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Employment, Wages and Skills Development: Firm Specific Effects - Evidence from Two Firm Surveys in South Africa

Haroon Bhorat
Paul Lundall

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Development Policy Research Unit - University of Cape Town
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Employment, Wages and Skills Development:
Firm-Specific Effects - Evidence from Two Firm Surveys in South Africa

Haroon Bhorat[1]
University of Cape Town
E-mail: hbhorat@commerce.uct.ac.za
Paul Lundall[1]
University of Cape Town
E-mail: plundall@commerce.uct.ac.za

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[1] Respectively Director and Deputy Director, Development Policy Research Unit, School of Economics, University of Cape Town. All comments can be directed to bhorat@commerce.uct.ac.za

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- Research and analyse the labour market in order to determine skills development needs for:
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    ii. each sector of the economy, and;
    iii. organs of state.
- To assist in the formulation of:
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    ii. sector skills development plans.
- To provide information on skills to
    I. the Minister,
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    iii. Sector Education and Training Authorities (SETAs);
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Skills Development Planning Unit
Department of Labour
Private Bag X117
Pretoria 0001

Tel: 012-309 4420
Fax: 012-309 4237

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Development Policy Research Unit
University of Cape Town
Private Bag,
Rondebosch,
7701,
Cape Town
South Africa
Tel: 27 21 650 5705
Fax: 27 21 650 5711
www.uct.ac.za/depts/dpru

Abstract

The paper explores the inter and intra firm dynamics that are instrumental in shaping the determination of skills training within the South African labour market. The essential starting point is to show that the size of the enterprise and nature of the economic sector in which these enterprises operate, sets conditions on the regimes of enterprise training and skills development. While contesting the notion that there is inevitability in the outcome of these processes, the paper compels us to explore the reasons for it taking place in the present South African milieu. And this enables us to analyse the dynamic evolution of contractual obligations that are built on insecure and temporal employment relations. Consequently, the detour via the structural and organisation dynamics that are embedded within firms enables us to recognise the important role which training can command in promoting greater efficiencies within South African firms and halting the deleterious effects of insecurity and low productivity. The analysis leads us to the conclusion that training ultimately makes good business sense and more so if these sentiments are demonstrated and transmitted through active public policy.

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Development Policy Research Unit
Tel: +27 21 650 5705
Fax: +27 21 650 5711

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Foreword

Studies of firm-level behaviour in South Africa have not usually included a focus on issues relating to training and skill formation. Exceptions have been the ILO enterprise labour flexibility survey undertaken in 1995 and 1996 and the regular surveys conducted by PE Corporate Surveys. With the promulgation of the Skills Development Act and the Skills Development Levies Act in 1998 and early 1999 respectively, improved information on enterprise training and the dynamics of skill, have taken on a new importance. Not only will such information be important to government to allow it to monitor progress and evaluate the impact of legislation, but it will be necessary to allow for a wider debate on the dynamics of skill in relation to enterprise development.

Fortunately, two innovative research initiatives in 1999 and 2000 presented an opportunity to improve our knowledge of training activities within firms. The first was the investment study commissioned by the Presidency to assist the Cabinet Employment and Investment Committee to understand the reasons behind the low rate of investment in fixed capital in South Africa. This study, referred to in the paper as the National Enterprise Survey (NES), comprised a national survey of over 1400 enterprises across a number of sectors. The second was a study undertaken by a World Bank team together with staff of the City of Johannesburg, to improve knowledge of the urban economy of Johannesburg. This study, referred to in the paper as the World Bank Large Firm Survey (WBLMS), was commissioned by the Greater Johannesburg Metropolitan Council and was carried out in over 300 large manufacturing firms in eight sectors within the Gauteng area. The World Bank study also included a survey of approximately 800 owners of small, medium and micro enterprises in the Gauteng.

Both studies found significant evidence of skill shortages acting as a bottleneck to firm growth and investment. Both studies also reported finding relatively low expenditure by firms on training and that the number of firms providing training to their workers was relatively low. The skill shortage was also found to be an issue for SMMEs in the Gauteng. The report on the evidence from the SMME survey suggests that: "...the most critical labour market problem for SMMEs remains the skills scarcity, rather than the degree of regulation. If skills development can be effectively promoted, the SMME cluster may be able to move towards faster growth and job creation."[2]

In the context of these two studies, the Skills Development Planning Unit (SDPU), decided to commission a paper focussing primarily on the skills related data from these two surveys. The outcome is contained in the following paper by Haroon Bhorat and Paul Lundall of the Development Policy Research Unit (DPRU) at the University of Cape Town. Unfortunately, the data from the World Bank SMME survey was not available to the researchers and hence the paper is restricted to the NES and the WBLMS data sets. Despite experiencing some technical problems in working with two large data sets, the authors have provided a useful analysis of employment, wages and skills development in the enterprises surveyed. It is an analysis that will not only contribute to the body of knowledge about training and skills development behaviour of enterprises, but which should provide new ideas for carrying out research on skill formation. The innovative approach to the relationship between training and economic performance is particularly welcome. This is an area that is important for policy debate and for ongoing evaluation of legislative intervention.

Overall, the paper will contribute to the ability by government to assess the impact of its policies over time. The work carried out by Bhorat and Lundall should also contribute to a growing body of research into the dynamics of skill formation and internal labour markets. Finally, thanks go to Stephen Gelb and Vandana Chandra for including the focus on skill in the NES and World Bank surveys, a focus which made this subsequent study possible. The financial support of the European Union is gratefully acknowledged.

Ian Macun

Director: Skills Development Planning Unit

April 2002

[2] V.Chandra et al. Constraints to Growth and Employment in South Africa. Report No.2: Evidence from the Small, Medium and Micro Enterprise Firm Survey. Discussion paper 15, World Bank Southern Africa Department, 2001, p.iv.

1 Introduction

Studies on the South African labour market have almost exclusively focused on the factors determining and shaping the current and future supply of labour in the country. This has, in the main, been driven by the availability of national data sets that have been limited essentially to household surveys produced by Statistics South Africa. This has of course resulted in an extremely rich flow of useful and interesting results on the determinants of participation, employment and earnings in the South African labour market. However, the more integrated model of the labour market, would of course also need to examine the contribution of intra- and inter-firm dynamics in shaping the domestic labour market. Until the very recent release of two firm surveys for the country, scant else was available to undertake such research. The purpose of this paper therefore is firstly to expose the reader to the labour market information embedded in the two surveys. Secondly, and perhaps more importantly, we will attempt to concentrate on those labour market issues that shed more light on firm-level skills development, skills acquisition and labour demand factors that are dictated by human capital attributes. In essence, the paper will try and assess the contribution of firm-specific effects in shaping employment and earnings, together with providing a more coherent grasp of firms' activities and perceptions in relation to the recruitment, development and shortage of skilled personnel in their respective organisations.

2 The Data Sets

The two firm surveys that we will utilise for this study are the World Bank's Large Firm Survey for the Greater Johannesburg Metropolitan Area (WBLMS) and the National Enterprise Survey (NES), which was a national government managed survey, specifically through Office of the President. The intention is to draw on the results of the two surveys, as they pertain to skills issues in particular and labour market issues in general. While comparisons of the results from the two datasets will be made where possible, we will treat the analysis and overview of the data sets as discrete segments of this paper.

The WBLMS was conducted under the joint auspices of the City of Greater Johannesburg and the World Bank. The survey firm contracted to undertake the task was the Bureau for Market Research (BMR). The survey went into the field in 1999 and ultimately 325 firms within the manufacturing sector in the Greater Johannesburg area were surveyed. The sampling design ensured that eight manufacturing sub-sectors were represented. The survey was then further stratified by employment size, namely small (50-99 workers), medium (100-199 workers) and large (200+) employers. Stratification by employment size within the different sub-sectors was accordingly proportional to size. Finally, within these multi-strata, simple random sampling was performed. Tangibly, the survey team started from a national census of manufacturing firms broken down by sub-sector and size class of 6174 firms. This was then used to create a sample frame of 2346 such firms within the Greater Johannesburg area. On the basis of the latter number then, the firms actually approached, was 369 with 325 full responses obtained.

The National Enterprise Survey (NES) was conducted under the auspices of the President's Office at the end of 1998. The Bureau for Economic Research at the University of Stellenbosch conducted the survey, which was designed to give a nationally representative profile of large manufacturing and service enterprises. In total, 1428 firms constituted the survey sample: the bulk or three-quarters of firms were classified as Service Enterprises (75 percent). The remaining quarter, were designated as Manufacturing Enterprises. Four distinct questionnaires were deployed in the study. Each extracted information on: large service firms, large manufacturing firms, small service firms and small manufacturing firms respectively. Data from all four surveys was merged into one database. Although the survey data embodies a wide range of pertinent information on the economic organisation and performance of firms in South Africa, we have given more emphasis to obtaining data that relates to wages, skill levels and training. Occasionally this data has been compared along the axis of the type of contracts held by employees such as full-time and part-time employment. The reason why this has been done is to ascertain the degree to which sub-contracting is emerging as a pervasive contractual arrangement for the hiring of staff.

Despite the wide range of data, which the National Enterprise Survey contains, it has proved to be very difficult to manipulate adequately. The principle reason for this is because insufficient care has been taken in the construction of the database particularly with respect to providing adequate labels of data categories. So while data is available it cannot be used effectively, because of the high incidence of unlabelled variables. For example the specific industries from which manufacturing and service firms are drawn from is not known because the labels have no values, merely numbers. The same applies to provincial breakdowns. It is made worse by the absence of accompanying instructions or coding sheets. Questions relating to 'Employment and Labour Relations' have formed the core data source from which the present analysis of the National Enterprise Survey is generated. In addition the absence of wage data has meant that earning function regressions on for example the skill composition of employees and firm size of enterprises could not be undertaken. Such information would have provided us with more nuanced insights into showing the impact of levels of skills on earnings and wage differentials as well as testing the effect of firm size on wage compensation and training commitments by the firm. So despite the wide spectrum of information that one can elicit from the National Enterprise Survey there are unavoidable limitations to the level of analysis that can be conducted.

While the results from both surveys will be presented here, there are significant differences in the representivity and coverage of the two data sets, which would make a direct comparison of the results from the two data sets difficult. For example, there is no question around wages in the NES, ensuring that any of the results on the role of firm size on wages gleaned from the WBLMS, would be impossible to compare with. More generally, the NES covers large and small firms in both the manufacturing and services sectors. Hence, while details in the two questionnaires may be similar, for example, on training expenditure, they each pertain to a different sample of firms. Finally the geographic differences in the survey, the one being national and the other very localised, further constrain the direct comparisons that can be made. While mindful of these obstacles, we will endeavour to draw cross-references to each of the surveys, where possible and suitable.

The first part of this paper concentrates on the results obtained from the WBLMS. An attempt is made to sketch some of the key labour market results from the survey, focusing disproportionately on training and skills development issues. Hence, the first set of results are concerned with wage and employment trends in the data set, with attention placed, toward the end of this discussion, on how the size of the firm – one of the key variables isolated in international country studies - impacts on the wages of different skills groupings. The second component of the WBLMS results, examine the various issues around training and skills development. We analyse in particular, firms' expenditure on in-house and external training and furthermore how this varies by firm size. Firms' shortages for skilled workers are presented and, as with the previous section, the discussion concludes with a detailed econometric estimation of how training may impact on the production levels of a firm.

3 Wages and Employment

Table 1 below confirms the above overview of the WBLMS data set, namely that 325 manufacturing firms were sampled. In addition though, the eight sub-sectors that were identified are made clear, with the three largest share of firms being involved in the production of metal production, electrical and electronic machinery and iron and steel.

Table 1: Number of Firms in Sample, By Manufacturing Sub-Sector

Sector	No. of Firms	% Share
Chem. Products	48	14.77
Elec. Machinery	56	17.23
Food prss.& bev.	26	8.00
Iron & steel	56	17.23
Metal products	57	17.54
Paper & fur.	34	10.46
Textile	14	4.31
Vehicle&auto comp.	34	10.46
Total	325	100

The smallest number of firms, not surprisingly given that it is the Greater Johannesburg region being covered, are textiles and food processing and beverages. One important fact to be remembered on the basis of the above data, is that the total number of firms remains small. As a consequence therefore, one needs to be cautious about undertaking detailed sectoral profiles, given that the sample size diminishes even further. Hence, for example, a detailed sub-sectoral overview of the paper and furniture industry will not be valid with this data base. In this case only 34 firms of a possible 967 such firms nationally are represented in the sample. In addition, the small sample size often leads, in certain instances, to a far reduced number of respondents when specific questions are asked. For example, in the questions around sales volumes and mean wages by occupation, we found that on average only about half of the firms responded to these questions. Thus, while the survey has been carefully set up, together with a well designed questionnaire, the small sample size does have its drawbacks.

One of the key issues and indicator variables of how the internal labour market of a firm operates, is the size of the firm. This has been established in the international literature and continues to be a subject for analyses and debate (Oi & Idson, 1999). Studies of developed country firms have found for example, that the size of the firm explains about 35 percent of the wage differential between workers of the same skill level and occupation. This compares with a gender gap of about 36 percent for men over women and a racial differential of 14 percent for white over black employees (Oi & Idson, 1999). Indeed numerous studies of the US and other labour markets have consistently shown that when controlling for a range of individual and firm characteristics, ranging from education levels of workers to capacity unionisation rates, the size of the firm is a significant contributor to higher wages in the economy (Dickens & Katz, 1987). It is with this background in mind, that we turn to Table 2, which provides an overview of the distribution of firms by firm size.

Table 2: Number of Firms by Employment Size

Firm size	No. of firms	% share
50 – 99 workers	145	44.62
100 – 199 workers	88	27.08
200+ workers	92	28.30
Total	325	100

The three size categories utilised in the data set are imposed on the user by the coding system, but do provide an acceptable nomenclature for firm size. In addition, note that small manufacturing firms, those with between 50 and 99 workers, dominate the sample. While the numbers do constrain the ability to rigorously estimate the contribution of size to mean wages and other variables, the data below will illustrate that some useful results can be obtained.

The first key labour market snapshot that is provided is the distribution of employment by race and occupation. It needs to be remembered of course that this distribution is reflective of manufacturing industries in the Greater Johannesburg area only. Nevertheless the distribution in many instances mimics the national distribution of employment by occupation. The table provides an overview of the distribution of employment within each occupation, by race and gender. Hence, for example, of all the craft workers in the sample, 6.32 percent are African females. Looking at managers in the sample of manufacturing workers, firms collectively reported that about 67 percent of all their managers were White males. The second largest cohort represented amongst managers, was White females. African males are then ranked third, as 10.13 percent of all managers are African males. This is a result that seems at odds with the national data. For example, according to the 1999 October Household Survey (OHS99), African managers in manufacturing constituted close to 30 percent of all managers in the sector. The contrast in this result and the national data is magnified in distributions for professional workers. In this instance, Africans constitute about 19 percent of all professional workers, whereas the national sample reflects an African share of about 37 percent in manufacturing.

There would seem to be two possible reasons for this apparent under-representation of African workers in the upper echelons of the occupational ladder. Firstly, the survey is extremely constrictive in size terms and in terms of number of firms actually interviewed. Hence we may not be getting as representative a picture of occupation-race data with such a small sample. Secondly, the differences arise from the different data sources: one is an employer survey and the other a household survey. Whether employers or employees are better in explaining occupations is difficult to determine. Finally, we do not isolate the GJA in the national sample, and so the comparison is not as direct as it could be. Note though that even though when the sample was restricted to the Gauteng province, discrepancies in the share values do arise. Table 3 ultimately points to the importance of being cautious with drawing too literally from the survey, particularly when other more representative data sources are available[3].

[3] The Employment Equity data drawn from the work of the Department of Labour indicates figures less different to the WBLMS results. Hence, the data from the Employment Equity Registry suggests for example, that African representation in management positions is about 6.2%, while the African female share in this occupation band stands at 1.2% - essentially the same figure from the firm survey.

Table 3: Share of Employment in Individual Occupations, By Race and Gender

Race	African		Coloured		Asian		White		Total
Occupation	Male	Female	Male	Female	Male	Female	Male	Female	
Managers	10.13	1.33	3.79	1.04	4.43	0.78	66.68	11.84	100
Profs& Tech	16.31	2.35	4.57	1.01	5.55	0.98	55.84	13.38	100
Clerks	19.16	7.30	3.62	3.92	5.94	3.20	17.81	39.06	100
Sales & ser	25.59	3.68	3.38	1.89	3.24	1.11	39.74	21.37	100
Craft	35.26	6.32	12.24	2.55	3.14	0.22	38.83	1.44	100
Operators	70.16	11.33	6.34	3.52	2.28	0.19	5.28	0.90	100
Labourers	74.49	18.34	2.18	1.90	1.27	0.22	1.33	0.27	100

Notwithstanding the above difficulties, the dominance of the race-occupation structure is striking. Hence, for all occupations from Managers through to sales and service workers, White male and female workers remain over-represented. White workers account for about 79 percent of all managers in manufacturing in the GJA, and 61 percent of all service and sales staff in the region. It is only within the bottom three occupations, that the distribution of racial employment begins to alter. With regard to craft workers there remains a fairly equal distribution between White and African workers, with the former accounting for 40 percent and the latter about 42 percent of all craft workers. However, in the case of operators, over 80 percent are African, while only about 6 percent are White. Labourers in the manufacturing sub-sectors of the GJA are overwhelmingly African, as less than 8 percent of these unskilled workers are non-African. This skewed racial distribution at the bottom-end serves to reinforce the fact that despite the fairly positive results for African workers at the top-end, they remain wholly over-represented as unskilled workers in the manufacturing industries of the GJA.

One of the advantages of this WBLMS, and one that isn't present in the NES, is that an attempt was made to collect past employment data, if only as a double-check on the available national household survey databases. Unfortunately, as the table below suggests, the data probably yielded inexact estimates of employment shifts over time. The questionnaire asked firms to provide the employment levels in their respective firms for the period 1994 to 1998. The table below reproduces these figures for the first and the last year in the sample, according to the three size classes. It is immediately evident that, should the figures be accurate, employment in manufacturing in the GJA has risen by some 71 percent over the four years. Even under the most optimistic estimates this seems improbable. As a comparison, national employment figures for manufacturing between 1995 and 1999, reveal that employment increased by about 7 percent (Bhorat,2001).

Table 4: Change in Full-Time Employment by Size Category, 1994-98

Size category	Employment, 1994		Employment, 1998	
Variable	Number	Share	Number	Share
50-99	7391	16.01	9645	12.22
100-199	6912	14.97	12606	15.97
200+	31862	69.02	56684	71.81
Total	46165	100.00	78935	100.00

What may be more interesting from the data that we present in Table 4 above, is the distribution of employment by size class. Hence, the data shows that the share of employment of small firms in fact declined from 16 percent to about 12 percent over the period. In contrast the share of employment of medium and large manufacturing firms in the GJA in fact increased marginally over the same period. While the underlying figures should be treated with caution, this data may contain very useful firm-specific information about national employment trends. It may be possible therefore that medium and large firms are growing in importance in terms of their share of aggregate employment, while smaller firms – despite much national industrial policy focus – are in fact displaying a declining relative employment contribution. While the evidence is at best tentative, it is this type of labour market information on the nuances of labour demand trends at the firm level, that can only be answered with firm-level, as opposed to individual- or household-level data.

As an extension to the above data, and one again that may be less true in terms of absolute numbers, is the incidence of part-time employment in manufacturing in the GJA. Table 5 below attempts to describe the growth in part-time employment by the three firm size classes. The first important point about the data below is that we in fact, unlike the full-time employment above, do not have nationally representative time-series data on part-time employment. The household surveys first start measuring part-time employment in 1999, and hence the statistics below are difficult to verify. What is clear though is that the trend towards part-time employment has increased over the 1994-1998 period – a result that would be hard to dispute given the knowledge of South African and indeed global labour markets.

Table 5: Change in Part-Time Employment by Size Category, 1994-98

Size Category	1994	1998	% change
50-99	75	376	401.33
100-199	129	546	323.26
200+	656	3028	361.59
Total	860	3950	359.30

What is also interesting if the figures are to be believed, is that part-time employment varies by size class. More particularly, small firms have shown the fastest increase in part-time employment growth relative to medium and large firms. This has of course been off a much smaller base. By all accounts however, the shift to part-time employment across all size classes has been both significant and rapid. If anything, it reflects on the ability of these manufacturing firms in GJA, to change their methods of hiring and utilising labour in a fairly efficient and effective manner. The presence of labour legislation must arise as a significant factor. It would have been illuminating, although beyond the scope of this paper, to try and correlate the move to part-time employment with firms' views of the relevant pieces of labour legislation such as the Labour Relations Act.

4 Firm-Effects and Wage Determination

Having provided a very brief overview of employment distribution and employment trends in the data set, it may be useful to try and ascertain the responses firms provided to some of the wage-related questions in the survey. Table 6 below is an attempt at providing the first basic snapshot of wage levels in the manufacturing industry of Greater Johannesburg. In turn, it also attempts to provide initial evidence on why size does matter in determining intra-occupational wages. Firstly though, the mean wages by occupation within each size class suggest minor, yet important differences. Hence, we take the ratio of the highest (managers) and lowest (labourers) mean earners within each size category. In this case we find that managers in small and medium firms earn 6.2 times more than labourers. In large firms however, the differential is 6.25 - indicating undoubtedly that a wage-size premium is in effect.

Table 6: Mean Wages By Occupation and Size Category

Occupation/ Firm size	50 - 99	100 – 199	200+	Ratio[a]
Managers	10747	10747	13000	1.21
Profs& Tech	8667	8667	10400	1.20
Clerks	4333	5027	4853	0.97
Sales & Service	6413	6413	6587	1.03
Craft	5200	5200	6067	1.17
Operators	2600	3293	3207	0.97
Labourers	1733	1733	2080	1.20
Ratio[b]	*6.20*	*6.20*	*6.25*	n.a.
Total	5931	6557	6670	1.12

[a]: Refers to ratio of $Wage_{200+}/Wage_{50-99}$

[b]: Refers to ratio of manager's wage to Laboure r's wage by size class.

The more optimal descriptive manner in which to determine this wage-size effect though, is to examine the ratios of the mean wages of individuals in the same occupations - but divided according to the size of the firm. Admittedly, we do not have more detailed occupational breakdowns, and this may bias the mean estimates. Indeed, we do not even have actual wages of individuals in the sample, and simply the average across an entire firm for the occupation. Nevertheless, the fact that we are examining one sector within a confined geographical area serve at least as two control variables in the estimates, so ensuring some level of robustness to the results. The last column of the table presents the ratio of the mean wage in the large firm relative to the small firm by occupation. What is clear is that in 6 of the eight occupations listed above, large firms are on average paying more than small firms. For managers and professionals, the premium for being in a large firm stands at about 20 percent. Put differently, simply by virtue of being in a large firm, managers and professionals are likely to earn 20 percent more than if they were employed by a medium or small manufacturing firm. Interestingly though, in two occupations – clerks and operators – there is a minor premium to being in a small relative to a large enterprise. Note, that even for unskilled workers, namely labourers working in a large firm, offers a wage premium of 20 percent. Finally, note that in the aggregate, a worker can expect to earn about 12 percent more if she finds employment with a large as opposed to a small manufacturing firm in the GJA.

There are numerous arguments for why larger firms tend to pay higher wages for ostensibly the same worker. One of the key reasons though, revolves around the efficiency wage hypothesis. Efficiency wage models suggest that firms will be willing to pay higher wages to workers in return for increased effort, reduced shirking, lower monitoring costs, a higher quality labour force and so on. The implication of this is that controlling for firm and sector characteristics, different firms may (depending partly on their ability to) pay higher wages for workers with identical labour supply characteristics. On the basis of the efficiency wage theory therefore, it has been postulated that larger firms have a tendency to pay higher wages for the same work, relative to smaller firms (Dickens & Katz,1987). In addition, others have argued that greater discretionary power provided to managers and employers will result in them paying higher wages on the basis of rewarding workers. Others still have argued that in larger firms which have considerable market power in an industry, workers will participate in the excess profits earned by the firm, via higher mean wages relative to smaller competitors (Oi & Idson, 1999). What is important here though is that we do have provisional evidence for South Africa, that a wage-firm size gap exists. While we cannot control for the impact of individual characteristics (age, education level, race and gender) on these wages, it is clear that the size of the firm must enter in as a relevant determinant of the earnings of workers in the South African labour market.

To conclude this descriptive discussion of wage data in the firm survey, it may be illuminating to present data on the non-wage relative to wage costs that firms bear. This is extremely interesting data, once again because individual-level databases, such as household surveys often cannot or do not try and disentangle the pure wage from the non-wage costs that employers have to bear in their overall factor costs. In many instances policy decisions, such as for example, the recent investigation into minimum wages for domestic and farm workers, hinge on the contribution of non-wage costs to overall labour costs of employers. We have therefore, in Table 6, preliminary yet crucial evidence on the value of these costs to pure wage costs.

Table 6: The Mean and Median Ratio of Non-Wage to Wage Costs (expressed as a Percentage)

Size Category	Mean	Median
50-99	24.24	20.88
100-199	26.34	20.32
200+	21.53	25.92
Total	25.51	20.66

It is evident firstly that whether we examine the mean or the median ratios, non-wage costs relative to wage costs do not exceed about 26 percent. In most cases, the median ratio is lower than the mean. Larger firms tend to be better able to keep down their non-wage costs, as these constitute on average about 22 percent of wage costs, whereas they are about 24 percent in small firms and 26 percent in medium-size enterprises. The outliers in the sample for small firms though, may be raising this average and here the median is a more distribution-sensitive reflection of non-wage cost trends. Here, in keeping with the wage-size differentials noted above, the median non-wage to wage costs for small enterprises is about 5 percentage points below that of large firms. But perhaps the more important result to emanate from this table is that we have now – admittedly for a confined sample though – robust empirical evidence of the contribution of non-wage costs to wage costs in the domestic economy.

In trying to derive a more nuanced analysis of the impact of firm size on wages for this sample, we ran a very simple, yet quite powerful regression equation. The equations, the results of which are provided in Table 7 below, measure the impact of firm size, proxied by the volume of sales per firm, on the mean wage prevailing in each firm for the seven respective occupations. Put differently, the equations try and determine whether firm size is a significant determinant of the mean wages paid to different occupations in the manufacturing sector of the GJA. At the outset, it should be noted that the specification of the equation there are numerous arguments for why larger firms tend to pay higher wages for ostensibly the same worker. One of the key reasons though, revolves around the efficiency wage hypothesis. Efficiency wage models suggest that firms will be willing to pay higher wages to workers in return for increased effort, reduced shirking, lower monitoring costs, a higher quality labour force and so on. The implication of this is that controlling for firm and sector characteristics, different firms may (depending partly on their ability to) pay higher wages for workers with identical labour supply characteristics. On the basis of the efficiency wage theory therefore, it has been postulated that larger firms have a tendency to pay higher wages for the same work, relative to smaller firms (Dickens & Katz,1987). In addition, others have argued that greater discretionary power provided to managers and employers will result in them paying higher wages on the basis of rewarding workers. Others still have argued that in larger firms which have considerable market power in an industry, workers will participate in the excess profits earned by the firm, via higher mean wages relative to smaller competitors (Oi & Idson, 1999). What is important here though is that we do have provisional evidence for South Africa, that a wage-firm size gap exists. While we cannot control for the impact of individual characteristics (age, education level, race and gender) on these wages, it is clear that the size of the firm must enter in as a relevant determinant of the earnings of workers in the South African labour market.

To close off this descriptive discussion of wage data in the firm survey, it may be illuminating to present data on the non-wage relative to wage costs that firms bear. This is extremely interesting data, once again because individual-level databases, such as household surveys often cannot or do not try and disentangle the pure wage from the non-wage costs that employers have to bear in their overall factor costs. In many instances policy decisions, such as for example, the recent investigation into minimum wages for domestic and farm workers, hinge on the contribution of non-wage costs to overall labour costs of employers. We have therefore, in Table 6, preliminary yet crucial evidence on the value of these costs to pure wage costs.

Table 6: The Mean and Median Ratio of Non-Wage to Wage Costs (expressed as a Percentage)

Size Category	Mean	Median
50-99	24.24	20.88
100-199	26.34	20.32
200+	21.53	25.92
Total	25.51	20.66

It is evident firstly that whether we examine the mean or the median ratios, non-wage costs relative to wage costs do not exceed about 26 percent. In most cases, the median ratio is lower than the mean. Larger firms tend to be better able to keep down their non-wage costs, as these constitute on average about 22 percent of wage costs, whereas they are about 24 percent in small firms and 26 percent in medium-size enterprises. The outliers in the sample for small firms though, may be raising this average and here the median is a more distribution-sensitive reflection of non-wage cost trends. Here, in keeping with the wage-size differentials noted above, the median non-wage to wage costs for small enterprises is about 5 percentage points below that of large firms. But perhaps the more important

result to emanate from this table is that we have now – admittedly for a confined sample though – robust empirical evidence of the contribution of non-wage costs to wage costs in the domestic economy.

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Table 7: Regression of Determinants of Size on Wages by Occupation[a]

Variable/Occupation	Managers	Profs& Tech	Clerks	Sales&ser	Craft	Operators	Labourers	Total
Sales	0.089*	0.076*	0.090*	0.066***	0.096*	0.094*	0.031	0.065**
Constant	7.74*	7.78*	6.86*	7.58*	6.84*	6.32*	7.05*	7.59
F-Statistic	7.91	6.76	13.51	3.78	11.51	13.39	1.84	6.20
N	170	152	174	147	163	174	186	94

[a]: The equation that was estimated was the log of $W_{ij}=S_j$, where Wij represents the average wage of occupation *i* in firm *j* and S*j* is the annual sales of firm *j*.
*: Significant at the 1% level
**: Significant at the 5% level
***: Significant at the 10% level

Firstly, all the equations, with the exception of that for Labourers, yield significant (at the 1 percent or 10 percent level) for the size variable. In other words, for all bar one of the occupations, the size of the firm is a significant and positive determinant of their mean earnings. For example, in the case of managers, a 10 percent increase in the size of the firm, will lead to a 0.8 percent increase in their mean earnings. In the case of professionals, this mean wage- firm size elasticity is slightly lower at 0.76 percent. The lowest wage response to firm size is found amongst sales and service staff, where a 10 percent increase in the size of the firm results in a 0.66 percent rise in their mean wages. The occupation most responsive to size change is craft workers, where a 10 percent change in firm size would result in close to a 1 percent alteration in the mean wage. The aggregate result, represented in the total column in the table, suggests that for manufacturing in the GJA as a whole, the wage-firm size elasticity is 0.065. The fascinating aspect of this result is that a study of US firms using the same specification as above yielded an elasticity across all skill levels, according to the hourly wage rate, of 0.06 (Doms et al, 1997). In other words, we can be fairly confident that the wage-firm size relationship we are deriving here is in keeping with results found elsewhere on the importance of firm size to wage determination within the firm. Despite the concerns about the size of the sample and its geographical and sectoral focus, the above results do provide strong initial evidence for the relevance and significance of firm size in determining the mean earnings of different skills groupings.

5 Training and Skills Development

Extending on our above labour market discussion, we turn now to a more detailed assessment of the various training and skills development issues that arose within the survey. We turn firstly to the differing skills intensities by sub-sector and size class within the survey. Then a more detailed analysis of training expenditure patterns, focusing on both internal and external training, is provided. We then assess three responses in the questionnaire to skills-specific issues, before proceeding to a more nuanced and technical assessment of the importance of training to firms' output levels.

Table 8 below presents estimates of the skills intensity of the different sub-sectors within the sample. We measure this in two ways: firstly simply by the number of managerial, professional and technical staff in the sub-sector. And secondly, the ratio of the latter number to all employees within the respective sub-sector, provides us with the skills coefficient measure. It is clear that the sectors with the largest quantum of skilled workers are Chemical Products, Electrical Machinery and Food processing & beverages. The lowest skilled worker need was found, not surprisingly, in the textiles industry.

Table 8: Measurement of Skills Intensity By Sector

Sector	**Employment**	**No. of Skilled Employees[a]**	**Skills Co-efficient[b]**
Chem. Products	8345	1181	14.15
Elec. Machinery	10450	1345	12.87
Food prss.& bev.	17165	1517	8.84
Iron & steel	11067	1115	10.07
Metal products	8080	869	10.75
Paper & fur.	6657	684	10.27
Textile	2948	123	4.17
Vehicle&auto comp.	6173	766	12.41
Total	70885	7600	10.72

[a]: Skilled employees are defined as Managerial, professional and technical staff.
[b]: Calculated as the ratio of the second to the first column, and expressed as a percentage.

The importance of the skills coefficient though is of course that it provides for a more accurate value of skills intensity, in that it measures relative shares of skilled workers. Hence, in terns of the coefficients, the most skills-intensive sub-sector is Chemical Products, followed by Electrical Machinery and Vehicle and automotive components. Once again though, the textile industry reflects the lowest skills intensity of just over 4 percent. Interestingly, the national estimate of skills intensity, based on the OHS99 for the economy as a whole was 21.91 percent, while that for manufacturing only stood at 16.91 percent. In addition, the OHS99 estimate for manufacturing skills intensity in the Gauteng province, stood at 20.03 percent. Hence, irrespective of which cut we take on the national data sets, we still find that the estimates of skills intensity exceed those of the WBLMS data set. Once again though, it may be the case that the small sample size of the WBLMS does bias the results.

6 Training Incidence and Expenditure

Of the 328 firms in the sample, 182 answered the question on how much they had spent in the last year on in-house training. Of the 182, 29 firms, representing about 16 percent of this sample, answered that they spent nothing on in-house training. With regard to outside training, a larger number of firms, 212, answered this question. However a larger portion of these firms, numbering 57 firms and so constituting about 27 percent of this sample, indicated that nothing was spent in the last year on outside training. Hence, as a starting point it is useful to note that for this sub-sample of firms, a fairly significant portion indicated that no resources were dedicated to internal or outside training. In addition though, a larger proportion of firms seem to be dissuaded from investments in external training opportunities for their employees. The figures however are illuminating when derived according to the size of the firm.

The aggregate figures on those firms not spending on either internal or external training provided above are thus more succinctly presented in Table 9 below. The first important fact about the table is that the percentage of firms not investing in outside training always exceeds those not spending on in-house training. This is to be expected, as the resources, time and costs attached to outside training would invariably exceed those of internal training.

Table 9: Percentage of Firms *Not* Investing In In-House And Outside Training[a]

Size Class	In-House Training	Outside Training
50 - 99 workers	21.43	38.75
100 - 199 workers	14.89	16.67
200+ workers	10.77	22.22
Total	15.93	26.89
Malaysia[b]		
101-250	11.2[c]	74.4[d]
250+	7.6	49.2
Mexico		
101-250	55.3	54.3
250+	69.6	59.8

[a]: The sample is those firms that answered the question concerning their quantity of expenditure on training.
[b]: Drawn from Tan & Batra,1995.
[c]: Percentage of firms not investing in informal training programmes
[d]: Percentage of firms not investing in external training programmes

It would seem though, that once again the size of the firm is important in determining whether it invests in either form of training. Specifically, the table illustrates that smaller firms are more likely than medium or large firms not to invest in in-house training. Thus, while about 21 percent of all small manufacturing firms in the GJA do not invest in internal training, this figure is only 15 percent for medium size firms, and 11 percent for large firms. Likewise, for external training, while the absolute figures are all higher, it is evident that small firms are more likely not to access outside training opportunities than medium and large firms. The differential between small and large firms for internal training is about 11 percentage points. In the case of external training, it is 17 percentage points. While a tentative conclusion, these relative proportions suggest that accessing external training is much more of a problem for small firms, than internal training options. Overall however, the level of training activity in small firms is lower than that of large firms.

The international comparisons in Table 9 are derived from a World Bank study on training and productivity (Tan & Batra,1995), which studied training patterns in four developing countries. We present here the relevant results from two of these countries, Malaysia and Mexico. The first point about this international data is methodological, namely that the definition of training, particularly in-house training can affect the estimates you derive. The World Bank study referred to informal internal training and formal internal training and tried to estimate what percentage of firms in fact has in place specific and well planned internal programmes as opposed to more ad hoc arrangements. The WBLMS one suspects, did not account for this subtle difference, and hence the estimates derived would seem to be of both formal and informal internal training. The upshot of the question around informal internal training in Mexico and Malaysia provide different results, with a large share of Mexican firms not investing in informal internal training[4]. The external training figures are thus probably more comparable, and what is clear here is that a much higher share of firms, irrespective of their size class, in both Mexico and Malaysia, are not investing in any form of external training relative to South African manufacturing firms in the GJA.

Moving beyond the incidence of training, we turn to those firms that do train either internally or externally, and try to ascertain the relative values of this training expenditure. Table 10 below therefore provides the first basic cut of this data, as it estimates training expenditure by manufacturing sub-sector in GJA. As is clear, the figures are annual, and both the mean and median numbers are provided. In terms of internal training, the median and means figures suggest that firms in the sample are spending about R50 000 per annum on in-house training, in 1998 Rands. In terms of the sub-sectoral divisions, the median training expenditure figures illustrate that the largest spenders on training were Chemical Products, Food Processing & Beverages each spending at the median R50 000 per year. The sub-sector, motor vehicles and automotive components follows, spending a median amount of R45 000 annually. The lowest median, and reflective perhaps of its low skills intensity, is the Textiles industry, which lays out about R10 000 for in-house training.

Table 10: Mean and Median Annual Expenditure on In-House and Outside Training (in Rands), By Sub-Sector

Sector	In-House Training		Outside Training	
	Median	Mean	Median	Mean
Chem. Products	50000	166055	100000	673883
Elec. Machinery	30000	110844	12500	69655
Food Prss.& Bev.	50000	1237731	100000	472067
Iron & Steel	30000	105668	14000	66484
Metal Products	25000	67496	25000	71101
Paper & Fur.	30000	1374478	5000	19252
Textile	10250	141438	6473	17243
Vehicle& Auto Comp.	45000	189548	5000	86791
Total	50000	50000	30000	30000

[4] It has been argued that this result is a function of the different way in which the questions on informal internal training were asked in the two countries. In Malaysia firms simply had to state the nature of the training whereas in Mexico firms had to specify actual numbers trained.

The mean figures do reflect a change in the ranking, although one needs to remember that the mean numbers are not as distribution-insensitive as the median. The presence of outliers in the sample will therefore impact on the results obtained for the mean expenditures. The figures for internal training reveal that Paper and furniture is the largest spender on average on internal training, followed by Food processing and motor vehicles and automotive components.

In terms of outside training, and comparing it with the incidence figures, we note that matching the lower incidence of outside training, is the fact that both the median and mean outside training expenditure figures are below those for internal training. Indeed, it seems that for the firms in the sample, for every R1 spent on external training, approximately R1.67 is spent on in-house training. The ranking of outside training expenditure by sub-sector contains the same three sectors, namely Chemical Products, Food processing and beverages and Metal Products. Interestingly, motor vehicles and automotive components yield the lowest median expenditure, which may to some extent reflect on the difficulty of trying to undertake what is highly firm-specific training externally.

In attempting to analyse training expenditure trends by firm size, Table 11 estimates the mean and median training expenditure per annum by the three size classes. Firstly, the internal-external training results from Table 10 above are not entirely replicated. While firms across all three size classes, spend more on internal training than external training by the median values, at the mean, medium size firms spend more on external than internal training. For small firms, for every Rand spent on external training at the median, R2.76 is spent on in-house training. For medium size firms, the gap is R1.23. However, in the case of large firms the extent of the differential decreases somewhat, as for every R1 on external training, large firms spend R1.42 on internal training.

Table 11: Mean and Median Annual Expenditure on In-House and Outside Training, By Size Class

Firm size	In-House Training		Outside Training	
	Median	Mean	Median	Mean
50 - 99 workers	11000	26551	3981	16395
100 - 199 workers	40000	184021	32500	290062
200+ workers	142000	749042	100000	236219
Total	50000	50000	30000	30000

In terms of the size classes, it is evident that large firms invariably spend more than small and medium firms on both internal and outside training. In one case, that of medium firms mean expenditure on outside training, the Rand amount is larger than that for the 200+ firms. We can assume that this is an aberration, due to an outlier in the medium firm sample. Specifically, in examining the median data, for every R1 that large firms spend on in-house training, small firms spend 7c and medium firms 28c on internal training. In the case of outside training, the differential rises to 4c for small firms but falls to 33c for medium firms. It would seem then that small manufacturing firms in the GJA are highly disadvantaged with regard to outside training, but medium firms surprisingly appear to have the capabilities to invest relatively more in external training.

The problem with the above data is that it does not provide us with relative training expenditure. We cannot ascertain each firm's contribution to training relative to its overall cost structure. Tables 12 and 13 below, attempt to calculate firms' annual expenditure on total training as a percentage of its

annual total costs[5]. Table 12 thus calculates annual training expenditure by sub-sector. At the median the best relative investor of training in the sample, is surprisingly, the textiles industry. This result displays the importance of examining relative expenditure patterns of firms, and so what was ostensibly a low training investment sub-sector, in relative terms turns out to be the best performer.

Following textiles, food processing and beverages, and motor vehicles and automotive components contribute the largest to training relative to their annual total costs.

Table 12: Annual Training Cost as a Percentage of Annual Costs, By Sector

Sector	In-House Training		Outside Training	
	Median	Mean	Median	Mean
Chem. Products	50000	166055	100000	673883
Elec. Machinery	30000	110844	12500	69655
Food Prss.& Bev.	50000	1237731	100000	472067
Iron & Steel	30000	105668	14000	66484
Metal Products	25000	67496	25000	71101
Paper & Fur.	30000	1374478	5000	19252
Textile	10250	141438	6473	17243
Vehicle& Auto Comp.	45000	189548	5000	86791
Total	50000	50000	30000	30000

In terms of the distribution-sensitive mean results, the ranking changes with the largest relative investor being the Chemical Products industry. This is followed by paper and furniture and then motor vehicles and automotive components. What is important to take away from these figures are the aggregate results. Hence, on the basis of the restrictive sample, we can argue that manufacturing firms in GJA spend on average the equivalent 0.73 percent of their total costs on training every year. At the median, again a more accurate reflection, this figure drops to 0.27 percent.

In terms of relative total training expenditure by firm size, the results are perhaps even more interesting. The advantage of taking training as a share of total costs, is that we are controlling for an important aspect of the ability of firms to train either internally or externally, namely their internal cost structure. One would expect that larger firms, in having more manoeuvrability within their total cost structure would spend more on total training.

Table 13: Annual Training Cost as a Percentage of Annual Costs, By Firm Size

Firm size	Median	Mean
50 - 99 workers	0.24	0.48
100 - 199 workers	0.30	1.37
200+ workers	0.27	0.55
Total	0.27	0.73

This fact is confirmed by the data above, where both at the median and the mean, large firms spend more than small firms on training as a share of total costs. Hence, large firms at the median spend 0.27 percent of total costs per year on training, while the figure for small firms is 0.24 percent. What is interesting though, is that for both the median and mean figures, medium size manufacturing firms in the GJA, are spending relatively more on training than their large counterparts. This result points to

[5] The components of firms' total cost function are purchases of material inputs into production, expenditure on utilities, labour costs, goods transport costs, machinery and equipment rental, land and/or building rental, telecommunication and postal services, royalty or licence fees and interest & other financial charges.

either the better performance of medium size firms in attempting to include training as part of their productive activities, or perhaps reflects on the poor ability of large firms to more effectively utilise their internal resources for expenditure on training. One would have expected that larger firms would be more serious about training than small or medium firms, but this result clearly suggests that the best performers in terms of training relative to total costs, are medium-sized enterprises.

Finally, in terms of measuring training expenditure in terms of the requirements of the Skills Development Act (SDA), we present in Table 14 below, annual total training expenditure as a share of total labour costs of firms. According to the SDA, the skills levy charged to firms would be set at 1 percent of firms' total payroll, as of April 2001. In this case, the data below is very useful for comparative purposes. Firstly, at the aggregate level, in both mean and median terms manufacturing firms in the GJA currently spend the same or more than the stipulated legal amount. Hence at the median, firms are spending the equivalent of 1 percent and at the mean, 3.17 percent of total labour costs on training every year. These are figures of course for the 1998 calendar year, and we cannot be sure if they have changed over the last three years.

Table 14: Annual Training Expenditure as Percentage of Total Labour Costs

Firm size	Mean	Median
50 - 99 workers	1.35	0.79
100 - 199 workers	5.57	1.66
200+ workers	3.3	1.04
Total	3.17	1

The higher relative expenditure of medium size enterprises is again evident, as according to both mean and median expenditure, these firms spend the most on training as a share of total labour costs. Small firms again spend the least, and at the median are spending less than the stipulated skills levy. What remains a worry however, is the relatively low share of expenditure undertaken by large firms. One would have thought and hoped that the anchor around which a successful national skills development strategy would be built, would be large firms. The advantage from a skills development policy perspective, is that these firms are far more visible and hence would be more easily accessed to ensure that some correction does take place in the level of importance placed on training.

7 Measuring the Importance of Skills and Training

This section deals with three discrete, yet inter-linked issues, that arise out of the WBLMS data set in relation to skills development issues. In particular they are concerned with firms' perceptions on firstly, the difficulty in accessing occupations, secondly the importance of outside training institutions and finally their views on the impact of the SDA on employment levels within the firm.

Taking the first of these, the table below presents the results from a question in the survey, which asked firms to list the broad seven occupational categories, and then to rank whether they found it very, hard, or not hard at all to recruit individuals within these different occupations. We tabulate here the percentage of firms, by size class, that found it hard or very hard to find specific occupations. For example, 34.25 percent of all small firms found it hard or very hard to find clerks. The first aspect of the data to note is that firms' ranking of the difficulty in finding specific occupation increases as we

move into higher occupational categories. Furthermore, it is only for labourers that there is an almost insignificant share of firms across all sizes, that find it hard or very hard to find these worker types. For all other occupations, at the aggregate level, a minimum of about a 33 percent 'search difficulty rate' exists. In other words it seems that firms, for all occupations bar one, find it relatively difficult to source qualified candidates.

Table 15: Hard or Very Hard to Find Specific Occupations (Percentage), By Size Class

Occupation/Size Class	50 - 99 workers	100 - 199 workers	200+ workers	Total
Managers	70.55	81.82	90.43	79.27
Profs& Tech	71.23	81.82	90.43	79.57
Clerks	34.25	29.55	32.98	32.62
Sales&ser	50.00	64.77	71.28	60.06
Craft	51.37	64.77	72.34	60.98
Operators	36.99	47.73	43.62	41.77
Labourers	4.11	7.95	3.19	4.88

Clearly though, the occupations deemed the hardest to source were managers and professional and technical staff, where in the aggregate about 80 percent of the total sample found it hard or very hard to find these individuals. In turn, the 'search difficulty rate' seems to vary by firm size. The larger the firm, the higher the 'search difficulty rate', with 90 percent of large firms compared to about 71 percent of small firms finding it difficult to access these skilled workers. Interestingly, the next two occupation that firms found hardest to access, were craft workers and those employed as service and Sales staff. For both these occupations, the difficulty rate varied from about 50 percent for small firms to 72 percent for large enterprises. The final two occupations, outside of labourers, that firms found least difficult to find were clerks and machine operators. However, despite this low ranking, across all sizes, between about 30 and 48 percent of firms in the sample found it hard or very hard to source these occupations. Ultimately then, this data suggests that firstly, more skilled occupations are harder to find than less skilled occupations. However, within this obvious conclusion, lies the result that a fairly significant share of firms find it difficult to access most occupations down to the level of machine operators. It is only amongst labourers, that no search difficulty is expressed. This information is crucial in that it suggests, that apart from South Africa's well-known skills deficit at the top-end of the labour market, semi-skilled workers are also in fairly short supply. Manufacturing firms in the GJA therefore apart from experiencing the obvious shortage of high-level person power, ostensibly also find that there is an inadequate supply of semi-skilled workers available to them. The one, perhaps simplistic, policy conclusion from this is that the national skills development programme needs to be focused on increasing the provision of skilled as well as semi-skilled workers, with the supply of the former of course increasing at a faster rate than the latter.

The table below is based on a question in the survey asking firms to individually rank training institutions, in terms of how valuable they found as an external training source. The results shed light on how employers perceive the quality and importance of the institutions of labour supply to their internal functioning. Each firm therefore had to rank each institution from the list in Table 16 below as either 'most important' or 'moderately important'.

Table 16: Importance of Outside Training Sources

Institution	Most Important	Moderately Important	Not Applicable
University	16.23	22.51	61.26
Business Partners (Other firms)	12.83	25.67	61.5
Government Institutes	12.43	22.7	64.86
Vocational/Technikons	33.51	24.23	42.27
Industry Training Boards	34.9	22.92	42.19
Private Training Schools	41.58	29.21	29.21

The results are unexpected. In the case of the 'most important' ranking, the majority of firms, 41.5 percent, found that private training schools were an ideal source for outside training. Second-ranked, were industry training boards, followed by vocational technikons. The biggest surprise from the results are of course the fact that universities are only ranked 4th in this tabulation of the most important sources of external training. In terms of the 'moderately important' category, private training schools remain the most preferred institution, followed by firms' business partners and then technikons. Although the difference in the last three institutions is marginal, universities are technically rated last. The crucial result from this table then is that universities, are in fact, perceived by employers to be a far less valuable source of skilled workers than say, for example, technikons or private training schools.

There are two important caveats to the above that suggests that one needs to be somewhat circumspect of these results. Firstly, the survey covers manufacturing only, and hence may be reflecting an occupational bias in firms' labour demand needs. The relatively low proportion of knowledge workers found in manufacturing, compared for example with the financial sector, may explain the low value placed on universities – the major producer of these worker types. Secondly, the nature of the question may have resulted in firms ranking those institutions where they send their employees for outside training, rather than ranking training sources for all their employees. If this were true, then it is not surprising that universities – obviously not a source for enterprise training – are rated poorly. It needs to be noted though that the survey does explicitly ask interviewees to rate 'outside training institutions' and not to rate 'outside training institutions where they send their employees for training'.

Notwithstanding the above concerns, and the fact that the sample only represents manufacturing firms in the GJA, the results are powerful. They point to the importance of firstly revisiting university curricula and assessing whether they in fact remain relevant to the needs of employers. In short, is the supply of university labour matched adequately with labour demand trends? On this basis of the above, albeit tentative evidence, the answer is clearly 'no'. The second point to emphasise from the results relates to the financing of higher education – particularly as it pertains to universities as opposed to technikons. The state, it is known, operates under a different subsidy formula for technikons, with the latter garnering less per student than universities. It would seem from the above that employers value technikon graduates more than they do their university counterparts. In this case then, the pricing structure of the state is in disequilibrium. Put simply, the state may be paying technikons less to produce graduates that are more in demand than similar graduates at universities. In doing so, the subsidy formula may be a hindrance to ensuring a more rapid growth in the provision of skilled workers for the domestic economy[6]. This would appear to be at least one possible intervention

[6] This anomaly will become much more stark with the pending restructuring of higher education, whereby technikon degrees will be accorded the same official accreditation as those in universities. In this scenario, the subsidy formula implicitly becomes more skewed.

required in order to ensure that the institutions of labour supply are in fact being provided with the optimal incentive structure in order to meet ongoing labour demand needs in the economy.

One of the most heated aspects of the South African labour market debate has been the impact of the regulatory environment on both wages and employment. While the relevance of this issue is greater in the case of for example, the Labour Relations Act, it remains an important consideration in the case of the SDA. In particular, the role of the levy in affecting internal labour market dynamics remains an important avenue for policy consideration. In this regard, we present data from the survey, which asked firms to say whether they felt the SDA had the effect of either raising or lowering employment, or would have a neutral impact. Table 17 makes it clear that in the aggregate, about 68 percent of the firms sampled said that the SDA would have no impact on employment within their enterprise. Noticeably though, a no insignificant share, 13 percent felt that the Act would lower employment levels in their firm.

Table 17: The Effect of the SDA on Employment, By Size Class

Code	50 - 99 workers	100 - 199 workers	200+ workers	Total
Raise it	2.82	6.9	4.44	**4.39**
Lower It	14.08	11.49	14.44	**13.48**
No Effect	61.97	73.56	71.11	**67.71**
Not Familiar	14.08	6.9	5.56	**9.72**
NA	7.04	1.15	4.44	**4.7**

In terms of the size breakdown, about 14 percent of small and large firms both thought that the Act would lower employment. Interestingly, for the largest investors of training, a lower share of medium firms (11.49 percent) thought that the SDA would decrease employment. Across all firm sizes, the dominant response was that the Act would have no employment effect. Medium and large firms were more convinced that there would be no adverse employment effects. Interestingly, quite a significant percentage of small firms, probably reflecting their lower resource capacity, had not given much attention to the possible employment effects of the Act at all.

The final set of results in this section of the paper are possibly the most important. An attempt is made here to determine the impact of training expenditure by firms on value-added in the firm. Put differently, we ask in the econometric estimation below whether increased expenditure on training within the firm leads to higher levels of value-added at the firm-level. As far as we are aware, it remains the first such attempt on analysing the impact of training, using South African data. The starting point of the estimation equation, is to model firms' production activity according to the standard Neo-Classical Cobb-Douglas production function. In most of these formulations of the C-D production function, production within a firm is seen to be a function of the value of the capital stock and the number of employed within the firm. In this context then, we are able to estimate the relationship between output and capital on the one hand and output and employment on the other hand. The innovation in this instance is to add an additional variable, namely expenditure on training by firms, to try and determine whether it has any significant impact on firm production levels. Our model is drawn from Tan & Batra (1995), who estimate similar production functions for Colombia, Indonesia, Malaysia, Mexico and Taiwan, on the basis of firm-level data.

In our estimation we regressed the log of value-added on the log of the capital stock, labour and training expenditure[7]. In addition, we added a dummy variable for exports, on the assumption that exporting firms would have more access to technology transfers, that may impact positively on production levels. Finally a set of sectoral dummies were also included in the regression, to control for the sectoral effects on firm-level production. The results from this regression are provided in Table 18 below.

Table 18: Production Function Estimates: Dependent Variable Log of Value Added

Variable	Coefficient	Std. Errors
Log (Labour)	0.446122*	0.159181
Log (Capital)	0.326488*	0.078235
Log (Training Expenditure)	0.161114**	0.065667
Exports[a]	-0.06861	0.218196
Constant	9.546593*	0.665128
Sample Size	66	
F-Statistic	12.92	
R-Squared	0.7015	
Adjusted R-Statistic	0.6472	

Note: Sectoral Dummies were included and all reported insignificant coefficients.
[a]: This is an export dummy, where the referent is those firms who do not export
*: Significant at the 1% level
**: Significant at the 5% level

The first drawback of the regression is that we are working with a very small database of 66 observations. The lack of reporting by all firms on all questions was raised at the beginning of this paper, and this problem is probably best highlighted with this small sample size. Given that the variables, bar the dummies, are continuous, we can directly interpret the values of the coefficients. In addition, because the variables are in log form, the coefficients are in effect elasticity measures. Firstly, we note that employment (the log of labour) is a positive and significant determinant of firm output. Specifically, a 1 percent increase in employment would result in a 0.45 percent rise in firm output. This leads one to argue that for this sample of manufacturing firms in the GJA, the output-employment elasticity stands at about 0.45. This, incidentally, is fairly close to some of the more recent output-employment estimates that have been derived for the national economy as a whole. In terms of the impact of capital stock acquisition on output, the results show that as with employment, the coefficient is significant and positive. Specifically, a 1 percent increase in the value of the capital stock would lead to a 0.33 percent rise in firm-level output. In both these cases though, note that firm output responds fairly inelastically to changes in output or capital stock.

The most important result, for our purposes here though, is that of the training expenditure variable. The coefficient on the log of training expenditure is positive and significant at the 5 percent level. The variable suggests that for every 1 percent increase in training expenditure (either internal or external) a firm's output will increase by 0.16 percent. Put differently, a 10 percent rise in training spending is associated with a 1.6 percent increase in production levels. We have here then, empirical proof of the importance of training to firm-level output. Training is thus good for production and ultimately firm growth. Again though, a note of caution, namely that the sample is small and within that only reflective of manufacturing firms within the GJA. Notwithstanding these drawbacks however, the regression results serve as a vital point of departure for engendering further estimates on databases that will hopefully be forthcoming, and will hopefully buttress the above initial claims of the relevance of internal and external training to expansion in firms' production levels.

[7] Value-added was measured as the sum of factor incomes by firms, and thus as per the standard definition, included wages & salaries, rent, interest and profits.The detail of the survey on these issues allowed us to capture a fairly substantial portion of these factor incomes.Capital stock was measured as the replacement value of all machinery and equipment as at the end of 1998.Training expenditure refers to the annual expenditure by each firm on either external or internal training.

8 Economic Profile of Firms in the National Enterprise Survey

As was mentioned at the beginning of the report, three-quarters of the firms in the NES sample were located in the Services Sector. The remainder or approximately one-quarter was classified as manufacturing firms. From the dataset, we have not been able to determine the economic sector in which the manufacturing or service activity of these firms is located. It has however been possible to gauge the extent to which either types of firm are engaged in export activities. Manufacturing firms show a greater preponderance to export activities, with 254 out of 367 (69.21 percent) firms producing for exports. Among Service firms, although proportionately more numerous, a smaller proportion were active in exports services. This is to be expected since the predilection toward the trade in services is confined to relatively specialised functions and are more likely to be recorded either in the design phase or concluding phase of the production cycle.

Table 19: Firms Engaged in Export Activities (1998)

Activity	Manufacturing Firms	Service Firms	Total
Not Exporting	113	702	815
%	30.79	66.16	57.07
Exporting	254	359	613
%	69.21	33.84	42.93
Total	367	1061	1428
%	100	100	100

An illustration would for instance be, architectural and project design and computing and financial support on the one end. Further downstream would be functions such as auditing and project evaluation on the other. Among service firms, a guess would be for large international consulting firms (such as Anderson Consulting) or small South African based firms (in for example civil engineering, architecture and ICT) offering niche technologies and services that are likely to be associated with the export of non-tradable services.

Using firm sentiments about the level of its current profitability in 1998, a rank of the level of firm profitability can be measured. Service firms show greater inclination at registering profitability. Service firms also show greater resilience at recording profit declines. These trends are illustrated in Table 20.

Table 20: Overall Profitability of Firms in National Enterprise Survey (1998)

Profitability of Firms in Survey	Manufacturing Firms	Service Firms	Total
Increased by more than 30%	58	186	244
%	16.52	18.29	17.84
Increased by between 10% and 30%	63	186	249
%	17.95	18.29	18.2
Increased by less than 10%	35	90	125
%	9.97	8.85	9.14
Remained about the same	50	254	304
%	14.25	24.98	22.22
Decreased by less than 10%	35	165	200
%	9.97	16.22	14.62
Decreased by between 10% and 30%	46	49	95
%	13.11	4.82	6.94
Decreased by more than 30%	64	87	151
%	18.23	8.55	11.04
Total	351	1017	1368
Percent	100	100	100

In terms of profit generation, 55 percent of Service firms showed profit increases compared to 44 percent of manufacturing firms. If one looks at the more detailed breakdowns in the changes in firm profitability, three categories can be identified. These are for service firms that recorded by way of rank, profit increases above 30 percent, between 10 percent and 30 percent as well as profit increases below 10 percent. A larger proportion of service firms also exhibited unchanged profit levels over the preceding period compared to those in manufacturing. The overall trend witnessed for the level of increases in profit was reversed when the degree of profit decline is measured. With the exception of profit declines that are less than 10 percent, service firms perform better at mitigating profit declines. Consequently in contrast, a smaller proportion of service firms (5 percent) record profit declines between 10 percent and 30 percent compared to 13 percent among manufacturing firms. A similar distinction is shown for profit declines that exceed 30 percent. These profit declines are higher for manufacturing firms. While it should be acknowledge that a profit decline does not necessarily imply a profit loss, it can be a precondition toward loss making for firms. In situations where operating costs are either unchanged or show substantial increments, the latter qualification is particularly apt. Under such conditions profit declines will coincide with loss making economic operations.

Table 21 outlines the distribution of firm size by type of firm in the National Enterprise Survey. In terms of firm size, more than half of manufacturing and service enterprises had 200 or more employees. This implies that these enterprises would have been designated as large firms. Just over 20 percent of manufacturing and service firms had between 50-99 and 100-199 employees.

Table 21: Size of Firms in NES by Number of Employees

Number of Employees	Type of Firm		Total
	Manufacturing	Service	
Less than 50	15	42	57
%	4.14	3.96	4.01
50-99	78	256	334
%	21.55	24.13	23.47
100-199	80	220	300
%	22.1	20.74	21.08
200 & Over	189	543	732
%	52.21	51.18	51.44
Total	362	1061	1423
%	100	100	100

Compared to enterprises that have more than 50 employees, small firms with less than 50 employees appear to be significantly under-represented in the return sample. Hence in terms of firm size, the sample itself does not appropriately mirror the profile of firms, which would be found in the national economy. Consequently, firms with less than 50 employees constitute fewer than 5 percent of the sample profile.

Drawing a closer comparison between firm size and shifts in profitability, enables some conjecture about the association and correlation between firm size and profitability to be made. While we are constrained by the nature of the data at our disposal, there is quite a close semblance in the acknowledgement of profit making and loss generation for firms that have 50 or more employees. More than one third of firms in the size cohorts 50-99, 100-199 and 200 and over, recorded increases in profitability in 1998 over the preceding year. The exact proportion of firms showing an increase in profits were as follows: 50-99: 36 percent; 100-199: 65 percent; 200 and over: 45 percent. In Table 22 this information on firm profitability is broken down into narrower cohorts that indicate profit increases of less than 10 percent, 10-30 percent and more than 30 percent respectively. The large proportion of firms showing a profit improvement in the 100-199 size cohort was chiefly due to the low percentage of firms indicating no changes in profitability.

Table 22: Overall Profitability of Firms in the Survey by Firm Size

Profitability of Firms in Survey	Less than 50	50-99	100-199	200 & Over	Total
Increased by more than 30%	3	57	98	86	244
%	5.36	17.12	38.43	11.93	17.88
Increased by between 10% and 30%	2	16	59	171	248
%	3.57	4.8	23.14	23.72	18.17
Increased by less than 10%	1	48	10	66	125
%	1.79	14.41	3.92	9.15	9.16
Remained about the same	3	95	17	189	304
%	5.36	28.53	6.67	26.21	22.27
Decreased by less than 10%	43	51	46	59	199
%	76.79	15.32	18.04	8.18	14.58
Decreased by between 10% and 30%	3	52	11	29	95
%	5.36	15.62	4.31	4.02	6.96
Decreased by more than 30%	1	14	14	121	150
%	1.79	4.2	5.49	16.78	10.99
Total	56	333	255	721	1365
Percent	100	100	100	100	100

A similar pattern is repeated where firms in the size cohorts above 50 employees registered a decrease in profitability. Just over 30 percent of firms in each of the above size cohorts indicated that a decline in profitability had taken place. Three scales in the profit decline ranged from under 10 percent, from 10 percent to 30 percent and over 30 percent. Overall, 35 percent of firms in the 50-99 employee size cohort registered a profit loss, 28 percent of firms in the 100-199 size cohort and 29 percent of firms which had 200 or more did so. It can therefore be observed that for all firms with more than 50 employees, numerically and proportionally more firms registered a profit increase than did so a profit decline. An exception was firms that had fewer than 50 employees. Although the sample for such firms was small, only 11 percent (6 out of 56) recorded an increase in firm profitability over the preceding year. Profitability remained unchanged for three firms. The bulk of small firms (84 percent or 47 out of 56) recorded a decrease in profitability.

While the data from which our analysis is based is not as comprehensive as one would have wished, it provides us with sufficient evidence to postulate some general remarks that can be pursued in greater detail in the analysis, which follows. It needs to be stated that the identification of profit declines in firms over previous periods does not signify a profit loss. It is merely a statement of lower profits that were earned in the period in which the firms were surveyed. While there are a multiple level of explanations that can be put forward about the performance of small firms compared to large firms the strongest and probably the most credible one relates to the economies of scale, which large firms enjoy over small firms. One can however conjecture about this relative performance with respect to engaging staff on the basis of a more intensive application of firm related flexibility. Now we know that the most prominent feature in the introduction and application of firm based flexibility would be reduced to employment contracts. An OECD (1989) survey suggests that firms would do so through a process of 'externalisation', in which normal employment contracts are replaced by commercial contracts. Normally, this is done for non-core staff and is characterised by putting working out, on-site subcontracting and the hiring of temporary staff from employment agencies or the use of self-employed workers. It is logical to presume that there are significant differences for small firms to bear similar advantages in expanding its deployment of external contractual relations, simply because the expansion requires greater managerial involvement and oversight. Of course it can be done when the contractual relations are limited and basic in orientation. The economies of scale do not make it worthwhile for the subcontractor to be solely responsible for the needs of the one firm. In large firms an entire maintenance section can be externalised from the parent company and be engaged as a subcontracting firm that depends solely on the parent for contract[8]. There may be other features of externalisation in which small firms are overshadowed in terms of performance in relation to large firms. A small-scale builder for instance therefore would be less inclined to simultaneously employ a bricklayer, a plastered and a tiler to core permanent staff. The preference would be to employ the bricklayer who can plaster and can tile all in one. Such an employee would not be engaged as a part-time or subcontract worker but would form part of the permanent labour force of the firm. Perhaps it is the inability of small firms to engage skilled labour with the appropriate spread in technical competence, which dictates the nature of profitability among small firms in a milieu of relative skill shortage and changing employment contracts. It may also be true that small firms would have to pay a premium to obtain the small quality of skilled and highly skilled labour that are engaged in a multiplicity of contractual relationships. While the prevailing managerial ideologies that guide staff procurement in small manufacturing firms may induce the extension of external flexibility one has to ponder to what extent this responsibility stretches managerial capacity and oversight, without necessary giving rise to the benefits, particularly in terms of costs, which are conventionally touted as the better practice. The conclusion that one can draw is that unless small firms are competing in the lower skill (skill surplus) spectrum of the economy, it remains at a disadvantage to large firms with respect to the quality of labour supplies. It does not seem to matter whether these are secured through normal contractual relations or through flexible contracts. A proviso to this is the payment of

[8] These features of subcontracting within small firms are ably demonstrated in Whittaker's (1997) analysis of small firms in the Japanese economy.

premiums on wages or additional incentives, which are not matched by large firms. These would however add to the operational costs of such firms. Since small firms have less flexibility in deploying a multiplicity of contractual relationships at the same time (permanent, part-time, subcontracting etc) and less managerial capacity and oversight to do so as a cost reduction strategy, there is greater dependence on conventional employment relations to provide specific sets of staff requirements. Perhaps this element is one of the most crucial reasons for the symptomatic profit decreases shown in Table 224 for firms with less than 50 employees.

9 Nature of Employment by Skill Category

The National Enterprise Survey provides a relatively nuanced picture on the distribution of full-time and part-time employment within the sample of firms surveyed. Overall, the ratio of full-time to part-time employment was roughly10:6.5. This means that out of a total employment composition of 3.3 million employees in the 1428 firms in the survey, 2 million were full time employees and the remaining 1.3 million were engaged as part-time workers. The numerical figures suggest that a convergence between full-time and part-time occupations is taking place and this suggests that firms are substituting full-time staff for part-time staff within particular occupations. We are not sure to what extent part-time employment had been an historically entrenched practice within the specific firms surveyed but if it is a recent phenomenon its pervasive character may be rooted in employer and employee preferences. Naturally employer preferences for part-time workers would be dictated by the need to achieve managerial flexibility in the training and oversight of part-time incumbents. Using the above presumption, part-time workers would be channelled to occupy jobs, which require diminished skill requirements compared to full-time workers. This implies that investment in training new incumbents is minimised and supervisory functions do not have to be altered from what is the norm for full-time workers. The literature tends to suggest that firms are more prone to invest in the training of full-time compared to part-time staff. This however does not necessarily imply that part-timers do not receive training before landing the jobs they do. The training of part-time workers may be undertaken at their own behest and as a personal financial obligation to improve employment opportunities on the labour market. Firms may be obtaining a training subsidy from part-time employees who undergo training that would not be available through the firm had they not been engaged as part-time staff.

It appears though that part-timers who are engaged by firms as a result of the prior training that they may have obtained are still considered to be inadequately trained or skilled to obtain a full-time position. The presumption is likely to be made that such workers nonetheless have a beneficial impact for the firm especially if they are able to acquire relevant job related experience during their part-time tenure. Doing so enables the firm to forgo further outlays in training expenses that are required to bring them up to speed. So even with self-initiated and self-financed training, employees may be insufficiently trained to command positions for full-time employment. Therefore when such employees settle for part-time employment, their prior training may be adequate to give them the start to acquire greater on the job experience that would not have been possible had they been unemployed. Their selection to employment would have been most unlikely had they not made the effort to procure further training themselves. It is therefore clear why further support for employees who are unemployed but on the brink of securing a position, however fragile and insecure has to be an option that can be invoked as a permanent systemic measure to facilitate greater labour market participation. This is a challenge for the national institutions that are either directing policy on training as well as those that are responsible for implementing the policy.

Unemployed or part-timers who endure the burden of their own training costs may however start off with the expectation that it would give them the leverage to secure full-time positions. But in the absence of such positions materialising are compelled into accepting the part-time posts that are on offer.

Table 23: Nature of Employment by Skill Category (1995) (NES)

Skill Category	Full-time	%	Part-time	%	Part-time as a % of Full-time
Managerial & Professional	233597	11.63	371	0.03	0.16
Clerical & Sales	570974	28.43	433330	33.23	75.89
Skilled Technician (artisans etc)	186558	9.29	29888	2.29	16.02
Semi-skilled Production Workers	85203	4.24	1122	0.09	1.32
Unskilled Workers	932185	46.41	839314	64.36	90.04
Total Workforce	2008517	100.00	1304025	100.00	64.92

Merely comparing the profile and proportionate segment of full-time and part-time workers in each occupational group, it is obvious that some full-time occupations are not duplicated among part-timers while others appear to receive greater emphasis and exaggeration. For instance one can declare with a fair degree of accuracy that the managerial and professional occupations coupled with skilled technicians (including artisans) and semi-skilled production workers are largely associated with full-time staff. From the perspective of part-time employment, there is a greater propensity to clerical and sales as well as unskilled workers to be engaged either in full-time or part-time employment. Taken as a totality all clerical and sales staff have a 7-3 chance of working in a part-time capacity and only a 7-4 chance that they will not have to do so. The chances of the 1.8 million unskilled workers based in the above firms having no option but a part-time position are even greater at 19-9. It is therefore clear that part-time employment is largely associated with clerical and sales occupations and with unskilled occupations and in fact the last column of Table 23 indicates the ratio of part-time employment to full time employment for the designated occupations.

Although the occupational categories deployed in the World Bank's Large Firm Survey and the NES do not represent a clean fit, the former at least provides a racial breakdown of the employment structure, which is not available in the NES. If the evidence for the Greater Johannesburg Area (GJA) can be generalised to the national profile of firms, it means that unskilled workers in particular will be largely African. Therefore unskilled part-time workers will be generally African too. The same however cannot necessarily be inferred for clerical and sales staff since they constitute 75 percent of part-timers in the NES. In the World Bank Large Firm Survey, African workers constituted 27 percent of employees within these occupational categories (see Table 3 above).

It is not inconceivable that within both of these occupations the number of part-time employees can exceed the number of full-time employees. Viewed from another dimension, the occupational and functional segmentation on the labour market is developing in the direction where a clear distinction can be made between full-time and part-time workers or core staff. This constitutes an essential human capital attribute of firms. It also gives the firm flexibility to manage specific adjustments in the labour market or production process. It may be true that labour brokering and sub-contracting may break the autonomy of part-time workers to achieve the independence and capacity to negotiate contracts separately with individual employers. Perhaps this is one reason why the notion of sub-contracting has elicited so much condemnation and opposition because it establishes archaic relations in which employees are bound to a sub-contractor who enters the sale of employment but obtains labour rents in return. Part-timers who possess an array of skills however do not necessarily become more vulnerable by not holding full-time jobs. Where part-time employment is associated with multiple job holding at different firms and where its incumbents are multi-skilled, the earnings potential of such workers may be more enhanced than had they been full-timers working for a specific firm.

These multitudinous possibilities which managerial and operational discretion allows in the firm, certainly adds to the scope for flexibility that firms can invoke as a strategy. Jonker and De Grip (1999) have pointed to a number of conceptions around flexibility that are discussed in the literature. For instance a distinction is drawn between external flexibility and internal flexibility. Under external flexibility, firms have the ability to vary the number of workers engaged by them. With internal flexibility, firms have the ability to change the quality of employment by retraining and re-assigning workers to perform different productive functions. A cautionary note needs to be signalled about the wide range of conceptions that are associated with flexibility. Without giving a precise definition, Dore, Bounine-Cabale and Tapiola (1989) distinguish between numerical and functional flexibility. They seem to imply that numerical flexibility concerns a differentiation in the quantity of inputs which firms make through changes in pricing mechanisms, reward systems or contractual obligations. In contrast their notion of functional flexibility refers to a differentiation in the quality of inputs that firms can make at different levels of the enterprise (Dore et.al. 1989, chapter 4). A more defined notion of flexibility is provided by Brunhes (1989: 13) which has five components. These are:

- External numerical flexibility, in which the firm can adjust the number of employees it hire according to its needs;
- Externalisation–which refers to sub-contracting arrangements or putting work out to enterprises or individuals thereby reducing the need for contract of employment by the party giving it out;
- Internal numerical flexibility is used when the level of working hours in the enterprise is adjusted in line with the needs of the firm, but the number of employees remains unchanged;
- Functional flexibility is used to modify the job assignment of workers according to the needs of the enterprise;
- Wage flexibility is enforced through adjustments in labour costs and wages. Wage flexibility is not necessarily overt and is institutionalised through the collective bargaining process.

Similarly, Jonker and de Grip suggest that a distinction in the literature is made between short-term flexibility regulated by short-term contracts and long term flexibility that is established by creating a system of permanent learning or life long learning as it is commonly known in South Africa. While these distinctions are extremely insightful about the configuration and possibilities for training, the amazing thing is that all four forms: external flexibility, internal flexibility, short-term flexibility and long-term flexibility have already acquired practical impact and significance in South Africa. The important point to note however is that some forms of flexibility have a greater propensity towards the acceleration of training within the specific enterprise. Using the five distinctions allured to by Brunhes, is that unless firms hire the requisite labour for the job without requiring to engage in some training or period of induction, functional flexibility and external numerical flexibility would require some level of training and retraining to be conducted within the enterprise. With respect to functional flexibility, the more intensive level of training would contribute to higher productivity levels, which the modification necessarily implies. Externalisation too may require some investment in training but this can only be specified if it is clear at what level of the skills band the externalisation takes place. But the onus on training will not fall onto the parent company making use of the subcontracting relation. It would fall on the subcontractor. Yet through quality control mechanisms and checks on the quality of the servicing done by the subcontractor, the parent can impose a training obligation onto the subcontractor and with it an increase in its start-up costs.

Table 24: Nature of Employment by Skilled Category and Size of Firm (1998) (President's Office Survey)

Skill Category	Firm Size according to Number of Employees									
Full-time	1-49	%	50-99	%	100-199	%	200 & Over	%	Total	%
Managerial & Professional	298	11.6	3292	13.8	3681	8.3	226302	11.7	233573	11.6
Clerical & Sales	531	20.7	11066	46.5	7305	16.5	552007	28.5	570909	28.4
Skilled Technician (artisans etc)	1113	43.5	2475	10.4	6952	15.7	176005	9.1	186545	9.3
Semi-skilled Production Workers	176	6.9	1994	8.4	3570	8.1	79395	4.1	85135	4.2
Unskilled Workers	442	17.3	4969	20.9	22794	51.5	903903	46.7	932108	46.4
Total Full-time	2560	100.0	23796	100.0	44302	100.0	1937612	100.0	2008270	100.0
Part-time										
Managerial & Professional	0	0.0	42	9.1	95	3.7	233	0.0	370	0.0
Clerical & Sales	4	19.0	144	31.1	99	3.8	433082	33.3	433329	33.2
Skilled Technician (artisans etc)	11	52.4	19	4.1	210	8.1	29629	2.3	29869	2.3
Semi-skilled Production Workers	0	0.0	47	10.2	56	2.2	1010	0.1	1113	0.1
Unskilled Workers	6	28.6	211	45.6	2118	82.2	836971	64.3	839306	64.4
Total Part-time	21	100.0	463	100.0	2578	100.0	1300925	100.0	1303987	100.0
Part-time as % of Aggregate Total										
Managerial & Professional	298	0.0	3334	1.3	3776	2.5	226535	0.1	233943	0.2
Clerical & Sales	535	0.7	11210	1.3	7404	1.3	985089	44.0	1004238	43.2
Skilled Technician (artisans etc)	1124	1.0	2494	0.8	7162	2.9	205634	14.4	216414	13.8
Semi-skilled Production Workers	176	0.0	2041	2.3	3626	1.5	80405	1.3	86248	1.3
Unskilled Workers	448	1.3	5180	4.1	24912	8.5	1740874	48.1	1771414	47.4
Total	2581	0.8	24259	1.9	46880	5.5	3238537	40.2	3312257	39.4

In Table 24 more detailed breakdowns that highlight the occupational segmentation in relation to the employment relationship is provided. This is done in relation to the size of firms in the survey. Since we now know that part-time employment is associated with the engagement of clerical and sales staff as well as the employment of unskilled workers, it is important to isolate the relative size of firms in which such an employment phenomenon takes place. Tabulating part-time employment as a proportion of aggregate employment, its significance is only discernible in large firms with 200 or more employees. In terms of the occupations which conform to this claim, clerical and sales and unskilled workers are again prominent. As a proportion of total employment in firms with 200 or more employers, 44 percent of clerical and sales staff and 48 percent of unskilled employees can be classified as part-time. But even skilled technicians in such large firms who are on part-time contracts make up almost 15 percent of the staff numbers within the specific occupational group. When these trends are contrasted with firms that are smaller, it is only among unskilled workers where the phenomenon of part-time employment is discernible. But it is relatively small: less than 5 percent of unskilled workers in the 50-99 employee sized firms are employed in a part-time capacity. In firms with 100-199 employees it is only marginally greater with 9 percent of unskilled workers employed thus.

Because the NES data only provides a snapshot of the full-time part-time divide, we are unable to accurately determine the veracity of the claim that part-time employment is growing and in which areas this growth is taking place. Taking the earlier evidence of a more rapid growth of part-time employment in small enterprises relative to medium and large scale enterprises that was shown for the period 1994 to 1998 in the World Bank Large Firm Survey for the GJMA, implies that the high concentration of part-time employment shown for large firms in the NES is not a recent phenomenon. It does however mean that part-time employment among small firms is likely to show substantial increases in the future.

What are the structural conditions that are giving rise to the emergence of part-time employment? We are not sure and neither does the available statistical sources verify whether the incidence of part-time employment is associated with singular job holding or with multiple job holding. In fact the actual experiences within firms may constitute an amalgam of the two. In instances where multiple job holding prevails, it would tend to be concentrated within the non-core activities of firm operations. In both manufacturing and service enterprises, the process of sub-contracting, which contributes largely to multiple job holding characterises clerical, administrative, cleaning and security functions. These functions are outside the purview of core enterprise functions. But multiple job holding can only arise successfully when a relative over supply in the intermediate type of skills that are being put out for subcontracting exists. Firms however are unlikely to dispose of skills in these fields if it undermines core operations or the capacity to renew core operations in the medium term.

Although the casualisation or sub-contracting of intermediate skills necessarily leads to the termination and restructuring of the protective dimension of the social wage (particularly pension and medical benefits), this would be partially compensated with higher wage premia. On the aggregate, under multiple job-holding, the marginal premia on job specific wages would result in an accumulated wage advantage of similarly placed core staff holding full-time posts and working for a single employer. Unfortunately, individual employees are unlikely to secure linkages with multiple employers over the short-term without the intermediation of labour brokers. The wages that they would potentially derive would be appropriated as a brokerage fee to secure the contract and linkage with the employer. Employees can break the cycle of dependence by embarking on constant job searchers until a sufficient client base is developed. It is not an exaggeration to conceive it being generalised on a wide scale. After all, a large proportion of domestic workers in cities, who can generally be classified as unskilled workers, have successfully secured full-time employment through multiple job holding. Where their obligations become entirely saturated, this serves as an entry point for friends or relatives who are either not fully utilised or in the process of entering the domain, to do so more actively.

Unless by choice, part-time employment that is associated with a single employer or source of income represents a serious problem for employees. Any semblance of the social wage is eroded and the pervasiveness of sub-minimum wages and limited training opportunities is likely to be the norm. So too is the incidence of poverty and absolute poverty.

10 Description of Changes in Full-Time Employment by Occupational Category and Firm Size

The above analysis enables us to provide a description the employment changes that have taken place in firms as a result of business expansion, technological shifts, the re-negotiation of contractual relations and through the re-organisation of work within firms. The effects stemming from these firm specific shifts can be exerted across occupational categories as well as across firms according to firm sizes. Although the data requires an investment in time to clean up thoroughly, a generation of basic Tables will provide some evidence to the claims made above, about the characteristics of small firms compared to large firms and the form that flexibility assumes in each of these. Question 42 of the NES sought to obtain an indication from firms about the single most important reason that could be discerned for changes in the number of full-time employees at firms in the sample since the beginning of 1998. Therefore without giving us the numerical size of the change in each specific firm, the answers retrieved give us an indication of the number of firms that were affected by the changes in full-time employment. Another limitation that the evidence embodies is that the NES does not indicate whether the changes in employment patterns signify contraction or expansion. Nonetheless it gives us an indication of the flexibility and ease with which firms were able to change the composition of its full time employees in order to meet particular business imperatives. These interventions at the firm level were ultimately responsible for the shifts in employment.

The evidence of this process is shown in Table 25. It can be seen that changes in production levels (affecting employment shifts in over 20 percent of all firms across all five employment categories in the firms surveyed) and changes in the production organisation within the plant (ranging from 6.9 percent of all firms for skilled technicians to 18 percent employing managerial and professional staff, as a result of changes in full-time employment levels) were the dominant reasons advanced for changing the level of employment within firms. Again, we are not sure whether employment increased or decreased. Careful scrutiny allows us to differentiate between the proportion within each occupational category that were affected by these employment shifts and the number of firms making these changes for each occupational category. Subtracting the number of firms where no change in full-time employment numbers were indicated, it is noticeable from the data in Table 25 that a greater number of firms indicated an employment shift for employees in managerial and professional occupations (772 firms), clerical and sales occupations (811 firms), skilled technician occupations (591 firms) and unskilled occupations (754 firms) than was the case for semi-skilled occupations (181 firms). Does this mean that semi-skilled occupations in firms do not feature as prominently in the plans that firms make to either contract or expand employment? If it is presumed that employment expansion within the remaining occupational categories occurs, the deduction one can make is that such an expansion would be more torpid within semi-skilled occupations. It is important to recognise that the dominant reasons for these employment shifts relate to different features of flexibility in firms. Following the definition provided by Brunhes above, changes in the production levels of these firms have a closer affinity to the application of external numerical flexibility. Table 25 also indicates that a significant shift in full-time employment was generated through increased capital expenditure. In this specific instance it is unlikely for such capital expenditures to have resulted in staff reductions and therefore the

conclusion can be drawn that increases in capital expenditure and changes in production levels contributed to the growth in full-time employment staff within the firms surveyed. The changes in the production organisation in the plan are more akin to a form of functional flexibility where job assignments were redefined so that the enterprise is able to cope with employment shifts. Traditionally such changes have been associated with employment reductions. From Table 25 it is noticeable that the proportion of firms in which skilled technicians that were affected by changes in production organisation within the plant was significantly lower than the managerial and professional, clerical and sales, semi-skilled and unskilled occupational categories. In fact, 64 plants required a change in the production organisation of skilled technician occupations within the plant. In contrast 187 plants required the organisation of managerial assignments to be re-organised. In the case of clerical and sales and semi-skilled and unskilled occupational categories, 189, 30 and 107 plants respectively were involved in such a re-organisation. We have not been able to tell whether these were the same firms instituting the re-organisation for all the respective occupational categories.

Contrary to what was anticipated, the level of outsourcing or subcontracting appears to be relatively low. As a proportion of overall employees affected by employment shifts induced through subcontracting only the skilled technician, semi-skilled and unskilled occupations recorded a demonstrable level of outsourcing amounting to roughly 5 percent of firms engaging workers within these specific occupations. The number of firms affected also remained small ranging from 8 in the case of unskilled workers to 13 and 14 respectively for skilled technicians and semi-skilled workers.

Are the effects that have been identified in the all the above equally valid for large and small firms or do other postulates have to be invoked to conclude our analysis?

Table 25: Most Important Reason why full-time employee numbers have changed since the start of 1998

Reason	Managerial & Professional	Clerical & Sales	Skilled Technician	Semi-skilled	Unskilled
Increased Capital Expenditure	96	94	97	15	96
%	9.42	8.86	10.54	5.62	9.41
Change in production levels	219	312	221	57	233
%	21.49	29.41	24.02	21.35	22.84
Change in labour laws and regulations	8	7	8	14	74
%	0.79	0.66	0.87	5.24	7.25
Outsourcing or subcontracting	6	12	61	11	65
%	0.59	1.13	6.63	4.12	6.37
New machinery requiring fewer employees	2	2	13	14	8
%	0.2	0.19	1.41	5.24	0.78
Change in production organisation within plant	187	189	64	30	107
%	18.35	17.81	6.96	11.24	10.49
Higher wages or salaries	48	90	46	10	52
%	4.71	8.48	5	3.75	5.1
Higher non-wage employee costs	5	7	3	4	5
%	0.49	0.66	0.33	1.5	0.49
Reason is different from all the above	101	98	78	26	114
%	9.91	9.24	8.48	9.74	11.18
No change in full-time employee numbers	347	250	329	86	266
%	34.05	23.56	35.76	32.21	26.08
Total	1019	1061	920	267	1020
%	100	100	100	100	100

Table 26: Single Most Important Reason for changes in full-time employee numbers by Firm Size since the start of 1998

	Firm Size According to the Number of Employees			
Skilled Technical (artisan etc)	**1-49**	**50-99**	**100-199**	**200 & Over**
Reason				
Increased Capital Expenditure	0	1	45	51
%	0	0.54	25.86	9.96
Change in production levels	0	11	54	156
%	0	5.91	31.03	30.47
Change in labour laws and regulations	0	2	3	3
%	0	1.08	1.72	0.59
Outsourcing or subcontracting	0	43	2	16
%	0	23.12	1.15	3.13
New machinery requiring fewer employees	0	2	2	9
%	0	1.08	1.15	1.76
Change in production organisation within plant	0	5	4	55
%	0	2.69	2.3	10.74
Higher wages or salaries	0	2	0	44
%	0	1.08	0	8.59
Higher non-wage employee costs	0	1	0	2
%	0	0.54	0	0.39
Reason is different from all the above	1	9	3	65
%	2.17	4.84	1.72	12.7
No change in full-time employee numbers	45	110	61	111
%	97.83	59.14	35.06	21.68
Total	46	186	174	512
%	100	100	100	100
Unskilled workers	**1-49**	**50-99**	**100-199**	**200 & Over**
Reason				
Increased Capital Expenditure	0	4	44	48
%	0	2.11	20	8.62
Change in production levels	3	53	55	122
%	5.88	27.89	25	21.9
Change in labour laws and regulations	3	5	48	18
%	5.88	2.63	21.82	3.23
Outsourcing or subcontracting	1	46	4	13
%	1.96	24.21	1.82	2.33
New machinery requiring fewer employees	0	0	0	8
%	0	0	0	1.44
Change in production organisation within plant	0	3	6	98
%	0	1.58	2.73	17.59
Higher wages or salaries	0	4	2	46
%	0	2.11	0.91	8.26
Higher non-wage employee costs	0	0	0	5
%	0	0	0	0.9
Reason is different from all the above	1	6	5	102
%	1.96	3.16	2.27	18.31
No change in full-time employee numbers	43	69	56	97
%	84.31	36.32	25.45	17.41
Total	51	190	220	557
%	100	100	100	100

By merely focusing on employment shifts that were registered for workers in skilled technician and unskilled occupations a description of the impact that these changes have on firm size can be identified. Indeed with respect to skilled technical workers, Table 26 shows that the bulk of small firms with less than 50 employees made no changes to the staff composition within this occupational group. With respect to unskilled production workers, the proportion of such firms not making a change in employee numbers drops to roughly 84 percent of firms. It is noticeable that as firm size increases, the proportion of firms not making a change in employee numbers declines further. But the proportion of firms making these changes appears to increase as the skilled level of the workforce declines. In the case of firms with an employee size of 50-99, a greater number of firms indicated staff changes for unskilled workers compared to skilled technical workers. The same applies to firms in the 100 - 199 employee size cohort. However even within large firms a turning point tends to be registered where the proportion and number of firms registering changes in the employment levels of skilled technicians shows greater variation than occurs for unskilled workers in lower skilled occupations. A similar conclusion holds when the comparison is made with semi-skilled workers. This is symptomatic of the shift towards more skilled occupations. It is also symptomatic of employment shifts that are occurring among service-orientated workers within firms (maintenance, repair and servicing) and not necessarily within the ranks of semi-skilled production workers. In fact, Bhorat (2001) has provided a measure of this labour market phenomenon at a macro economic level.

If we analyse the most important reason for changes in full-time employment by firm size, a more intricate picture begins to emerge. Again one has merely to give attention to the four most important reasons for the changes in full-time employment numbers that were analysed above, namely: increased capital expenditure, changes in production levels, changes in the production organisation within plants and sub-contracting. As was indicated previously the above firm based intervention to change the employment levels of full-time staff were grouped to specific forms of flexibility. Increased capital expenditure and changes in production levels were associated with external numerical flexibility. A change in the production organisation within the plant was postulated as a form of functional flexibility. Finally outsourcing was seen to be part of the process of externalisation. An examination of the trends depicted in Table 26 shows that in the case of skilled technical workers the growth in external numerical flexibility (particularly through changing production levels) and functional flexibility increases with the size of firms. The trend is not as unambiguous for the employment shift induced by an increase in capital expenditure involving technical workers.

A similar picture is conveyed in the flexible use of unskilled workers by firms. With the exception of anomalies shown for firms making increased capital expenditure (external numerical flexibility), the trend towards changes in the number of full-time unskilled workers definitely appears to be more pronounced as the size of firms increases. A similar pattern is depicted with respect to changes in the production organisation within the plant. But in the case of unskilled workers firms indicated that the change in labour laws and regulations were an additional reason for either contracting or expanding full time employment for these workers. But this is likely to mean only one thing: retrenchments and employment reductions for semi-skilled workers. Forty eight firms, in the 100-199 employee size cohort had done so since 1998 when the survey was undertaken. Perhaps this is an indication of institutionalised flexibility, which firms perceive as characterising the South African labour market. In our analysis of Table 25, we did indicated that with the exception of the middle and lower skilled occupations, the level of subcontracting or outsourcing appeared to be relatively low. How does this compare to firm size? With the exception of firms in the 50-99 size cohort it is relatively low. It is quite significant within firms in the 50-99 size range.

Perhaps these firms are attempting to use subcontracting as a strategy towards reducing managerial oversight of particular cohorts of workers. The increased use of unskilled workers in sub-contracting arrangements is to be expected, particularly in an economy characterised by a surplus supplies within these ranks. Basic conditions of employment that have been designed to protect these workers may be perceived as a hassle for firms to deal with and so this induces them to allocate the management and organisation of unskilled workers to subcontractors. An activist labour market policy which targets skills enhancement is an important cog in addresses such a phenomenon in the longer term. It is difficult to understand why firms in the 50-99 size cohort should also deploy outsourcing or subcontracting to skilled technical workers since these represent a labour supply which ought to be controlled in an economy of high skills shortages. Unless of course the incidence of sub-contracting has a close correspondence to the birth of a new sub-contracting firm that is initially dependent on the small parent company for contracts around servicing and maintenance (technical workers) and cleaning and catering services (unskilled workers).

11 Satisfaction about Labour Productivity

The clearest and perhaps most direct way in which management and business measures of the economic value to the enterprise that is derived from labour is either through perceptions and measures of labour productivity. But since we do not have adequate wage and output data to draw upon, we are unable to give any indication about the actual degree of labour productivity. The constraint implies that we have to base our analysis on the trends and problems that are associated with labour productivity derived from management perceptions, experiences or benchmarking.

Table 27: Firm Satisfaction with Labour Productivity according to Employment Size

Level of Satisfaction	Less than 50	50-99	100-199	200 & Over	Total
Very Satisfied	0	1	3	8	12
%	0	0.3	1.02	1.11	0.86
Satisfied	5	146	65	194	410
%	8.93	44.51	22.03	26.98	29.33
Don't Know	1	3	4	12	20
%	1.79	0.91	1.36	1.67	1.43
Dissatisfied	46	169	174	440	829
%	82.14	51.52	58.98	61.2	59.3
Most Dissatisfied	4	9	49	65	127
%	7.14	2.74	16.61	9.04	9.08
Total	56	328	295	719	1398
%	100	100	100	100	100

Table 27 records firm satisfaction with labour productivity according to the size of the enterprise. Comparing the degree of overall satisfaction (from very satisfied to merely satisfied) with the degree of dissatisfaction (dissatisfied to most dissatisfied), there is a greater level of dissatisfaction with labour productivity across all sizes of firms. While the extremes in the expression of satisfaction and dissatisfaction are more constrained, the overall impression is used as a gauge in the analysis. The level of dissatisfaction ranges from almost 90 percent in firms with less than 50 employees to over 70 percent for firms, which have 100 or more employees. In Perhaps these firms are attempting to use subcontracting as a strategy towards reducing managerial oversight of particular cohorts of workers. The increased use of unskilled workers in sub-contracting arrangements is to be expected, particularly

in an economy characterised by a surplus supplies within these ranks. Basic conditions of employment that have been designed to protect these workers may be perceived as a hassle for firms to deal with and so this induces them to allocate the management and organisation of unskilled workers to subcontractors. An activist labour market policy which targets skills enhancement is an important cog in addresses such a phenomenon in the longer term. It is difficult to understand why firms in the 50-99 size cohort should also deploy outsourcing or subcontracting to skilled technical workers since these represent a labour supply which ought to be controlled in an economy of high skills shortages. Unless of course the incidence of sub-contracting has a close correspondence to the birth of a new sub-contracting firm that is initially dependent on the small parent company for contracts around servicing and maintenance (technical workers) and cleaning and catering services (unskilled workers).

12 Productivity Constraints

A more detailed scrutiny of the reasons that firms advanced for their dissatisfaction with labour productivity indicates that a multiplicity of factors have been instrumental in contributing to the problem. It is not always clear to what extent problems that form part of the internal organisations of firm is the principle reason for these constraints on productivity, particularly if one is concerned at measuring the labour productivity in firms. Such internal organisational effects are linked to skills, supervision, wages and working conditions. Although there are a range of reasons advanced for constraints on labour productivity, a ranking enables us to isolate the most pertinent of these and as will be illustrated these bear major implications for the role that skills training can profitably play.

Table 28: First and Second Most Important Reasons for Firm Dissatisfaction with Productivity

Most Important Reason			Second Most Important Reason		
Reason	Frequency	Percent	Reason	Frequency	Percent
Inadequate Skills	315	35.23	Inadequate Skills	134	19.06
Inadequate Supervision	72	8.05	Inadequate Supervision	77	10.95
Low Wages	2	0.22	Low Wages	3	0.43
Poor Working Conditions	87	9.73	Poor Working Conditions	47	6.69
Trade union disruption	64	7.16	Trade union disruption	50	7.11
Inadequate equipment	212	23.71	Inadequate equipment	295	41.96
Poor employee motivation	124	13.87	Poor employee motivation	88	12.52
Other	18	2.01	Other	9	1.28
Total	894	100	Total	703	100

If one analyses the first and second most important reasons which firms have advanced for their dissatisfaction with productivity the pattern that is exhibited as the first preference is reinforced for the second most important reason. More than a third of the firms that provided answers to the question identified inadequate skills as the most important reason for their dissatisfaction with productivity. In order of rank this was followed by almost a quarter of firms (23.71 percent) identifying inadequate equipment as the main problem affecting productivity. The third reason given for dissatisfaction with firm productivity was attributed to poor employee motivation which 13.87 percent of the 894 firms chose. Despite a slight variation in the order of rank, these reasons mirror those chosen as the second

most important reason. In order of rank, firms chose the following as the second most important reasons for their dissatisfaction with productivity: inadequate equipment (41.96 percent), inadequate skills (19.06 percent), poor employee motivation (12.52 percent) and inadequate supervision (10.95 percent). For both the first and second reasons, skills orientated problems appear to be recognised in the form of inadequate skills and inadequate supervision.

The prevalence of inadequate skills among employees at the workplace suggests that the incidence of labour supply shortages have affected the operations of firms. It could also imply that firms are unable to secure the quality of labour supplies that are necessary to undertake normal firm operations at wage levels that are considered economically viable. Hence, this inability imposes a premium price on labour. While not as significant, the prevalence of inadequate supervision reinforces the view that under-supplies of particular skills on the labour market is the factor contributing to the problem. Alternatively, it may also signify firms upgrading lower level workers to hold supervisory positions without compensating them at the premium wage rate, which the under-supplies on the labour market dictate. In both instances, since its elimination cannot be achieved immediately, an ameliorating effect to the condition is further investment in training. In the instances noted above this training should ideally be directed to skills that improve work performance and supervisory functions.

Table 29: Most important reason for dissatisfaction with productivity by type of firm

Reason	Manufacturing	Service	Total
Inadequate Skills	59	256	315
%	24.08	39.45	35.23
Inadequate Supervision	25	47	72
%	10.2	7.24	8.05
Low Wages	1	1	2
%	0.41	0.15	0.22
Poor Working Conditions	0	87	87
%	0	13.41	9.73
Trade union disruption	61	3	64
%	24.9	0.46	7.16
Inadequate equipment	5	207	212
%	2.04	31.9	23.71
Poor employee motivation	77	47	124
%	31.43	7.24	13.87
Other	17	1	18
%	6.94	0.15	2.01
Total	245	649	894
%	100	100	100

Focusing exclusively on the issue of training, a brief glimpse at the data shows that the identification of inadequate skills is more deleterious in service related firms compared to manufacturing firms. This can be seen in Table 29 where 39 percent of service firms noted that the inadequate composition of skills within the available labour force was the chief reason for being dissatisfied with productivity in the firm. Among manufacturing firms, 24 percent expressed this sentiment. However when inadequate supervision was put forward as the principal reason for firm dissatisfaction with labour productivity, the differences among manufacturing and service firms was not as wide. Comparing the differences in the reasons presented about the dissatisfaction with productivity between manufacturing and service firms appears to mirror the structural and organisational features that are unique to each type respectively. Wide variations in the reasons advanced for the dissatisfaction with productivity between manufacturing and service firms can be noted with respect to poor working conditions, trade union disruption, inadequate equipment and poor employee motivation. Trade union disruption (25 percent for manufacturing enterprises versus 0.5 percent for service enterprises) and poor employee motivation (31 percent versus 7 percent) is felt more severely among manufacturing enterprises as a constraint to productivity performance. This suggests that should further investments in workplace training for employees be undertaken within manufacturing enterprises, it should encompass training that is conducive to improvements in the industrial relations climate. It would therefore be critical for employees that form part of the management structures to be incorporated into such training processes. A similar qualification ought to be made with respect to improving employee motivation: the direct line management within manufacturing firms – the supervisors, foremen and department heads – ought to be subjected to a wider and more continuous exposure with respect to motivating subordinate staff members. Relating the above to our earlier discussion about the form that flexibility in the enterprise can assume, suggests that internal flexibility is more likely to coexist with long-term flexibility. All forms of flexibility may be used in different parts of the enterprise at specific moments.

Contrasting the above scenario with the constraints on productivity enhancement in service firms two diametrical reasons are observable. These relate to poor working conditions (13 percent in service firms versus 0 percent in manufacturing firms) and inadequate equipment (32 percent versus 2 percent). If the educational and skill levels of the workforce in such firms can be correlated to the levels of remuneration, the degree of compensation and the incidence of part-time employment, it is logical to presume that educational and skills improvements will directly improve poor working conditions. Inadequate equipment is a big constraint to productivity improvements in service firms. After the level of skills, it is the second most significant factor affecting productivity in service firms. While 2 percent of manufacturing firms identified it as the most important reason for their dissatisfaction with productivity, 32 percent of service firms responded in this manner. The most obvious solution appears to lie in further capital investment where the existing stock of equipment is replaced with newer and more advanced equipment.

Table 30: Dissatisfaction with Training (Inadequate Skills) According to Size of Firm

Firm Size by Number of Employees	Most Important Reason	Second Most Important Reason
Less than 50	3	42
%	0.95	31.34
50-99	15	11
%	4.76	8.21
100-199	93	15
%	29.52	11.19
200 & Over	204	66
%	64.76	49.25
Total	315	134
%	100	100

If one compares the effect that dissatisfaction with the skills of employees (first reason in Table 29) has on the size of firms, the results depicted in Table 30 shows that large firms appear to experience it as a more significant problem than small firms. The trend is obvious when compared with the second most important reason. Among firms that selected inadequate skills as the most important reason for constraining productivity, 65 percent had 200 or more employees and 29 percent had 100 to 199 employees. Even when firms selected the limited availability of skills as their second most important reason for constraining the productivity of firms, half were for firms that had 200 or more employees.

13 Initiatives to Improve Productivity

The National Enterprise Survey contains a question eliciting the two most important things that firms had done to improve labour productivity in the two years before the survey was undertaken. Among the first major initiatives the training of employees was the most common initiative pursued to improve labour productivity and therefore approximately half (51 percent) of the firms in the survey pursued this option. Other first major initiatives pursued by firms included work process re-organisation (17 percent), incentive or bonus schemes (13 percent) and the provision of higher wages (12 percent). While these represented an interesting array of options, employee training was a dominant first option.

Table 31: First and Second Most Important Reason to Improve Labour Productivity

	First Major Initiative		**Second Major Initiative**	
Most Important Reason	Frequency	Percent	Frequency	Percent
Training of Employees	612	50.62	248	22.71
Work Process Re-organisation	207	17.12	298	27.29
Higher Wages	149	12.32	80	7.33
Improved Worker Benefits	15	1.24	121	11.08
Incentive or Bonus Schemes	163	13.48	145	13.28
New Technology	48	3.97	189	17.31
Other	15	1.24	11	1.01
Total	1209	100	1092	100

As can be seen in the two right hand columns of Table 31, a similar pattern was depicted for the second major initiatives that firms pursued. But work process re-organisation displaced employee training as the dominant option. Efforts to raise labour productivity by awarding higher wages as a strategy was less common. However the introduction of new technology (17 percent) acquired greater prominence as a second managerial option. In fact after work process re-organisation and the training of employees, it constituted the third most common labour productivity enhancing option.

Again, the results listing the most important initiatives that firms had embarked upon to improve labour productivity by the size of firms as can be seen in Table 32 merely shows further nuances to the trend exhibited above in Table 31. For firms with less than 50 employees, the training of employees as a strategy to improve labour productivity appears to have been the most common intervention engaged by over 80 percent of firms. However it seems that the larger a firm appears to

be, the more likely it is to deploy alternative techniques and mechanisms to enhance labour productivity. Larger firms with 50-99 employees deploy staff training as a strategy to improve labour productivity in 48 percent of the cases, but also use incentive or bonus schemes more aggressively than smaller or larger firms. With larger firms the training of employees, while important definitely coexists with other intervention mechanisms. Consequently, in firms with between 100 and 199 employees, the intervention to improve labour productivity pivots around three different strategies: training of employees (33 percent of firms), work process re-organisation (24 percent) and higher wages (34 percent). It seems that as capital intensity in firms increases so does the breadth of interventions directed to improvements in labour productivity. In the largest firms the propensity towards the training of employees is again given more emphasis. Now this difference between firms in the 100-199 size category in relation to firms that have 200 and more employees may be due to higher capital labour ratios in firms which are growing aggressively when compared to the larger and probably more established types of firms. The latter view is premised on the assumption that if the progress in the growth of firms in the 100 - 199 size category are to be tracked over time, then a large number of these would evolve into larger firms. An argument can also be made that in contrast to small firms, large firms have greater resources and manoeuvrability to experiment with the spectrum of options and strategies around flexibility.

Table 32: Most Important Reason to Improve Labour Productivity by Firm Size

	Less than 50	50-99	100-199	200 & Over	Total
Training of Employees	47	82	84	399	612
	82.46	47.67	33.2	55.26	50.83
Work Process Re-organisation	3	16	61	126	206
	5.26	9.3	24.11	17.45	17.11
Higher Wages	1	6	86	56	149
	1.75	3.49	33.99	7.76	12.38
Improved Worker Benefits	1	4	3	6	14
	1.75	2.33	1.19	0.83	1.16
Incentive or Bonus Schemes	1	50	10	101	162
	1.75	29.07	3.95	13.99	13.46
New Technology	2	11	5	29	47
	3.51	6.4	1.98	4.02	3.9
Other	2	3	4	5	14
	3.51	1.74	1.58	0.69	1.16
Total	57	172	253	722	1204
	100	100	100	100	100

Given the improved policy framework and institutional environment that presently promotes skills training (e.g. Skills Development Act, the Skills Development Levies Act and the National Skills Development Strategy), the assurance of hindsight demonstrates the far-reaching and strategic objective of these measures when originally conceived. But, even in 1998 after the publication of the Green Paper on Skills Development a year before, it was difficult for firms to draw the linkages between training and the impending state intervention on this front, which were to follow in subsequent years. By adopting a range of interventions to secure positive improvements in labour productivity, the evidence illustrates the proactive orientation of enterprise management in South African firms and the widely varying paradigms from which they drew lessons and conceptualised their interventions. So therefore, even before the adoption of a new policy framework and institutional

environment to promote skills training within South African firms, employee training had obviously become the benchmark in efforts to improve labour productivity. But, as much as skills training has been lauded as an important component of the enterprise landscape in South Africa, it needs reminding that managerial ingenuity and capacity is equally important in identifying problems and in devising remedies to improve the components that influence labour productivity in firms. Managers too have to be trained and subjected to continuous re-training and learning once immersed into the world of work, because it is only the select few that can intuitively test the limits of new managerial innovations. And to do so, their actions have to be backed up with enterprise resources, which can be deployed to undo what they have done should the experimentation prove to be wrong.

14 Training Costs

It needs to be stated categorically, that the data distilled from the National Enterprise Survey on the costs of training, represents the least robust aspect of the data. This is because the actual aggregate cost figures appear to be coded and captured incorrectly. It was noticed particularly in instances where expenditure on training was less than R100 000, data was not rounded at all. Thereafter, it seems that the data was rounded by a factor of a thousand. Later when firm costs exceeded one million Rand, the previous rounding was forgotten and in some instances the data was captured as if it had to be rounded to the nearest million. In the upper deciles, this gave rise to an astronomical exaggeration of mean costs. Hence this may explain why the median and mean training costs for firms that have less than 50 employees appears to exceed that of firms with an employee size of 50 to 499. Under no conditions does this make sense particularly since the firms with under 50 employees are supposed to mirror those that are larger in terms of the type of firm and the economic and sectoral fields in which they are located. Therefore recognising the problem which confronts our analysis and ignoring this aberration in the data for firms with less than 50 employees, the following can be said: median and mean training costs increase in firms by size of enterprise. This is starkly demonstrated in Table 31 where median training cost by firm size increases from R55000 in 50-99 size firms to R66 000 in firms with 500 and more employees. A similar upward increase in mean firm training costs is depicted in the right-hand column of Table 31.

Table 33: Median and Mean Firm Training Costs(in Thousand Rands) by Size of Firm

Size of Firm	Number of Firms	Median Costs	Mean Costs
Less than 50	56	600	450.1429
50-99	318	55	123.183
100-199	245	100	180.6141
200-499	248	200	312.9814
500 & over	371	600	8524.954
Total	1238		

A further aggregation of the overall distribution of firm expenditure on training that is illustrated above is given in Table 34 by firm size. Here it can be noticed that the distribution includes firms that make no direct expenditure on training. While the trend of most firms is to progressively invest in training, free riding or under-investment even by larger firms does indeed occur. In the absence of more robust statistical analysis, a simple distribution of the ceiling or floor that the majority of firms

within a particular size category fall into reveals some interesting trends. Ignoring firms with less than 50 employees, it can be seen that the majority of firms in the 50 - 99 and the 100 - 199 size category establish a ceiling on aggregate training costs that does not go beyond R100000. In the case of the 50-99 sized firms, almost a third (64 percent) spend R100000 or less on training. A small number of firms within this size category record expenditure at each of the expenditure cohorts above this amount. A similar trend is depicted for firms that have 100-199 employees: 58 percent of these firms spend R100000 or less on staff training. At each of the cohorts above this amount, noticeably more is spent on training that in the case of the smaller firms. This is to be expected and so 19 conditions of the firms in the 100-199 sized category spent over R2 million on training.

This ceiling is breached for firms with 200 or more employees. In the case of firms that have 200-499 employees, the floor on aggregate training costs that the majority of firms exceed is R500001 and over. From the data in Table 34, it can be seen that 55 percent of firms fit into this category. While a high number, those firms that are below this floor are a minority (45 percent). For firms which have 500 or more employees this ceiling on aggregate training expenditure is significantly higher: 54 percent spend over a R1 million on training, and by far the biggest cohort (42 percent) are recorded to be spending over R2 million on training per annum. Despite these comparatively complementary figures, 8 firms out of 440 in the size cohort spent nothing on training.

Table 34: Annual Training Expenditure in Rands by Firm Size (1998)

Rands	Less than 50	50-99	100-199	200-499	500 & over	Total
None	0	2	2	1	8	13
%	0	0.6	0.67	0.34	1.82	0.91
1-100000	13	213	172	106	78	582
%	22.81	63.77	57.33	35.81	17.73	40.78
100001-250000	2	53	52	26	13	146
%	3.51	15.87	17.33	8.78	2.95	10.23
250001-500000	1	48	9	95	53	206
%	1.75	14.37	3	32.09	12.05	14.44
500001-1000000	40	1	4	9	50	104
%	70.18	0.3	1.33	3.04	11.36	7.29
1000001-2000000	0	1	4	9	53	67
%	0	0.3	1.33	3.04	12.05	4.7
Over 2 million	1	16	57	50	185	309
%	1.75	4.79	19	16.89	42.05	21.65
Total	57	334	300	296	440	1427
%	100	100	100	100	100	100

15 Conclusions

The results from the WBLMS have constantly been qualified with the small sample size nature of the data set, as well as its focus purely on manufacturing within the GJA. Despite this caution, the analyses above did reveal some useful and interesting trends. We saw that firm size, impossible to measure in household surveys, remains a critical and significant determinant of wages at the occupational level. Larger firms, the study shows, have been paying higher wages for workers in similar occupations. Through the descriptive statistics, we saw that large firms paid on average about 20 percent more than small firms for managers and professionals, with this premium being about 12 percent for the sample as a whole.

The training and skills development issues yielded extremely interesting data. After presenting data on skills intensity by sub-sector we found, for example, that South African manufacturing firms were more likely to invest in training than there counterparts in some other developing countries. More importantly perhaps, size was again a factor, with small firms more likely not to undertake internal or external training than medium or large firms. The one result that was surprising here was that medium size firms seemed more prone to investment in training than firms with more than 200 employees. This seemed an odd outcome, but one that does bear relevance for skills development interventions aimed at large, more high-profile enterprises. In terms of the 'search difficulty rates' uncovered, it was clear and expected that the two most skilled occupations yielded the highest search difficulty rates. What as illuminating though was that for all occupations, barring labourers, a fairly high share of employers found it hard to access appropriately trained and experienced workers. The skills shortage therefore, while acute at the top-end, is also existent at the mid-level of internal job ladder.

A crucial result related to the relative unimportance placed on universities either as a very important or moderately important source for workers, by firms. In this particular question, firms felt that private training colleges and technikons were the most valuable institutions of labour supply. This outcome must surely activate a much-needed debate on amongst other issues, the current structure of the higher education subsidy formula. Finally, the production function regression results, provide the first empirically grounded proof that firms who invest in training will reap the rewards in the form of a growth in production levels. The simple message from the regression is that training ultimately makes very good business sense.

The National Enterprise Survey has provided a wider coverage of the trends in firm based training in South Africa even though this has been at the sacrifice of robust supporting evidence on earnings, education as well as historical data. Historical data would have provided an indication of the changing trends of training in firms according to the size and type of enterprise and the sector in which they are engaged. Nonetheless the data has given us a unique description of these trends for a static time period and this has been shown through the latter part of the report. Importantly, it has also illuminated the pervasive nature that part-time or casual employment as an emerging contractual relationship occupies between employers and employees. It also confirmed enterprise sentiments about dissatisfaction with labour productivity and the importance which skills training programmes can contribute to alleviating the problem.

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