significance.

In essence, the literature shows a range of different results, with only a few common threads. These are, firstly, that training typically has a small positive impact on wages and productivity, but not always a significant one. Secondly, some forms of training (particularly general training) seem to have a greater effect for workers. Lastly, firm-level characteristics (sector and size) are important in determining whether there are significant returns to training for employees.

3. SURVEY METHODOLOGY AND APPROACH

There were two main phases to this project. First, we conducted a pre-pilot in order to test the survey instrument as well as the survey process, and, second, we conducted the full merSETA Survey Pilot. For both phases, we subcontracted a survey company to conduct the fieldwork. Both the planning and the executive stages of this process involved substantial engagement between ourselves, merSETA, industry organisations and government.

The pre-pilot phase ran from the month of May 2014. In this phase, we randomly selected 100 firms from the Metal subsector in order to test the instrument. An initial email was sent to each firm by the survey company, explaining the nature of the survey, with letters attached from the Director-General of the Department of Higher Education and Training (DHET) and from the Director of the Development Policy Research Unit (DPRU). The survey instrument was sent to the firm with this same email. The survey company then made follow-up calls to collect the data, making a maximum of six calls.

The pre-pilot had a 25% response rate and we were able to use the data to improve upon the survey instrument as well as the survey process. For example, given that the question about employee-level salaries was poorly answered, we changed the answer format to salary bands as opposed to actual salaries. There were also changes in the survey process. The fieldworkers found that sending an initial email and then following up with a phone call was ineffective, as the emails often went unread.

Therefore, for the full survey pilot (second phase) that ran from 1 July 2014 to 22 September 2014, the survey company initiated the relationship with the firm through a phone call and immediately followed up with an email containing all the relevant information and the survey instrument. Follow-up calls were then made to collect the data. These decisions to alter the survey instrument and approach were made after extensive discussion between the DPRU, the merSETA and the survey company.

Sampling

Our firm-level population was taken from the merSETA database and included all those firms for which merSETA had information on the chamber, firm size and updated contact details (3 600 firms). We sampled 100 of the Metal chamber firms for the pre-pilot and the remainder for the full survey pilot.

We stratified the sample by subsector and firm size. MerSETA is comprised of five main subsectors into which all firms are organised: Metal and Engineering, Auto Manufacturing, Motor Retail and Component Manufacturing, Tyre Manufacturing, and Plastics. There are three firm-size categories: small (0–49 employees), medium (50–149 employees) and large (150+ employees). Within this stratification framework, we did not conduct random sampling and therefore we caution extending these results to the entire merSETA population of firms, given the sample bias.

Nonetheless, given the difficulty in accessing employee-level data in many countries around the world, it is not uncommon in the literature to find

Table 1: Summary of survey responses

	Survey sample A (%)	Survey sample B (%)	merSETA population (%)
Subsector			
Auto	5	5	6
Metal	50	52	54
Motor	32	32	29
Tyre	5	2	1
Plastics	8	8	9
Firm size			
Small	66	61	56
Medium	24	24	28
Large	10	14	16

studies that use small sample-data sources or firm-level case studies, which can still offer interesting insights on the topic. The advantages of this data is that we have detailed information on the type of training activity (name, level of advancement and length), as well as individual and firm-level characteristics that are needed as controls in order to isolate the training effect.

Response rate

This was a fully voluntary survey, with firms receiving no incentive to respond. The survey questionnaire is comprised of two distinct parts. The first part (A) requires employee-level information on individual characteristics and training activities for the past year. The second part (B) requires firm-level information on the firm's rationale for training, the advantages and disadvantages of training, vacancies, the relationship with the sector training authority, and training expenditure, among other financial information. Given the relative difficulty of Part A, we received substantially higher responses to Part B (see Appendix A for detailed tables on the sample structure).

We received 241 responses to Part A (6% response rate), which translated into 6 422 employees. Tyre firms are overrepresented in the sample, since they are a new and very small subsector. Furthermore, small firms are over-represented and large firms are under-represented in this sample. This could indicate the additional level of difficulty amongst large firms in terms of providing employee-level information.

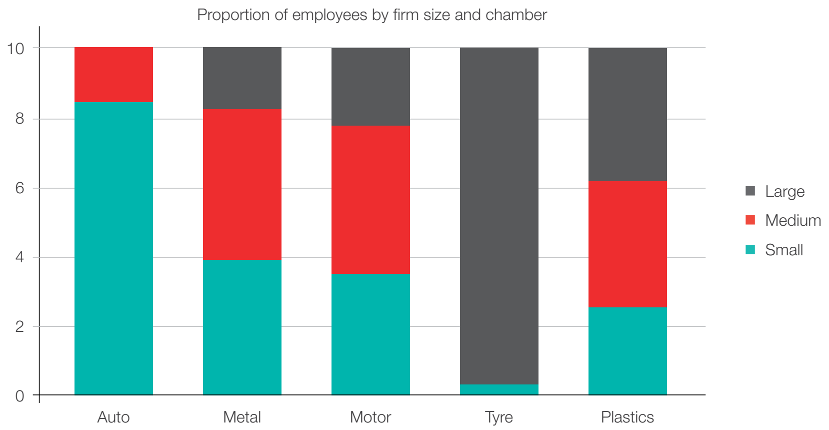
Regarding Part B, we received 686 responses from firms, constituting an 18% response rate. The subsectors are well represented in our sample and, again, small firms are over-represented and large firms are under-represented. There were 123 firms that answered both parts of the survey questionnaire.

4. EMPLOYMENT, WAGES AND TRAINING AT THE FIRM LEVEL: A DESCRIPTIVE OVERVIEW

The total number of employees in our database is 6 422, with just over 40% employed in the Metal chamber. The Motor and Tyre chambers employ almost all of the remaining employees.

The average number of employees per firm shows that firms are, on average, largest in the Tyre chamber and smallest in the Auto one. In fact, we see that the market structures differ considerably between the subsectors. Figure 1 makes it clear that employment in the Tyre chamber is dominated by large firms, and that employment in automobile manufacturing has its source largely in small firms. In the Metal and Motor chambers, small and medium firms together provide the majority of employment, whereas, in Plastics, employment is more evenly spread among firms of different sizes.

Figure 1: Employment by subsector and firm size



Source: merSETA Labour Market Survey, 2014; own calculations

Table 2: Employment overview by chamber

	Auto	Metal	Motor	Tyre	Plastics	Other	Total
Employees (n)	131	2 620	1 726	1 416	478	51	6 422
Employees (%)	2%	41%	27%	22%	7%	1%	100%
Firms (n)	12	116	75	11	19	4	237
Firms (%)	5%	49%	32%	5%	8%	2%	100%
Mean employees per firm	11	23	23	129	25	13	27

Source: merSETA Labour Market Survey, 2014; own calculations

Table 3 provides an overview of employee characteristics within each chamber. This sector is overwhelmingly male-dominated, with women comprising at most 28% of employees in the Motor subsector and only 10% in the Tyre subsector. Women have greatest representation in the Motor and Plastics subsectors. Africans make up just under half of the total number of employees in the total sector. Coloured workers make up larger than average representation in the Auto and Plastics subsectors, and likewise for Indians in the Auto, Tyre and Plastics subsectors. As expected, the bulk of the workforce in this sector falls between the ages of 25 and 54, and, in particular, 45% are between the ages of 25 and 39. The Auto and Motor subsectors are particularly youth-intensive employers, whereas Tyres and Plastics have a larger proportion of workers who are aged 40 and over.

Gauteng and the Eastern Cape account for almost two-thirds of the employment in the merSETA labour market, followed by the Western Cape, in which 17% of the employees work.[1] This is due to the Metal and Motor subsectors being concentrated in Gauteng, whereas the Auto and Tyre subsectors have a significant presence in the Eastern Cape, with the plastics industry located primarily in the Western Cape.

1 Regional data is not tabulated.

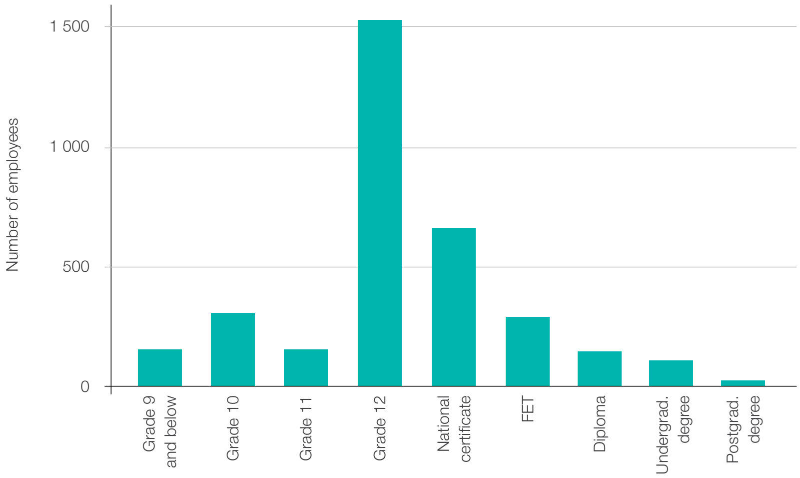
Table 3: A snapshot of the merSETA labour market by subsector

	Auto	Metal	Motor	Tyre	Plastics	Other	Total
Gender							
Ratio of men to women	5.0	4.5	2.6	9.2	2.7	7.5	4.1
Race							
Ratio of African to White	1.2	1.5	1.1	4.5	2.4	0.3	1.4
Ratio of African to Coloured	2.0	5.4	11.5	36.0	1.0	0.3	4.4
Ratio of African to Indian	3.2	35.9	4.5	6.0	4.5	–	8.9
Age (%)							
16–24	16.8	7.1	9.9	6.5	6.5	5.9	7.8
25–39	44.3	43.5	51.0	43.1	41.6	45.1	45.3
40–54	29.8	29.5	29.0	34.3	25.7	33.3	30.2
55–65	6.1	10.3	7.2	15.7	8.2	15.7	10.5
65+	3.1	9.1	1.9	0.2	18.0	0.0	5.7
Youth intensity	1.15	0.95	1.15	0.93	0.91	0.96	1.00

Source: merSETA Labour Market Survey, 2014; own calculations

Notes:
1. Youth intensity is calculated as the ratio of the proportion of employees aged 16–39 in each subsector to the total sector average of the proportion of employees in this age band.

Figure 2: Highest educational attainment



Source: merSETA Labour Market Survey, 2014; own graph

In summary, a typical employee in the merSETA labour market would be an African male, between the ages of 25 and 39, employed in Gauteng, with a Grade 12 national certificate. This typical profile does not vary much between subsectors, except for Plastics where the typical employee would be either an African or Coloured male, between the ages of 25 and 39, employed in the Western Cape, with a Grade 12 national certificate.

In terms of the education profile of the sector, of all employees in our database, 45% of them have completed a matric schooling qualification as their highest level of education. Just over 16% of all employees have attained an FET (further education and training) qualification, a diploma or a degree.

To look at the skills intensity of each chamber, we restrict the sample to those employees who have at least obtained a matric certificate. Clearly, this is a labour market that draws in a large number of Grade 12 (high school) completers, which suggests that training at the workplace is a key component of skills development in these sectors.

Given this skills profile of the labour market, it is very much a semi-skilled-intensive labour market. There is, of course, some variation amongst the subsectors. We see that the Metal subsector has the highest skills intensity (23% of workers have an FET qualification, diploma or degree), followed by Plastics and Auto (14% of workers have an FET qualification, diploma or degree). The Tyre subsector

Table 4: Skills intensity by subsector

	Auto	Metal	Motor	Tyre	Plastics	Total	National
Grade 12 only	76.6	50.6	78.4	3.8	75.7	65.9	69.0
National certificate	9.4	26.4	10.3	88.5	10.0	18.0	7.0
FET qualification	4.7	7.9	5.1	3.8	1.4	5.9	3.0
Diploma	7.8	8.6	2.6	0.0	4.3	5.2	12.9
Undergraduate degree	1.6	4.9	3.0	3.8	5.7	3.9	7.35
Postgraduate degree	0.0	1.6	0.5	0.0	2.9	1.1	0.8
Skills intensity ratio	0.87	1.43	0.70	0.48	0.89	1	

Source: merSETA Labour Market Survey, 2014; own calculations

Notes:

1. Skills intensity ratio is calculated as the proportion of employees with an FET qualification and above in each subsector to the average for the entire sector.

2. The national data refers to the manufacturing sector as defined by Statistics SA (StatsSA) and the data is sourced from the Quarterly Labour Force Survey (QLFS), 2012.

Table 5: Monthly mean wage per subsector (rands 2013)

	Mean	Ratio to total average wage	Ratio to national average manufacturing wage
Auto	9 328.90	0.89	0.71
	(7 892.12)		
Metal	10 585.73	1.01	0.80
	(11 166.74)		
Motor	11 586.50	1.10	0.88
	(10 733.5)		
New Tyre	6 169.17	0.59	0.47
	(5 204.79)		
Plastics	6 742.87	0.64	0.51
	(6 577.51)		
Total	**10 513.50**	**1.00**	**0.80**
	(10 527.16)		

Notes:

1. Standard deviations are shown in parenthesis.

2. National monthly average manufacturing wage used is R13 155, from the Quarterly Employment Survey, August 2013.

3. The merSETA labour market does not perfectly align with StatsSA's national sectoral classification of the manufacturing sector. In particular, subsectors such as Textiles, Clothing and Footwear, as well as Chemicals, fall within the manufacturing sector in national survey data, but are not included in our merSETA survey of firms.

has the lowest skills intensity. There are, surprisingly, very few FET graduates in this labour market, which could be associated with either a perceived low quality of FET qualifications or the fact that firms in this subsector prefer to provide their own training and therefore do not require large numbers of workers with post-schooling qualifications.

Following from this, we would expect the Metal, Motor and Auto subsectors to be the highest-earning sectors of this SETA labour market. Whereas they are, given that Metals is relatively more skills-intensive, it is surprising that Motor subsector workers earn more, on average, than Metal workers.

Figure 3 provides some insights into these differences (using salary bands). We see a wider income distribution in the Motor subsector compared with the Metals subsector, which may be driving these average differences. Tyre and Plastics display a considerably narrower distribution of income than the other subsectors.

To explore how this distribution of income relates to wage inequality within the sector, we calculate the ratio of the top 20% of incomes to the bottom 20% of incomes. Figure 3 shows that the average of the top 20% of wages in the sector is seven times the average of the bottom 20%. Consistent with Figure 2 above, that ratio is highest in the Motor subsector and lowest in the Tyre subsector. According to data from the World Bank (World Development Indicators 2014), the ratio of the top 20% of incomes in South Africa nationally is *25 times* that of the bottom 20% of incomes. Using the 2013 Labour Market Dynamics Survey data, this ratio for the national Manufacturing sector is 41 times. In that context, it would seem that the merSETA labour market is relatively more equitable than the national average.

Another way to disaggregate earnings is by occupation. In the merSETA sector, we see a pattern that is expected: occupations requiring a more advanced level of skill are compensated more highly.

Figure 3: Wage distributions by subsector

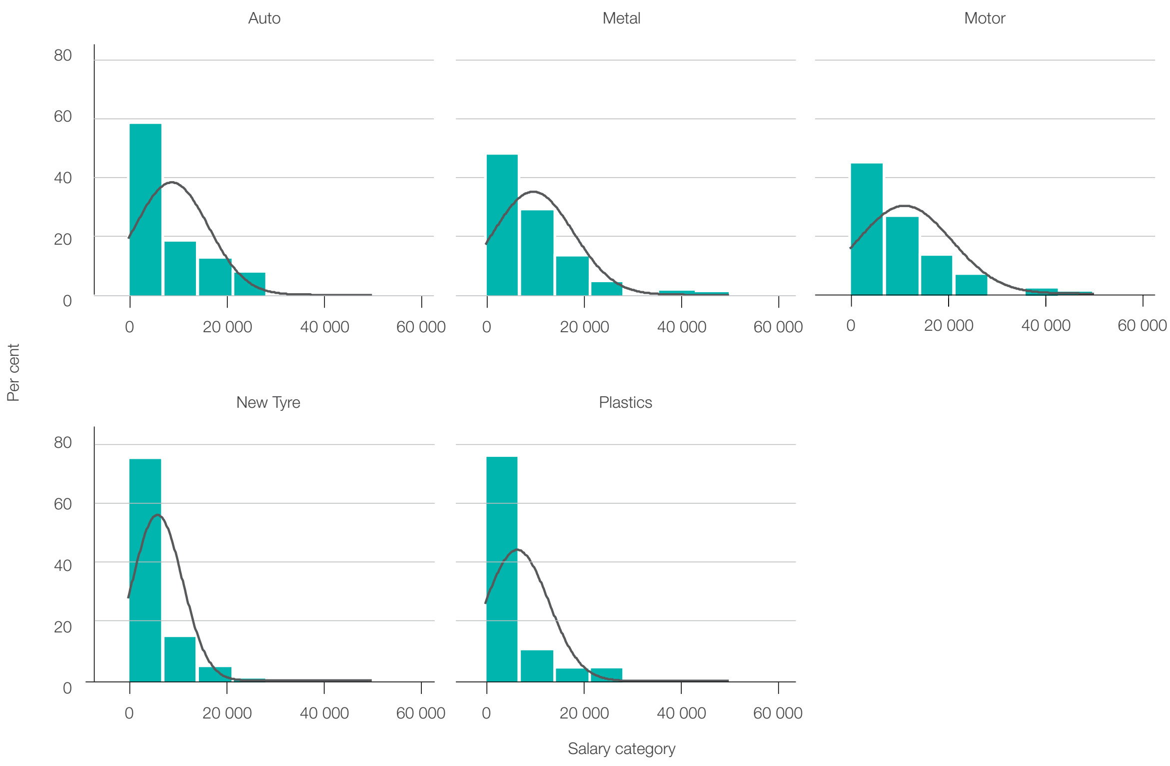
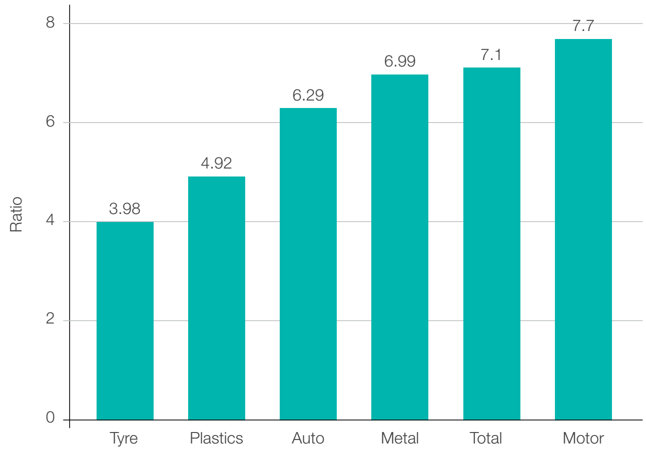
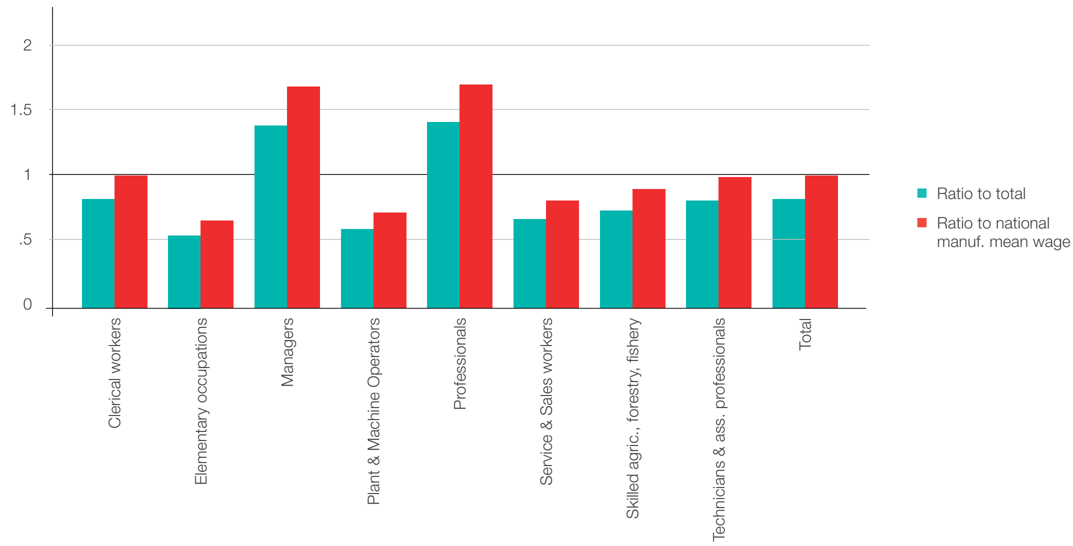


Figure 4: Ratio of top 20% of incomes to bottom 20% of incomes



Source: merSETA Labour Market Pilot Survey, 2013; own calculations

Figure 5: Mean monthly earnings by occupation



Source: merSETA Labour Market Survey, 2013; own calculations

Notes:

1.' Total wage' refers to the mean wage for the entire merSETA labour market.

2. National monthly average manufacturing wage used is R13 155, from the Quarterly Employment Survey, August 2013. See Table 4, 'Notes'.

In this case, managers earn, on average, 2.6 times the average earnings of those in elementary occupations. Relative to average earnings in the sector, managers and professionals earn 1.7 times more, and elementary occupations earn two-thirds of the sector's average. Using the average national manufacturing wage as an alternative benchmark, managers and professionals in merSETA firms earn 1.4 times more.

Training activities

For the first time in South Africa, and particularly within the manufacturing sector, we have a granular sense of training activities by firms. Both the SETA and policymakers can use this to guide their skills planning initiatives.

Table 6: Training profile by subsector

	Auto	Metal	Motor	Tyre	Plastics	Total
Completed training (% of employees)	51.4	42.7	53.0	1.7	79.8	38.6
Currently in training (% of employees)	27.0	13.7	7.9	0.0	1.5	7.7
Did not complete training (% of employees)	5.4	0.3	0.3	0.0	0.0	0.3
No training (% of employees)	16.2	43.3	38.8	98.3	18.7	53.3
Training intensity ratio (1)	1.33	1.11	1.37	0.04	2.07	1
Average number of employees trained per firm per year	14	21	35	3	50	26
Completed training programmes (n)	74	866	1 128	19	272	2 376
Completed training programmes per employee (2)	1.30	1.39	1.41	1.00	1.01	1.34

Notes:

1. The ratio of the proportion of employees who completed training within each chamber, to the overall average proportion of employees who completed training.

2. For all employees who were trained, the number of training programmes that each one completed on average.

Table 6 provides an overview of training activities by subsector. On average, in the entire sector, almost 40% of all employees completed at least one training programme in the one-year period. That still leaves a large proportion of employees who are not receiving training, particularly in the Tyre subsector (almost no training took place) and Metals. Training intensity – the proportion of employees who completed a training programme in the subsector over the total average – varies amongst the subsectors, with Plastics being the most training-intensive and the Tyre subsector the least. The Motor subsector does not have as high a training intensity as Plastics. However, given that it is larger in terms of the absolute number of employees; we find that Motor firms, on average, train more employees a year than firms in other subsectors.

Another indicator of training intensity is the amount of training per trainee, which is given in the final row of Table 6. It becomes clear, then, that although the Motor and Metal subsectors do not train the largest proportion of workers, they provide more training per trainee than the other subsectors.

Table 7 provides training intensity ratios for each employee characteristic. On average, medium-sized firms train the highest proportion of employees, at 66%, compared with large firms, where only 35% of employees are trained on average. This varies by subsector: small firms in the Auto subsector have relatively greater training intensity than medium firms, and large firms in the Motor subsector are more training-intensive that firms of other sizes.

Training intensity by gender shows that, on average, a larger proportion of women in the merSETA labour market are trained than men. This is driven, however, by the Metal and Plastics subsectors, given that men have high training rates in the other subsectors. On average, over half of African employees in this labour market are trained, with the highest training rates for Africans being found in the Auto and Plastics subsectors. The training activities of the Auto and Plastics subsectors are also relatively youth-intensive, closely followed by the Metal subsector. This suggests, then, that these two subsectors are training young black African employees. Finally, our results show that, on average, a greater proportion of managers and professionals are trained compared with plant and machine operators and those in elementary occupations, and this is particularly true in the Auto subsector. Tyre and Plastics, however, train a significantly larger proportion of those in lower-skilled occupations compared with higher-skilled occupations.

Given these differences in the type of people who are trained, it is also likely that the type of training offered to these employees varies accordingly. Figure 6 illustrates this by showing the type of training offered by firms of different sizes within each subsector (where bars are missing, we have no observations in the sample – for example, no employees from large Auto firms have reported training activities). In the entire sector, 45% of training programmes were skills programmes, and 41% were on-the-job training.

Table 7: Training intensity (% of employees who are trained by row category within each subsector)

	Auto	Metal	Motor	New tyre	Plastics	Total
Firm size						
Small firm	80.2	47.4	41.3	38.0	36.0	46.1
Medium-sized firm	65.0	73.4	53.4	–	100.0	66.1
Large firm		45.8	100.0	0.0	94.8	34.6
Gender						
Men	79.6	55.6	64.2	1.8	79.5	44.9
Women	66.7	57.9	51.4	0.0	85.7	52.0
Ratio of women/men	0.8	1.0	0.8	0.0	1.1	1.2
Race						
African	73.2	47.0	53.6	52.8	70.5	52.1
White	68.6	63.9	64.1	0.0	64.4	63.7
Coloured	85.7	78.8	55.9	–	95.6	82.6
Indian	100.0	66.7	76.5	0.0	100.0	75.2
Ratio of African/white	1.1	0.7	0.8	–	1.1	0.8
Age						
15–24	80.0	76.7	68.3	4.2	92.9	69.1
25–39	79.6	55.8	65.9	2.9	82.2	51.0
40–54	70.6	47.5	57.3	0.2	79.4	38.5
55–65	87.5	53.2	34.3	0.5	68.8	26.4
65+	–	70.1	33.3	60.0	90.9	63.0
Ratio of 15–24/55–65	0.9	1.4	2.0	9.0	1.4	2.6
Occupation						
(1) Managers	100.0	36.2	82.1	0.0	41.7	59.5
(2) Professionals	100.0	62.3	88.6	0.0	42.9	58.0
(3) Technicians and associate professionals	60.0	33.7	68.8	0.0	66.7	42.7
(4) Clerical support workers	66.7	71.4	53.4	0.0	80.0	57.5
(5) Service and sales workers	100.0	33.3	57.5	20.0	100.0	55.9
(6) Skilled agriculture, forestry, fishery, craft and related trades workers	100.0	63.6	66.4	0.0	50.0	47.3
(7) Plant and machine operators and assemblers	66.7	44.1	56.8	0.0	94.8	51.7
(8) Elementary occupations	100.0	57.5	19.4	41.7	98.5	49.8
Ratio of 1 + 2/7 + 8	1.2	1.0	2.2	–	0.4	1.2

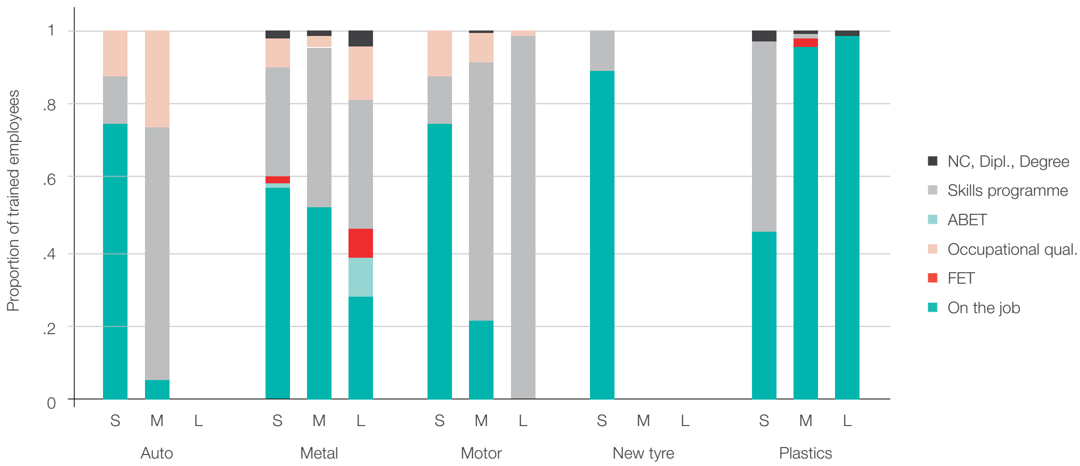
Source: merSETA Labour Market Survey, 2014; own calculations

Notes:

1. This table provides a relative measure of training intensity by each characteristic. For example: for each subsector, i.

2. The occupation categories correspond to the OFO skill-level codes.

Figure 6: Type of training by subsector and firm size



Source: merSETA Labour Market Survey, 2014; own calculations

There is, however, considerable variation in the type of training offered by different firms. We see that those subsectors that train a higher proportion of highly skilled individuals (Auto and Motor) also rely more heavily on specific 'skills programmes' than other subsectors. We find that 68% of all training in the Motor subsector is 'skills programmes' and that this proportion is 31% for Auto firms. For the Plastics subsector, which trains many of those at lower-skill levels, on-the-job training is the dominant form of training. Specifically, 91% of workers in the Plastics subsector have been provided with on-the-job training.

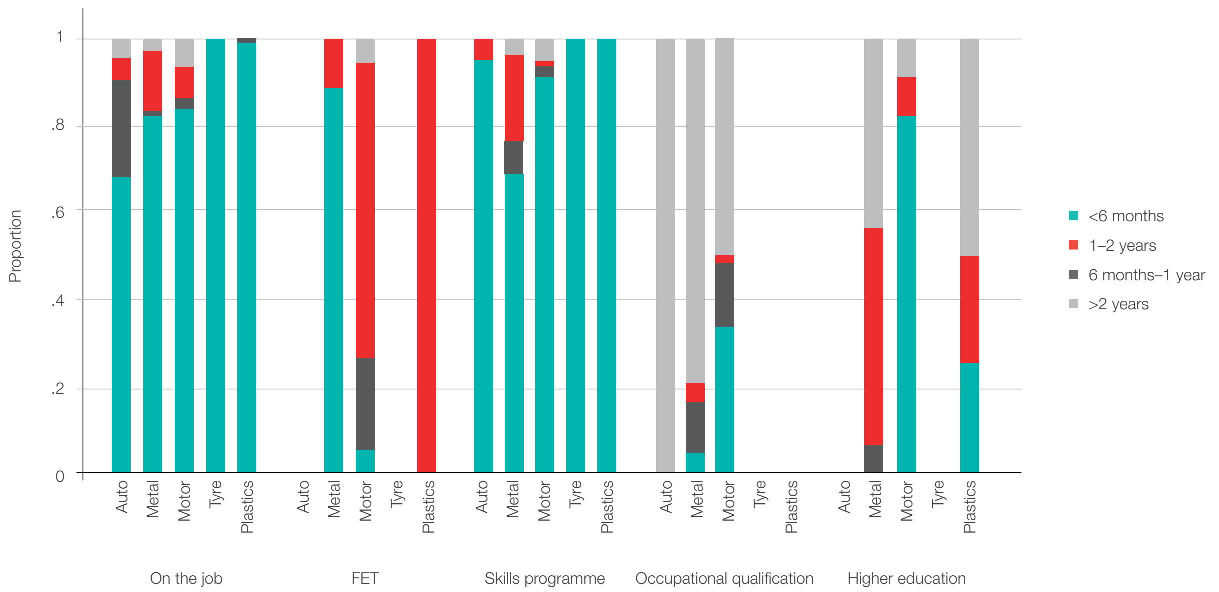
Furthermore, there are distinct variations within each subsector, depending on the size of the firm. For example, in small Auto firms, on-the-job training is the most common type of training (76% of all training programmes), whereas in medium-sized Auto firms, skills programmes and occupational qualifications are provided for relatively more of the trainees (97% of all training programmes). Similar observations can be made for the other subsectors.

Common types of skills programmes include machinery training, firefighting, product knowledge, tyre-building and communication skills.

Each training type is associated with a length of time that is also likely to impact on its overall influence on the employee. On-the-job training and skills programmes are typically short – spanning fewer than six months – whereas occupational qualifications and higher education programmes usually take more than a year (Figure 7).

The type of training is also related to the specificity of skills that it infers. On-the-job training, skills programmes and occupational qualifications are more likely to be specific to an occupation, whereas ABET (adult basic education and training), FET, diplomas and degrees may have larger general-skills components. In this sense, we also measure the returns to different types of training as well as account for the fact that people of different educational levels may receive different returns to training.

Figure 7: Duration of each type of training by subsector



Source: merSETA Labour Market Survey, 2013; own calculations

Notes:

1. ABET training is omitted because it is only reported by Metal firms and accounts for a small proportion of training.

5. ESTIMATING THE PRIVATE RETURNS TO TRAINING

This section aims to estimate the average private returns to training, the average private returns to specific types of training, as well as the group-specific returns to training. We build upon a standard Mincerian wage equation to do this, which is outlined below.

Econometric approach

The Mincerian wage equation is the standard tool for explaining earnings within the human capital framework. This is our starting point:

$$\ln(W) = \propto_0 + \delta T + y_1 S + \beta_0 X + \beta_1 X^2 + e$$

In this equation, wages (W) are explained as a function of schooling (S) and labour market experience (X). The 'return to schooling' is given by y_1.

In order to isolate the returns from workplace training from those from work experience, we use a dummy variable for training (T) as an additional explanatory factor for wages, where the returns to training are captured by δ:

$$\ln(W) = \propto_0 + \delta T + yS + \beta_0 X + \beta_1 X^2 + e$$

To capture the remaining observable individual heterogeneity among individuals, we include a vector of explanatory variables, Z, which includes firm-level characteristics and personal characteristics of the employee:

$$\ln(W) = \propto_0 + \delta T + yS + \beta_1 X + \beta_2 X^2 + \beta_3 Z + e$$

Given that the impact of training depends on the type of training and also the characteristics of the employee, we include a set of interaction terms between these two factors to allow for group-specific returns to training.

Lastly, it is likely that the group of employees participating in training is different from the group that does not participate in training regarding unobservable characteristics (Heckman 1999). In our dataset, we have asked firms to specify the reasons why employees are selected for training – either because they are poor or good performers, or because training is offered on a rotation basis – so that we can address this potential problem.

Results and discussion

The Mincerian model that we estimate in this section allows us to gauge the private returns to training for the average merSETA employee. Drawing on economic theory, we would expect the wage returns to training to reflect productivity increases, which can be expected to lead to increases in firm-level productivity at the aggregate level (although we do not measure this and it is not the focus of this report).

Model 1 includes dummy variables for training (for both completed or current training). Those employees who completed a training programme in the year have a largely positive and significant wage return – training is associated with wages that are, on average, 24% higher. Interestingly, those who were undergoing training at the time of the survey have a small negative and significant return. As discussed in the literature review, this may represent the case where there is some cost-sharing of training between the employee and the firm in that trainees accept slightly lower wages while being trained, with the expectation of rising wages after the training is completed.

The second model adds the remaining individual and firm-level controls such as gender, occupational level, and firm size and subsector. The coefficient on the 'completed training' dummy remains positive, but is no longer significant. Factors influencing this result include the fact that individuals at different initial educational levels perhaps experience different returns to training – therefore, on average, there is no significant effect, but there may be for certain groups of employees. Furthermore, it could be that different types of training have different associated private returns. These factors have been emphasised in the literature. Importantly, it could also be that those at different educational levels may have differing returns to different types of training programmes. It is clearly evident from these results that there are higher wage returns to those with higher levels of initial education.

In order to allow for these group-specific returns to training, in that people of different educational backgrounds will experience different effects of training, we introduce interaction terms in the next

Dependent variable: Log of wages	**Model 1**	**Model 2**
Grade 11	0.168**	0.0177
	(0.0831)	(0.0983)
Grade 12	0.699***	0.197**
	(0.0497)	(0.0767)
National certificate	0.828***	0.293***
	(0.0543)	(0.0790)
FET qualification	0.528***	0.0795
	(0.0672)	(0.0901)
Diploma	1.383***	0.724***
	(0.0869)	(0.113)
Honours degree	1.413***	0.752***
	(0.0947)	(0.119)
Postgraduate degree	1.487***	1.114***
	(0.221)	(0.275)
Experience	0.0450***	0.0416***
	(0.00513)	(0.00591)
Experience 2	-0.000748***	-0.000757***
	(0.000108)	(0.000124)
Completed training	0.251***	0.0518
	(0.0313)	(0.0445)
Currently training	0.0326	-0.0696
	(0.0521)	(0.0633)
Constant	10.18***	10.50***
	(0.0744)	(0.117)
Controls:		
Gender	*No*	*Yes*
Race	*No*	*Yes*
Occupational level	*No*	*Yes*
Firm size	*No*	*Yes*
Firm subsector	*No*	*Yes*
Observations	2 541	1 468
R-squared	0.207	0.387

Notes:

1. Standard errors in parentheses.

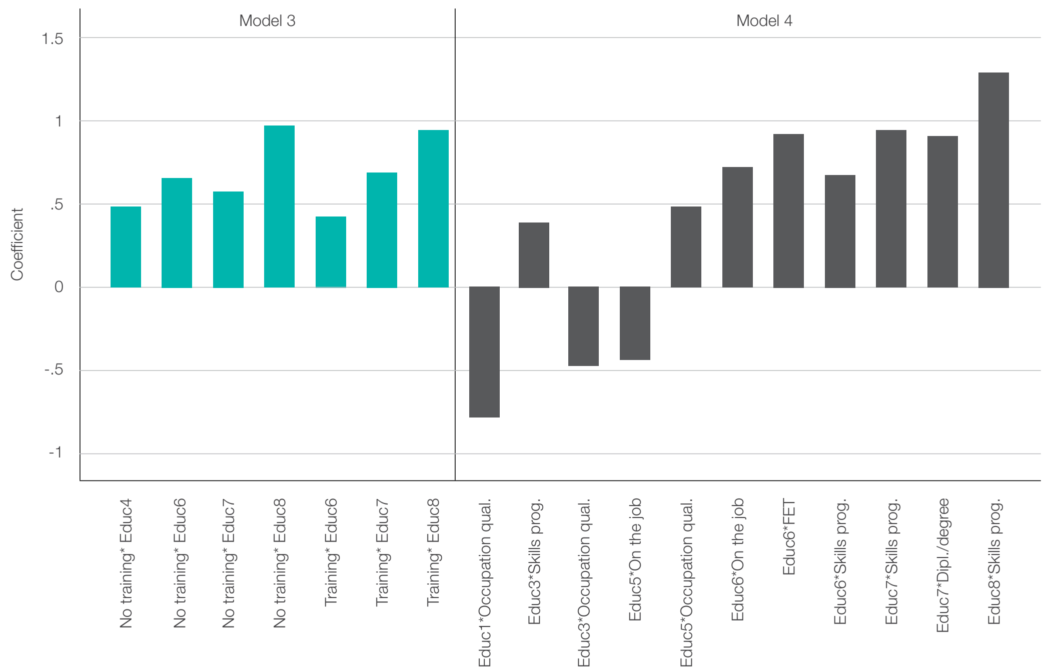
*2. *** p<0.01, ** p<0.05, * p<0.1.*

set of results. In the first specification (Model 3), we interact the training dummy with the individual's level of education. In the second model (Model 4), we interact the individual's level of education with the type of training that he or she underwent. Only significant coefficients are shown in Figure 8 for simplicity (see Appendix B for the table of results).

In the first specification, the omitted interaction is individuals with no training, at the lowest level of education (see Appendix B for an explanation of educational levels). It is immediately clear that the only significantly positive returns to training are for those who already have at least a post-matric diploma or higher. In fact, it is only those with a diploma, honours or postgraduate degree who experience significantly positive returns to training. These results are then strongly in line with Heckman (1999), where it is shown that the productivity returns to training are larger for more highly educated employees.

In the second specification, we see that not only does training related to skills programmes yield significantly positive wage returns as shown in the previous set of results, but that when you take individuals' educational levels into account, there are varying returns to different types of training. First, returns to skills programmes increase with the initial level of education – those with a degree who complete a skills programme have very large positive returns (129%), whereas trainees with a matric have smaller positive returns. Second, while on-the-job training is associated with negative average returns, it seems that at some sufficiently high level of initial education (here, Level 6 – post-matric diploma), there are positive returns to on-the-job training. Lastly, those with an initial level of education of at least a post-matric diploma experience positive returns to a wider range of training programmes and returns that are also higher. This would seem to support the notion that general and specific skills are complementary and that a higher level of general education increases the returns to more specific types of training.

Figure 8: Significant coefficients from regression Models 3 and 4



Source: merSETA Labour Market Survey, 2013; own calculations

6. DETERMINANTS OF FIRM-LEVEL TRAINING EXPENDITURE

We expect that a firm's training expenditure would be driven by the size of the firm; the need for training as a function of factors such as vacancies and technological change; profits, which determine the extent of reinvestment in the firm (including in human capital accumulation); and the type of training institutions that are used to provide the relevant training. Furthermore, in the South African context, there is a government-provided discretionary grant that is used to incentivise firms to train employees, which could also serve as a driver of firm-level training expenditure. Based on the above, we construct a simple regression to model these determinants of firm-level training expenditure.

Analysing the average firm training expenditure by subsector and size, the descriptive data indicate that large firms spend more on training than medium firms and, in turn, small firms. Despite not having the highest training intensity, the Auto subsector has the highest average annual firm-training expenditure, which is about 1.5 times the average for the entire sector. With the lowest training intensity and number of employees trained for the year, the Tyre subsector has the second-highest average training expenditure.

The average annual firm expenditure per trainee is also a revealing measure. Metal firms, on average, spend the largest amount per trainee, at about R18 600 per annum, followed by Motor firms, at about R14 300 per trainee. On the other end of the spectrum are Plastics firms, which spend an average of R1 300 per trainee per year.

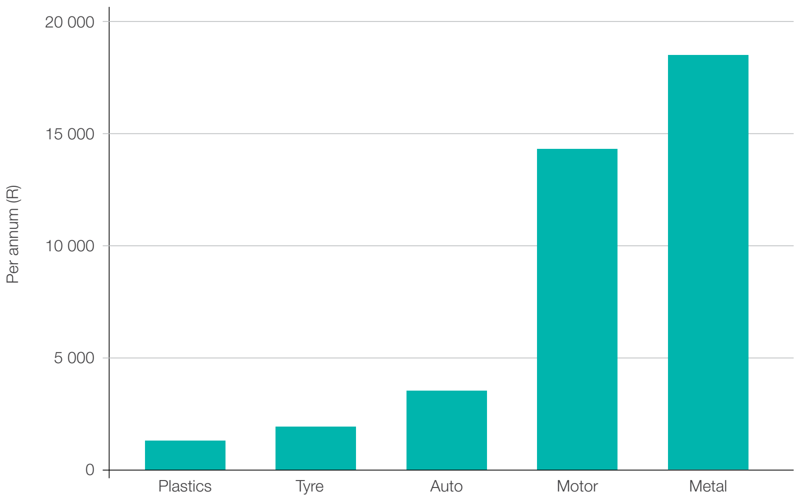
Table 8: Mean annual firm-level training expenditure

	Small	Medium	Large	Total mean	Ratio to total
Auto	98 636.36	7 500.00	333 333.33	117 962.96	1.49
	(168 106.98)	*(10 606.6)*	*(288 675.13)*	*(189 332.12)*	
Metal	46 134.97	55 065.79	173 048.78	67 142.86	0.85
	(97 124.23)	*(90 057.36)*	*(207 333.9)*	*(125 564.16)*	
Motor	39 521.74	140 781.25	291 956.52	92 735.29	1.17
	(102 128.6)	*(198 645.04)*	*(244 460.16)*	*(172 681.65)*	
Tyre	5 555.56	171 666.67	500 000.00	111 785.71	1.41
	(5 833.33)	*(284 443.9)*	*(0)*	*(210 462.93)*	
Plastics	14 285.71	41 428.57	187 000.00	69 736.84	0.88
	(12 066.66)	*(48 414.42)*	*(223 124.28)*	*(134 786.86)*	
Total mean	44 845.20	77 165.35	223 797.47	79 328.92	1
	(102 862.63)	*(133 479.96)*	*(228 246.12)*	*(149 170.29)*	
Ratio to total	**0.57**	**0.97**	**2.82**	**1**	

Source: merSETA Labour Market Survey, 2013; own calculations

Notes:
1. Standard deviations are shown in parentheses.

Figure 9: Training expenditure per trainee (R)



Source: merSETA Labour Market Survey, 2013; own calculations

Table 9: Top ten hard-to-fill vacancies

	Number of firms with these hard-to-fill vacancies	Percentage of firms with these hard-to-fill vacancies
Salesperson	10	8%
Engineer	6	5%
Mechanic	5	4%
Admin. clerk/assistant	4	3%
Apprentice	4	3%
General worker	4	3%
Sales manager	4	3%
Spray painter	4	3%
Technician	4	3%
Finance	4	3%

We may also expect that firms train employees internally to fill vacancies that arise in the firm. This may be especially true for hard-to-fill vacancies, which are presented in Table 9.

In our data, there were 130 different occupations/ job titles with vacancies that were hard to fill.[2] Thus, most vacancies were not difficult to fill, and were filled within six months. The top ten hard-to-fill vacancies make up almost 40% of all hard-to-fill-vacancies and are shown in Table 9.

Results and discussion

Controlling for firm subsector, firm size and the type of training institutions at which training is taking place, we find that, across all specifications, training expenditure is positively and significantly associated with firm-level profitability. While the correlation cannot suggest the direction of causation, it is likely to be a positively reinforcing relationship.

2 Vacancies that took longer than six months to fill.

Table 10: Determinants of firm-level training expenditure

Dep. var.: Log of annual training expenditure	Model 1	Model 2	Model 3
Profitability[1]	0.421***	0.399***	0.371***
	(0.0239)	(0.0394)	(0.0482)
More SETA engagement		-0.774	-0.686
		(0.654)	(0.772)
Discretionary grant		0.164**	0.169**
		(0.0660)	(0.0789)
Total number of vacancies		0.00790	
		(0.00934)	
Total number of hard-to-fill vacancies			0.0100
			(0.0205)
Constant	2.610***	0.187	0.397
	(0.421)	(1.531)	(1.788)
Controls:			
Subsector	*Yes*	*Yes*	*Yes*
Firm size	*Yes*	*Yes*	*Yes*
Type of training institutions	*Yes*	*Yes*	*Yes*
Observations	340	161	122
R-squared	0.503	0.590	0.570
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1			

Notes:

1. Profitability is a simple measure calculated as turnover minus payroll.

In addition, we find no statistical relationship between greater firm-level engagement with the SETA and firm-level expenditure. As expected, we find that firms that receive a greater amount of the discretionary grant are, in fact, associated with greater firm-level training expenditure. Surprisingly, neither internal vacancies nor hard-to-fill vacancies have any statistical relationship with training expenditure. While this may suggest that firms do not spend on training as a recruitment strategy (to fulfil internal positions), it could also be as a result of the small sample size of firms that provided data on vacancies.

7. CONCLUSION AND POLICY RECOMMENDATIONS

The merSETA labour market is one that draws in a large number of Grade 12 completers (65% of workers have a Grade 12 completion only), which makes it a semi-skills-intensive labour market. This would then also suggest that training at the workplace is a key component of skills development in these sectors. Our findings show that over a third of all employees in this labour market underwent training within the year. Those in the lowest three occupational levels (OFO groups 6–8) made up just under half of all the employees trained. Subsectors such as Motor and Plastics are relatively more training-intensive than others such as Tyre manufacturing. In addition, firms in the Auto subsector are relatively more youth-intensive in terms of their training provision. We also show that there is significant variation in the type of training provided by firms in different subsectors and of different sizes. This emphasises the heterogeneity in the skills needs of different types of firms (and of different-sized firms within the same subsector), which this unit record data is able to uncover.

In estimating the private returns to training, training incidence is found to have no significant wage returns for the average worker. This, of course, did not account for the possibility that differently educated workers will benefit differently from training and that different types of training have differing associated benefits. By interacting these different variables, we were able to assess the group-specific returns to different types of training programmes. We find evidence that those at higher initial levels of education experience significantly positive returns to training compared with those at lower levels of initial education who undergo training. These individuals (with higher education) also have positive wage returns to a wider range of training programmes. This would suggest that merSETA and the DHET need to work with firms in supplying them with better educated workers a priori – before firm or workplace training occurs.

Lastly, we investigate the determinants of firm-level training expenditure. Our results show a significant and positive relationship between firm-level training expenditure and a measure of firm-level profitability, as well as the level of the discretionary grant received by the firm. This is a positive result in the sense that the discretionary grants are well targeted, and those firms that claim for the grant are, in fact, providing more training for employees.

In essence, this survey data has allowed us to illustrate a granulated picture of the training intensity of firms by subsector and firm size (which could be extended to regional analysis). The results have also shown which subgroups of employees (by gender, race, age, education level and occupational group) receive more training than others in different types of firms. These results offer interesting insights into a firm's rationale for training. For example, firms with young employee profiles need to build skills at the bottom of the organisational structure due to lack of work experience as opposed to reasons relating to technological change. Finally, we have shed light on the relationship between training and employee wage outcomes in the manufacturing sector, as well as uncovered some of the common skills gaps that were noted by these firms. These are precisely the kind of insights that are required as inputs into a skills planning mechanism that would feed into other labour market intelligence (e.g. relating to post-schooling curricula and apprenticeships) to arrive at strategic policy interventions.

In order for this type of a survey to act as a tool to support the DHET's skills planning mechanisms, there is a need to establish a Skills Planning Unit (SPU), either within or linked formally to the DHET, with relevant data, information and signals about the economy, education, training, and the labour market feeding into this unit. This unit needs to engage very regularly with senior staff at the DHET, but, in turn, needs to be staffed by high-level individuals who possess analytical and interpretive skills and are able to make sense of the relevant knowledge to generate regularised policy supply and demand signals and direction for the DHET. The SPU architecture needs to be populated with information that is available from present datasets and research needs to suggest further variables to be included in the present instruments and future datasets that need to be generated.

It is critically important to run enterprise surveys, specifically SETA Labour Market Surveys, by legislating SETAs to run these surveys annually or biannually in order to provide such information for the SPU. SETA Labour Market Surveys are a critical instrument for workplace skills planning. Without these, we will continue to rely on the StatsSA Quarterly Labour Force Survey data, which remains inadequate for understanding skills dynamics at the firm level. These datasets are useful for understanding aggregate labour market trends at the national, subnational or sector level. However, they cannot provide the disaggregated results necessary for gaining insights to inform skills planning.

Furthermore, these enterprise surveys should have a focus on obtaining unit record data, without which much of the above analysis cannot be conducted. In addition, individual unit record data should be the aim of such a survey, as it allows for the tracking of training of all workers over time. Only with unit record data can we measure, for example, the impact of training on employees' labour market outcomes (e.g. wages). The flexibility of the unit record data means that various types of reports can be generated from this data – from detailed employee-level analysis to more aggregated firm and sector analysis.

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APPENDIX A

A comparison of the survey response rates to the merSETA population of firms.

merSETA population

	Within chamber size composition			Chamber composition
Chamber	Small	Medium	Large	
Auto	61%	25%	14%	6%
Metal	54%	28%	17%	54%
Motor	61%	27%	12%	29%
New tyre	66%	21%	13%	1%
Plastics	45%	36%	18%	9%
Unknown	66%	13%	21%	1.0%
Size composition	**56%**	**28%**	**16%**	**100%**

Survey sample Part A – individual level (n)

Chamber	Small	Medium	Large	Total
Auto	10	0	2	12
Metal	77	10	31	118
Motor	52	5	20	77
New tyre	7	4	0	11
Plastics	10	5	4	19
Unknown	4	0	0	4
Total	**160**	**24**	**57**	**241**

Survey sample Part A (%)

	Within chamber size composition			Chamber composition
Chamber	Small	Medium	Large	
Auto	83	17	0	5
Metal	65	26	8	50
Motor	68	26	6	32
New tyre	64	0	36	5
Plastics	53	21	26	8
Size composition	**66**	**24**	**10**	**100**

Survey sample Part B – firm level (n)

Chamber	Small	Medium	Large	Total
Auto	31	2	3	36
Metal	205	93	56	354
Motor	147	47	26	220
New tyre	10	4	2	16
Plastics	23	20	11	54
Unknown	5	0	1	6
Total	**421**	**166**	**99**	**686**

Survey sample Part B (%)

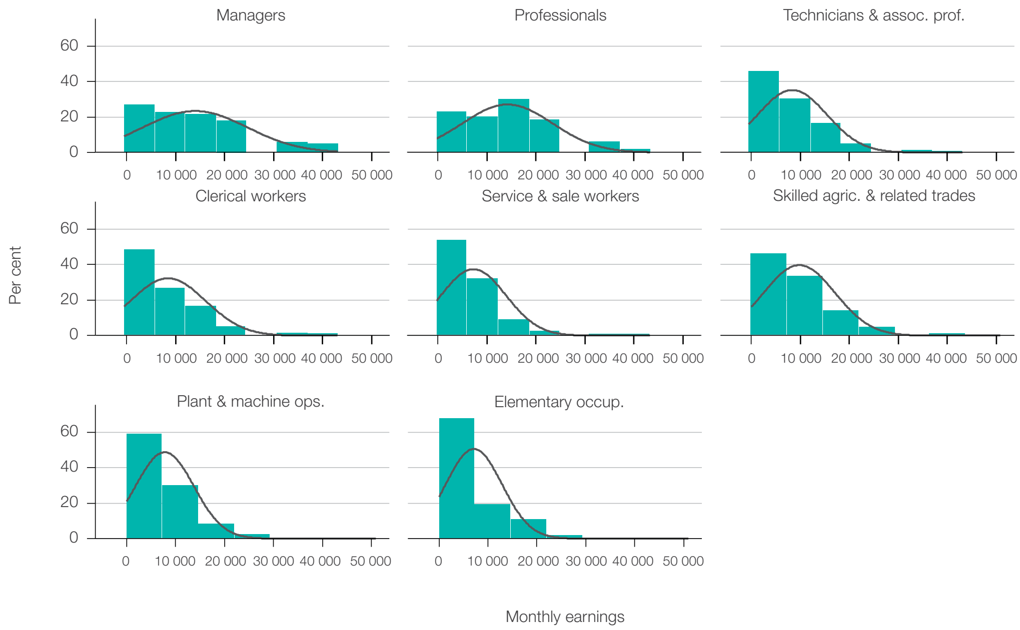
	Size composition of chamber			Chamber composition
	Small	Medium	Large	
Auto	86%	6%	8%	5%
Metal	58%	26%	16%	52%
Motor	67%	21%	12%	32%
New tyre	63%	25%	13%	2%
Plastics	43%	37%	20%	8%
Unknown	83%	0%	17%	1%
Size composition	**61%**	**24%**	**14%**	**100%**

APPENDIX B

Level	Major occupational group
1	Managers
2	Professionals
3	Technicians and associate professionals
4	Clerical support workers
5	Service and sales workers
6	Skilled agriculture, forestry, fishery, craft and related trades workers
7	Plant and machine operators and assemblers
8	Elementary occupations

Level	Education level (highest attainment)
1	Grade 10 or below
2	Grade 11
3	Grade 12
4	National certificate
5	FET qualification
6	Diploma
7	Undergraduate degree
8	Postgraduate degree

Distribution of employee wages by occupation



Group-specific returns to training

	(1)	(2)
Dependent variable: Log of wages	Model 5	Model 6
Experience	0.0275***	0.0256***
	(0.00564)	(0.00691)
Experience2	-0.000516***	-0.000532***
	(0.000129)	(0.000168)
No training*Education level4	0.488***	
	(0.112)	
No training*Education level6	0.655***	
	(0.156)	
No training*Education level7	0.570***	
	(0.206)	
No training*Education level8	0.971**	
	(0.454)	
Training*Education level6	0.442***	
	(0.161)	
Training*Education level7	0.687***	
	(0.173)	
Training*Education level8	0.947***	
	(0.334)	
Education level1*Occupational qual.		-0.799**
		(0.364)
Education level3*Skills programme		0.381***
		(0.121)
Education level3*Occupational qual.		-0.481**
		(0.200)
Education level5*On the job		-0.449***
		(0.157)
Education level5*Occupational qual.		0.482*
		(0.253)
Education level6*On the job		0.718***
		(0.191)
Education level6*FET		0.918**
		(0.442)
Education level6*Skills programme		0.675***
		(0.198)
Education level7*Skills programme		0.944***
		(0.170)
Education level7*Dipl., Degree		0.913**
		(0.444)
Education level8*Skills programme		1.286***
		(0.292)
Constant		
Controls:		
Gender	Yes	Yes
Race	Yes	Yes
Occupational level	Yes	Yes
Training type	Yes	Yes
Firm size	Yes	Yes
Firm chamber	Yes	Yes
Observations	1 267	816
R-squared	0.436	0.509
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		

LABOUR MARKET
INTELLIGENCE PARTNERSHIP

The returns to training and the determinants of training expenditure: The case of manufacturing firms in South Africa

The South African economy is marred by low growth rates, high unemployment rates and skills shortages. Given the historical deficits in the basic education system, a well-researched skills development plan is a crucial input into a broader economic development strategy. The current data constraints to achieve this are the motivation for the firm-level survey piloted on the Manufacturing, Engineering and Related Services Sector Education and Training Authority (merSETA).

This survey data allows us to present a disaggregated picture of the training intensity of firms by sub-sector and firm size, with results detailing the type and amount of training by employee sub-groups (gender, race, age, educational level etc.). We shed light on the relationship between training and employee wage outcomes, as well as uncover some of the common skills gaps that were noted by these firms. These are precisely the insights required as inputs into a skills planning mechanism, which would feed into other labour market intelligence, to arrive at strategic policy interventions. As an implementation strategy, it would be necessary for a Skills Planning Unit to be formed and integrated with the Department of Higher Education and Training (DHET), which can oversee the creation and use of reliable data.

About the LMIP

The Labour Market Intelligence Partnership (LMIP) is a collaboration between the Department of Higher Education and Training, and a Human Sciences Research Council-led national research consortium. It aims to provide research to support the development of a credible institutional mechanism for skills plannning in South Africa. For further information and resources on skills planning and the South African post-school sector and labour market, visit http://www.lmip.org.za.

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