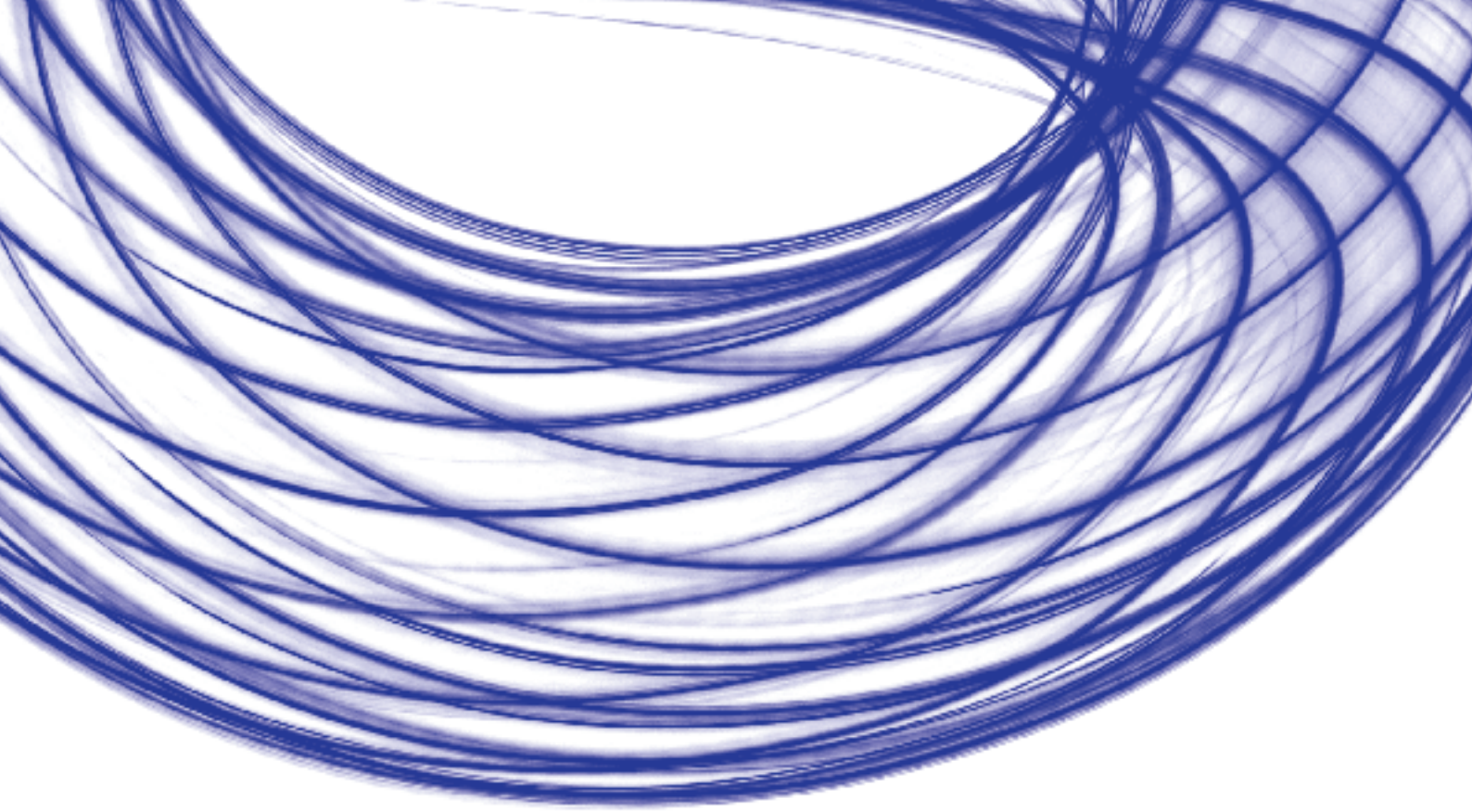

THE DISTRIBUTION AND RETURNS TO QUALIFICATIONS IN THE SECTOR SKILLS COUNCILS

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THE DISTRIBUTION AND RETURNS TO QUALIFICATIONS IN THE SECTOR SKILLS COUNCILS

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Sector Skills Development Agency: Research Series

In October 2002 the Department for Education and Skills formally launched Skills for Business (SfB), a new UK-wide network of employer-led Sector Skills Councils (SSCs), supported and directed by the Sector Skills Development Agency (SSDA). The purpose of SfB is to bring employers more centre stage in articulating their skill needs and delivering skills-based productivity improvements that can enhance UK competitiveness and the effectiveness of public services. The remit of the SSDA includes establishing and progressing the network of SSCs, supporting the SSCs in the development of their own capacity and providing a range of core services. Additionally the SSDA has responsibility for representing sectors not covered by an SSC and co-ordinating action on generic issues.

Research, and developing a sound evidence base, is central to the SSDA and to Skills for Business as a whole. It is crucial in: analysing productivity and skill needs; identifying priorities for action; and improving the evolving policy and skills agenda. It is vital that the SSDA research team works closely with partners already involved in skills and related research to generally drive up the quality of sectoral labour market analysis in the UK and to develop a more shared understanding of UK-wide sector priorities.

The SSDA is undertaking a variety of activities to develop the analytical capacity of the network and enhance its evidence base. This involves: developing a substantial programme of new research and evaluation, including international research; synthesizing existing research; developing a common skills and labour market intelligence framework; taking part in partnership research projects across the UK; and setting up an expert panel drawing on the knowledge of leading academics, consultants and researchers in the field of labour market studies. Members of this panel will feed into specific research projects and peer review the outputs; be invited to participate in seminars and consultation events on specific research and policy issues; and will be asked to contribute to an annual research conference.

The SSDA takes the dissemination of research findings seriously. As such it has developed this dedicated research series to publish all research sponsored by the SSDA.

Lesley Giles
Acting Director of Strategy and Research at the SSDA

THE DISTRIBUTION AND RETURNS TO QUALIFICATIONS IN THE SSCs
FOREWORD

Skills for Business (SfB), the UK-wide network of employer-led Sector Skills Councils (SSCs), supported and directed by the Sector Skills Development Agency (SSDA), was launched in October 2002. The purpose of SfB is to bring employers more centre-stage in articulating their skill needs and delivering skills-based productivity improvements that can enhance UK competitiveness and the effectiveness of public services. The remit of the SSDA includes establishing and progressing the network of SSCs, supporting the SSCs in the development of their own capacity and providing a range of core services. Additionally the SSDA has responsibility for representing sectors not covered by an SSC and co-ordinating action on cross cutting and generic skills issues.

The analysis of productivity and skill needs, the identification of priorities for action, and the advancement of the policy agenda on skills all require the further development of high quality, sectoral labour market analysis and the development of a more shared understanding of UK-wide sector priorities. The SSDA is therefore undertaking a variety of activities with the SSCs to develop the analytical capacity of the SfB network, and to enhance its evidence base. The network has worked to develop a common LMI framework which pools and synthesises existing comparable sources of LMI and supplements them with more detailed intelligence and sector insight provided by the SSCs.

This report was commissioned for the SfB network by the SSDA, who also sponsored the research. It addresses a number of the key priorities of the SSDA, not least in providing a further source of comparable evidence around skills and deploying a consistent methodology:

- For the very first time, we provide comparative and consistent evidence on the skills profiles of the individual SSCs as captured by the qualifications held by their workers. We also provide information on differences in average hourly rates of pay across the SSCs. All of this information is derived from common data using a consistent and coherent set of definitions for each of the SSCs.
- Deploying a common methodology, we present evidence on the value of qualifications in each of the SSCs as reflected in the wage premiums or rates of return that these qualifications attract. We show that the average returns to a given level of qualification, as reported in the existing literature, disguise considerable differences in the returns between sectors. If wages reflect individual productivity, then these differences in returns also give an indication of the impact of qualifications/skills on worker productivity in the different SSCs.
- Finally, the differential returns between SSCs can also indicate the relative demand for and supply of qualifications in different sectors, since a high return implies a high demand and/or a low supply for that qualification, while a low return implies low demand and/or high supply of that qualification. Our results can thus be interpreted as providing an indicator of the relative demand for skills in different SSCs, an issue that is clearly of major importance across the whole of the SfB network.

Andy Dickerson and Anna Vignoles, December 2006

THE DISTRIBUTION AND RETURNS TO QUALIFICATIONS IN THE SSCs

SUMMARY

This research was commissioned for the Skills for Business (SfB) network by the Sector Skills Development Agency (SSDA). It presents the first systematic evaluation of the variation in the distribution of, and returns to, qualifications using sectors defined by the newly established network of 25 Sector Skills Councils (SSCs)[1]. It examines the current utilisation of qualifications in each SSC, as well as the relative demand and supply of skills as indicated by the differential returns to qualifications in each sector. This research is intended to contribute to the skill needs assessments undertaken by each SSC in particular as part of their Sector Skills Agreements (SSAs). It addresses a fundamental issue for all those working on skills issues in the SSCs, as well as policy-makers concerned with national education and training policy.

The study utilises data drawn from the Labour Force Survey (LFS) for 2000 to 2004 and presents estimates of the proportion of the workforce in each SSC holding qualifications as categorised by the five levels of the National Qualifications Framework (NQF). It differentiates between academic and vocational qualifications, and presents separate analyses for men and women, since it is apparent that men and women have rather different qualifications profiles and are concentrated in different sectors. Finally it estimates the earnings premiums which accrue to the different qualifications in each SSC.

Therefore it builds on the existing national aggregate evidence which dominates the literature on the distribution and returns to qualifications. It shows that there are substantial and significant differences between sectors which merit further investigation. There is considerable variation in the skills profiles of different SSCs as reflected in the distribution of qualifications, and also sizeable disparities in the premium paid to different qualifications across SSCs. The authors' interpretation is that these differentials reflect differences in the relative supply and demand for skills between the SSCs. The SSCs are well placed to contextualise the findings for their sectors and to undertake further work.

There are also a number of more specific issues that are considered in the report. These can be grouped under three main headings:

1 How does the utilisation of low-level, intermediate-level and high-level skills differ between sectors?

It is inevitable that there will be differences in the utilisation of skills between sectors due to the nature of the goods or services that each sector produces. However, we are most concerned about the lower end of the skills spectrum where there is evidence that the demand for skills in some sectors is particularly low (as compared to our international competitors for example). The identification of such sectors is the first step towards designing and implementing appropriate policies to stimulate the

[1] The study uses the SSC definitions derived from SIC codes. As such the definitions are a 'best fit' for each SSC footprint. See Table A1 for details of the SSC definitions.

demand for skills in these sectors. At the other end of the scale, we are also interested in the differential utilisation of higher level skills across SSCs.

What do we find?

First, it is clear that SSCs have hugely differing demands for unskilled labour:

- For men, more than 20% of the workforce have no qualifications in Lantra, Improve Ltd, Skillfast-UK and Asset Skills and, for women, more than 20% of the workforce is unskilled in Proskills, Improve Ltd, Skillfast-UK, SEMTA, Skillsmart Retail, Skills for Logistics and Asset Skills.
- In contrast, for men, less than 5% of the workforce have no qualifications in Financial Services, e-skills UK and Lifelong Learning UK. For women, there are no sectors that have very low proportions of workers with no qualifications (i.e. less than 5%).

Similar variation is evident when we consider higher level qualifications. For example, for NQF level 4 qualifications (degree or vocational equivalent):

- For men, the proportion of the workforce with level 4 ranges from under 10% in Automotive Skills and Skills for Logistics, to more than 50% in e-Skills UK, Skills for Health and Lifelong Learning UK;
- For women, the proportion of the workforce with level 4 ranges from under 10% for Skillfast UK and Automotive Skills to more than 50% in Lifelong Learning UK.

These differences in skills profiles between sectors are also reflected in the sectoral distribution of pay. The gap in hourly wage rates in 2004 for full-time employees between the highest paid sectors and lowest paid is substantial:

- Male workers in Financial Services, e-skills UK, Skillset and Creative & Cultural Skills received on average more than £15 per hour, whereas those in Lantra, Skillfast UK, Automotive Skills, People 1st and Skills for Logistics received less than £9 per hour on average;
- Only in Skillset did women earn more than £15 per hour on average, and in 11 of the 27 SSC groups they received less than £9 per hour.

2 Does the UK have the right skill mix, or is there evidence of skill shortages or surpluses of different skills?

There are a number of dimensions to this issue which can be usefully addressed within the sectoral approach undertaken here. First, several previous studies have found zero or even negative returns to low level vocational qualifications at the aggregate level. This suggests that the skills embodied in such qualifications are either not in short supply or not highly valued by employers or both. However, this result may not hold across all sectors. We need to identify sectors where such qualifications are valued by employers in order to help understand why they are not valued in most other sectors.

It has also frequently been asserted that the UK has an ongoing problem with the supply of intermediate vocational skills. It is certainly true that a relatively small proportion of the workforce hold such qualifications. For example, whilst more than 1-in-5 of all men have level 3 academic qualifications, only 14% have level 3 vocational qualifications. The proportion of females with level 3 vocational qualifications is even

lower than for males, at just 9%. Thus, there is a relatively low supply of vocationally trained labour with intermediate (level 3) skills, as compared to the supply of academic skills. A sectoral approach can identify whether this has consequently resulted in a high return to intermediate vocational skills in those sectors where they are especially important. However, if we do not observe high returns to intermediate skills, then we may suspect insufficient demand for such skills.

Other commentators have argued that the plethora of vocational qualifications makes it difficult for employers to ascertain the true value of different vocational qualifications. A sectoral analysis of the distribution and returns to these qualifications will help to highlight which ones are well rewarded – or at least, the sectors where these qualifications receive a positive rate of return – and are therefore presumably well understood by employers.

Finally, there has been a significant expansion of higher education in the UK in recent years. However, as yet, there has been no substantial fall in the value of a degree, at least at the aggregate level. A sectoral approach can highlight where there may still be specific skill shortages at the graduate level – and thus shortages of the kinds of graduates who are employable in these sectors – even in the face of a general rise in supply. Conversely, if there are sectors where the returns to a degree are comparatively low, this may suggest an over-supply of graduates to those sectors.

What do we find?

In aggregate, the returns to qualifications are quite similar for full-time men and women. The rate of return to level 1 qualifications is negligible or zero; while at level 2 and above, the returns are positive and significant, and quite substantial – around 13-16% for both level 2 and level 3 qualifications, and rising to 23-31% for level 4 and level 5 qualifications. These differences in pay take account of other characteristics of the individuals and the jobs they do. Moreover, they can be cumulated, such that an individual with level 3 *and* level 4 qualifications will earn around 40% more per hour than a similar individual with only level 2 qualifications.

Distinguishing between academic and vocational qualifications at each NQF level reveals some significant differences:

- The positive returns to qualifications observed at level 2 and above are driven by the positive returns to academic rather than vocational qualifications. Employers appear to recognise and value academic qualifications;
- By contrast, there is much greater variability in the return to vocational qualifications by sector, for both men and women. This is consistent with the notion that employers find it hard to understand the economic value of the plethora of vocational qualifications available and that indeed the content of the variety of these qualifications differs substantially.

The returns to level 2 vocational qualifications are negligible or negative for almost all SSCs for both men and women. Only the Energy & Utility Skills and People 1st SSCs show a positive significant return to level 2 vocational qualifications for males. For women, the return to level 2 vocational qualifications is significantly positive in just one SSC, Automotive Skills (albeit based on a relatively small sample size). Clearly

we need further qualitative work to understand the nature of low level vocational qualifications and why they have such little labour market value terms of earnings.

In terms of intermediate (level 3) vocational qualifications, there is no evidence of the relatively low supply leading to high returns. Some (generally production-based) SSCs do offer a robust return to these qualifications (e.g. Lantra, Cogent, Improve Ltd, Skillfast-UK and Energy & Utility Skills for males and Improve Ltd and Skills for Logistics for women). However, in just under half of SSCs, the return to level 3 vocational qualifications is essentially zero. Clearly, on the basis of this evidence, there is no national shortage of level 3 vocational skills. Both supply and demand for level 3 vocational qualifications appears to be relatively low. The issue therefore appears to be more one of low demand compared to our international competitors, which arguably needs to be stimulated if skill levels are to be on a par with those abroad, and the aspirations of Leitch are to be achieved.

Level 4 academic qualifications give a high return across the board, which does not suggest that there is an excess supply of graduates overall:

- For men, in five SSCs, the return to a degree exceeds 30% (Cogent, Improve Ltd, Skillfast-UK, SEMTA and Skills for Health);
- For women, the return to a degree exceeds 30% in five SSCs (Improve Ltd, Skillfast-UK, SEMTA, Automotive Skills and Skills for Care and Development).

In some service-based SSCs however, the return to a degree is substantially lower than the average across all sectors, especially for women. This is in line with other evidence that there is excess supply of certain types of degree subject (generally arts and humanities).

Finally, the returns are very high for both academic and vocational level 5 qualifications. In some sectors, they are exceptionally high, although it should be noted that these estimates are frequently based on small numbers and are therefore rather imprecisely estimated. In addition, the distinction between academic and vocational qualifications is rather blurred at this end of the qualifications spectrum; many level 5 vocational qualifications are postgraduate professional qualifications in the accounting and legal professions for example, and these normally require individuals to have first achieved level 4 academic qualifications. However, overall, the results suggest that there is a continuing strong demand for individuals with high level professional skills.

3 How do women's earnings compare to men, on average. Are there differences because of the jobs they do, or because of the sectors they work in?

There is a gender element to all of the analysis undertaken in this report. Although women now outperform men in terms of educational achievement, it is still the case that women earn significantly less than men on average. This is partly because women and men end up working in different sectors – that is, there is sectoral segregation. The sectoral analysis in this report can highlight the extent to which this is the case. It can also reveal whether men and women earn different returns to their qualifications across sectors. This will enable us to see when the gender pay gap is

driven more by different rates of pay between sectors, or by different returns to male and female skills within sectors.

What do we find?

The qualifications profiles of men and women differ in a number of ways, as does the distribution of men and women between sectors. However, women continue to receive lower rates of pay than men, even in the same sector. For example, in 2004, women earned an average of £11.32 per hour in the Financial Services SSC, compared to men in that sector who earned an average of £20.03 per hour.

The literature has generally suggested higher returns to education for women, at least at the aggregate level. Our estimates of aggregate returns to the different levels of qualification confirm this finding (at least at level 4). However, higher returns to qualifications for women are not evident in the sectoral analysis presented here. Women earn a lower return to a degree than men in 17 of the SSCs, compared to just seven SSCs where women earn a higher return. One possible explanation is that, in this study, the separate treatment of academic and vocational qualifications together with the degree of sectoral disaggregation (to allow for sectoral segregation) together permit the true differences in returns to degrees to be revealed. Whatever the explanation for this particular finding, it is clear that the overall gender pay differences are a consequence of both gender segregation and differential returns within sectors.

In summary, the analysis in this report clearly indicates that skill utilisation is far from homogenous, and that skill needs differ considerably across the SSCs. The extant aggregated analyses obscure much of the important variation that is revealed by the sectoral-specific approach as utilised in this report. In revealing these sectoral differences, our research provides an important first step towards designing and implementing the appropriate policies to meet the UK's future skill needs.

THE DISTRIBUTION AND RETURNS TO QUALIFICATIONS IN THE SSCs

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THE DISTRIBUTION AND RETURNS TO QUALIFICATIONS IN THE SSCs

1. Introduction

This report presents an analysis of the distribution of rates of return to academic and vocational qualifications in the Sector Skills Councils (SSCs)[2]. More specifically, it utilises data drawn from the Labour Force Survey (LFS) for 2000 to 2004 (inclusive) and present estimates of the proportion of the workforce in each SSC holding qualifications as defined by the five levels of the National Qualifications Framework (NQF). It differentiates between academic and vocational qualifications, and presents separate figures for men and women. This first stage of the analysis provides an indication of the utilisation of differently qualified workers in each sector. It then calculates the average wage premiums - or 'rates of return' - which accrue to each of the qualification levels. This provides an estimate of the value placed by employers in different sectors on each type of qualification.

This report therefore provides a sector-based analysis of the supply of and demand for different types of qualifications. As is discussed in the next section, this kind of labour market information is needed both by those working on skill issues in the SSCs, as well as policy-makers concerned with national education and training policy. More specifically, it provides further information to the SSCs in support of their individual skill needs assessments.

The remainder of this report is structured as follows:

- Section 2 discusses the key policy questions which are addressed in the report;
- Section 3 describes the data source and the methodology employed which closely follows that employed by Dearden *et al.* (2002), McIntosh (2002) and Dickerson (2005);
- Section 4 discusses the recent relevant literature;
- Section 5 presents the key results which include:
    - the qualifications profiles of the SSCs, by gender, and distinguishing between academic and vocational qualifications;
    - average rates of pay of full-time employees across the SSCs; and
    - estimates of the labour market returns (or earnings premiums) to individuals' qualifications.
- Finally, section 6 presents some brief conclusions.

As far as is feasible, the report presents the findings graphically for ease of comparison and interpretation. However, the accompanying Statistical Annex contains all of the detailed statistical results.

2. Key policy questions on the distribution and returns to qualifications

Information on the wage gain from a particular qualification, commonly known as the return to education, can clearly help guide individuals as to which type of education or training investment will yield them the highest future gain in wages. More

[2] See Table A1 in the Statistical Annex for a detailed discussion of how the SSC definitions were derived.

specifically, social rates of return[3] can help inform policy-makers of what they might expect to get back from investments made by the state, i.e. higher income levels and by implication higher productivity. However, until now, the UK evidence base on the rate of return to education has been largely based on estimates of the average return to different types of qualifications across all jobs and sectors. Yet clearly the value of different qualifications may vary by sector. This broadly is the motivation for taking a more disaggregated sector-based approach. So what can rate of return analyses tell us about sector skill needs specifically? Those seeking to understand and meet the skill needs of particular sectors require more than national average estimates of returns. They need to understand what is happening to the supply of and demand for different qualifications and skills in each sector. A sector-based rate of return analysis, such as that presented in this report, can help provide policy-makers with an indication of labour market conditions within each particular sector.

Of course one might ask why the value of a particular qualification varies from sector to sector. Surely if the market is working properly individuals who have a NVQ3 and work in vehicle manufacturing, for example, will simply start working in another sector if they see that workers with NVQ3 qualifications are paid more highly in the other sector. However, the reality is that apparently similar qualifications, such as NVQ3, still differ enormously in terms of curriculum content, and therefore can vary substantially in terms of labour market value across different sectors. This is especially the case with many vocational qualifications. Thus estimating rates of return to different qualifications by sector can not only inform policy-makers as to relative supply and demand conditions in that sector but can also potentially inform policy-makers of the portability of different types of qualifications across different sectors.

We have argued that a sector-based approach will be helpful in providing additional information to those concerned with the skills requirements of different sectors. However, in addition there are a number of specific pressing policy questions that can only be addressed by a sector based approach.

Firstly, as will be discussed in detail in section 4 below, a number of studies have found zero or even negative returns to low level vocational qualifications, particularly National Vocational Qualifications (Dearden *et al.*, 2004b; Dickerson, 2005, McIntosh, 2004). The evidence suggests that on average lower level vocational qualifications have minimal impact on individuals' wages. This is a particularly devastating finding given both the policy emphasis on level 2 and the significant numbers of workers who have acquired this type of qualification. However, just because on average the return to low level vocational qualifications is negligible or zero, this does not necessarily mean that in all sectors these qualifications have no economic value. There is some preliminary evidence that the return to NVQ2 in particular does vary by sector (Dickerson, 2005). It is essential that further work is undertaken to explore differences in the value of these qualifications across the

[3] Private rates of return take into account private direct and indirect costs of investment and the private benefit, i.e. the net earnings gain accruing to the individual as a result of his or her educational investment. Social rates of return take into account the social gain from the investment, generally measured as higher pre-tax earnings although sometimes including financial estimates of other wider benefits such as lower crime and better health. On the cost side, social rates of return take into account any investments made by the state in education or training, such as subsidies.

different sectors. This will provide policy-makers with the information they need to identify where employers value such qualifications and where they do not. Identifying a particular sector where lower level vocational qualifications are working well and valued by employers could be very helpful in understanding why these qualifications are generally not valued in most other sectors.

Another problem with the vocational qualification system in general is that employers face a plethora of qualifications that vary hugely in terms of curriculum content. As a consequence, it is difficult for employers to ascertain the true value of different vocational qualifications. A sector approach will provide sorely needed information about the economic role of qualifications in each sector. This information will be useful to highlight which qualifications have value across the board, and are therefore presumably well understood by employers.

Another policy issue discussed in the Leitch Review (2005) is the ongoing problem with the supply of intermediate skills in the UK. Employers regularly report shortages of intermediate level skills. Previous skills audits for the UK have also confirmed that, relative to many of our European counterparts, the supply of intermediate vocational skills is indeed relatively low in the UK (Machin and Vignoles, 2005). A sector based approach can identify whether this apparent deficiency of supply has resulted in a high return to intermediate skills in some sectors. If we do not observe very high returns to intermediate skills we may suspect that we face a situation of insufficient demand. Alternatively, if we observe very high returns to intermediate skills in some sectors, this would inform policy-makers where demand is greater than supply.

The sectoral approach used in this report also addresses another important skills issue that will become increasingly important to policy-makers over the next decade. There has been a large expansion of higher education in the UK, so we have a far greater supply of graduates now, as compared to the past. Further expansion of higher education is also planned. Yet, as discussed in section 4, the expansion that has taken place to date has not led to any substantial fall in the value of a degree, at least on average. However, we do expect to see increasing diversity in graduate labour market success. There is already some evidence that the return to a degree varies substantially by degree subject (Sloane and O'Leary, 2004). Furthermore, there is evidence that some individuals are taking longer to integrate into the labour market, and that a significant proportion of graduates end up in non-graduate jobs, earning lower wages (Purcell *et al.*, 2005). This over supply problem also varies by degree subject, perhaps related to differing levels of demand for graduates (from different disciplines) across different sectors. To explore these issues fully, a sector approach is needed, as it can highlight where there are specific skill shortages at the graduate level, even in the face of a general rise in supply.

Lastly, there has been much concern over gender differences in the labour market. Although women now outperform men in terms of educational achievement, it is still the case that women earn significantly less than men on average. One factor that contributes to the gender wage gap is the fact that women make different career choices to men and in particular gain different types of qualifications, end up working in different types of jobs and hence in different sectors. A sector approach can explore whether men and women also earn different rates of return to their qualifications across different sectors.

3. Data source and methodology

The analysis is undertaken using the most recent data recorded in the UK Labour Force Survey (LFS). The LFS is a quarterly representative sample survey of households living at private addresses in the UK. The LFS contains information on all aspects of labour market outcomes including occupation (SOC2000) and industry of employment, earnings, hours of work etc, as well as an array of information relating to personal characteristics such as gender, age and qualifications. In order to ensure that sample sizes are sufficiently large for the proposed exercise, a number of LFS datasets are pooled together. Using data from the last four years produces sample sizes in excess of 100,000 men and women, and is a reasonable compromise between pooling over too many years and having sufficiently large sample sizes for robust estimates across the five NQF qualification levels. Evidence suggests that the distributions of qualifications and the rates of returns to these qualifications are fairly constant across recent years and hence this pooling of the data is not unwarranted (McIntosh, 2002; Dickerson, 2005). Thus, pooling over 2000-2004 will enable the distribution of, and returns to, different levels of academic and vocational qualifications to be robustly computed for the majority of the SSCs.

Definitions of SSCs' footprints using 4-digit SIC2003 categories have been established and used in the *Working Futures 2004-2014* projections recently completed for the SSDA (Dickerson *et al.*, 2006; Wilson *et al.*, 2006). These footprints are presented in Table A1 in the Statistical Annex. While these definitions are a 'best' fit to each SSC's core business sectors, the extent to which this is an exact fit to the SSC varies between SSCs. In some cases, the use of the core SIC codes excludes certain elements of the SSC footprint because they are included in other areas. However, these definitions do provide a complete and non-overlapping set of definitions for the SfB network.

A small number of SIC2003 codes are not separately identified in the LFS either because LFS does not provide the required level of detail, or because LFS uses SIC1992 rather than SIC2003 for the industrial classification of employment. These codes therefore have to be allocated differently in the analysis presented here. Full details of this required reallocation are provided in Table A2. There is a particular problem with regard to SummitSkills SSC and ConstructionSkills SSC since SIC45 (Construction) is not disaggregated in the LFS. Since SIC45 contains the majority of both ConstructionSkills SSC and of SummitSkills SSC, we necessarily have to combine these two SSCs in the analysis. Thus while there are 25 licensed SSCs, we can only identify 24 using the LFS. In addition, we distinguish three non-SSC groups (primary, wholesale, services) from the SIC2003 codes which are not currently assigned to any particular SSC, but are covered by the SSDA. Thus, the analysis below is undertaken using a total of 27 SSC 'groups'.

Following the established literature, we estimate a Mincerian (Mincer, 1974) earnings function which controls for individual and workplace characteristics. Thus, we estimate an equation of the form:

$$\ln w_i = \beta' X_i + \gamma' Q_i + \varepsilon_i \qquad (1)$$

where w is hourly wages, X is a vector of individual and workplace characteristics controlling for other factors which might account for differences in pay, and Q is a

vector of dummy variables identifying the qualifications held by the individual. γ then measures the conditional rates of return to each qualification.

Since 1996, the LFS has recorded *all* qualifications that individuals hold, rather than just their three highest qualifications as in the LFS prior to that date. This allows us to include indicators for all qualifications in the earnings functions. This strategy contrasts with just including an indicator of the highest qualification achieved as in some other studies. By including all qualifications, the estimated rates of return are the *average* return across all individuals who have this qualification, rather than being the return to those who have obtained the particular qualification as their highest achievement. If returns are independent of any further qualifications obtained, then these two rates will be the same. But if those who go onto achieve higher qualifications are different from those who do not - as will certainly be the case - then the 'average' returns (i.e. to all who hold the qualification) will differ from the 'marginal' returns (i.e. to those who hold it as their highest qualification). For many higher level qualifications, lower level qualifications are prerequisites for programmes of study/training for these higher levels. Thus the return to the qualification across the population should take account of the necessity of having some qualifications in order to obtain others. This is accomplished by including indicators of all qualifications. The total return to reaching the higher level qualification can then be obtained by summing the returns to the qualifications required to obtain that level, while the incremental return for the additional level can be obtained directly from the estimated coefficient.[4] This is also the strategy adopted by Dearden *et al.* (2002), McIntosh (2002) and Dickerson (2005), and hence is consistent with these previous studies. We identify qualification levels according to the five standard levels of the NQF. The correspondence between different types of qualifications and each of the NQF levels are presented in Table A3.

The variation in returns by SSC are computed in a single regression in which SSC categories, *J* say, are interacted with all of the qualifications variables *Q*. Thus we estimate an equation of the form:

$$\ln w_i = \beta' X_i + \delta'(J_i \otimes Q_i) + \varepsilon_i \qquad (2)$$

so that the returns to qualifications are allowed to vary over all possible values of *J*. δ then captures the differential returns to qualifications *Q* for each SSC *J*. Note that the base category (no qualifications) is also allowed to differ between SSCs, so that equation (2) is equivalent to estimating separate equations for each SSC, although subject to the constraint that all other control variables *X* have the same effects in each industry. In particular, it ensures that differences in average wage levels between SSCs are taken into account.

4. Discussion of some recent literature relevant to the study

It is well-established that the average return to a year of education in the UK is between 10 and 15%. However, for policy-makers this is not particularly useful information. In fact, the rate of return to education varies both by type and level of

[4] This methodology ignores the interactions amongst the different qualifications - the available sample sizes preclude examining all these possible interactions. However, one important advantage is that it allows the returns to different combinations of qualifications to be readily calculated.

qualification. In this section we summarise the evidence base on rates of return, specifically as it relates to our analysis of the rate of return to UK qualifications by sector.

Evidence from Dearden *et al.* (2004a) suggests that boys who stay on in school for an additional year at age 16 earn around 11-12% more than boys who leave education at that age. For women the return to staying on is much higher, around 18%. This suggests that there is a sizeable economic return to staying on in school for longer and raises the question as to why more young people do not stay on, given that they could expect to get such a high return from doing so. Part of the explanation is the fact that these high average returns to staying on hide substantial differences in the rate of return to specific qualifications and there is now a substantial literature that has investigated the return to different types of UK qualification.

A number of key trends emerge from the recent literature. Firstly, the returns to many UK qualifications, particularly higher level ones, are substantial (e.g. Dearden *et al.*, 2002; Dickerson, 2005). For example, males with a degree earn up to two-thirds more than an unqualified worker. Secondly, the returns to academic qualifications are significantly higher than the returns to vocational qualifications. For example, the return to O levels/GCSEs is between 10 and 20%, as compared to nil return to NVQ levels 1 and 2. Thirdly, individuals with the 'newer' vocational qualifications do particularly poorly in the labour market. Thus even NVQ3-5 yields relatively low returns, particularly for women, as compared to A-levels or degrees or even older vocational qualifications such as HNDs. Some caution is required here however. Many vocational qualifications take less time to acquire and therefore an annualised return is needed, i.e. the return to an additional year of study for a given qualification. Dearden *et al*. (2002) found that when the time taken to acquire qualifications was taken into account, the value of vocational qualifications moved much closer to the value of academic qualifications. Dickerson (2005) confirms this finding using more recent data. Of course where vocational qualifications yield extremely low or nil returns (e.g. NVQ levels 1 and 2), adjusting for the time taken to acquire the qualification will still not mean that these qualifications have any substantial value in the labour market.

Nonetheless, the evidence is clear that there are extremely low or even nil returns to lower level and newer vocational qualifications (Dearden *et al.*, 2004b; Dickerson, 2005, McIntosh, 2004). Some studies have even found negative returns to NVQ2s (Dearden *et al.*, 2004b). Negative returns imply that individuals with these qualifications actually earn less than individuals who have no qualifications at all. Part of the explanation for this is that individuals who take NVQ2 qualifications tend to be of lower ability than individuals who do not take any qualifications at all, although the difference is small (Dearden *et al.*, 2004b). This is not the whole story however, since the same work suggests that even for high ability workers, NVQ2 qualifications do not give a positive wage premium. This raises the question as to whether there is a signalling problem here. Workers, regardless of their actual ability, may be considered by employers to be less able or motivated if they take lower level NVQ qualifications. Certainly the returns to NVQ2 depend on where the qualification was obtained. The return is highest if the qualification was obtained via an employer and lowest (negative) if the qualification was obtained through government training (Dearden *et al.*, 2004b). Since most of the individuals taking NVQ2 via government

training were previously unemployed, this too hints at a signalling problem. If employers perceive that less motivated/ less able and unemployed workers tend to take NVQ2 qualifications, they will offer lower salaries to workers with this qualification, since on average their expectation is that these workers will not be very productive. The negative signal that comes from having a NVQ2 will then cause even higher ability workers with NVQ2 qualifications to be paid less (at least initially). This is just one potential explanation for the poor performance of these newer vocational qualifications however.

What is also noticeable is that the return to other older level 2 vocational qualifications (i.e. apprenticeship, City & Guilds and BTEC) is generally positive. For example, males with City and Guilds qualifications at level 2 earn 19% more than workers with no qualifications. Again there is some evidence that part of the explanation for this is that individuals who take these more traditional level 2 qualifications are of higher ability. However, the difference in ability between workers with newer NVQs and those with older qualifications is relatively small. So perhaps the most likely explanation for the low value-added of the NVQ2, for example, is that individuals actually learn less through an NVQ2 course than through other vocational training. Furthermore, in a world where the number and type of qualifications available change quickly, employers may be more knowledgeable about the content of older established vocational qualifications and therefore more prepared to pay a premium for them. Given that the content of vocational qualifications varies substantially by sector however, it is obviously imperative that estimates of the return to different qualifications are carried out for each sector, as we do in this report.

It is worth stating that lower level NVQs do have economic value, despite not impacting on individuals' wages. NVQs (even at level 2) do help individuals to find and remain in employment (McIntosh, 2004a). At level 3 the effect is even more impressive. Workers with NVQ3 qualifications have employment rates that are 10 percentage points higher for males and 17 percentage points higher for females. Furthermore, women are more likely to re-enter the labour market if they take an NVQ2 qualification (Jenkins, 2005). One must not underestimate the importance that these qualifications may have in assisting individuals into work or helping them stay in the labour market. However, the low wage returns to NVQ2 remains of significant policy concern.

As discussed above, one issue of concern in relation to rates of return analyses is the particularly large expansion of higher education in the UK. Given this expansion we might expect to have seen a fall in the return to a degree. Yet recent evidence suggests that there has not been much change in the return to a first degree, at least between the mid to late 1990s and early 2000s (Walker and Zhu, 2005). The exception being that the youngest age groups appear to be earning a lower return to their first degree than they did in the mid 1990s. Since it is the youngest age groups that will be most affected by the increase in the supply of graduates coming on to the labour market, this might be indicative evidence that the return to a first degree is falling. This finding, combined with evidence that around one third of new graduates end up in lower paid non-graduate level jobs (Dolton and Vignoles, 2000; Green *et al.*, 2002), suggests that over supply may be an issue. As has already been discussed, there also appears to be increasing diversity of graduate outcomes, with returns varying substantially by degree subject (Purcell *et al.*, 2005; Sloane and

O'Leary, 2004; Walker and Zhu, 2005). In this report we explore another dimension of this diversity of outcomes, namely returns by sector.

Further evidence on the heterogeneity in the returns to qualifications is presented in Dickerson (2005). He shows that average rates of return disguise some interesting and important variations in returns. Differences by age bands and between public and private sectors are perhaps less than might have been expected however, and in general, the patterns at the aggregate level are replicated for age and for public and private sector subgroups with few differences which can be readily explained. For example, returns to qualifications apparently increase with age which could simply proxy a return to the greater experience of older workers. In addition, the returns are greater in the private than in the public sector, which may serve to compensate for other pecuniary and non-pecuniary benefits of working in the public sector. He also investigates differences in returns by sector defined by nine 1-digit SIC2003 industries, as well as by the 27 Sector Matrix Industries (SMIs) used in the SSDA's Sector Skills Matrix (www.ssdamatrix.org.uk/). The results reveal some large variations in the estimated rates of return between these industry categories, for both men and women, and provide further motivation for the SSC-specific analysis undertaken in the next section of this report.

5. Results

The discussion of the results is focussed on the policy issues outlined above. Thus, rather than discuss every single point estimate, we will give one or two illustrations per policy issue, illustrating how the returns by SSCs can help us understand the way in which the UK labour market is operating.

It should be noted that in some instances, the sample sizes from the LFS for particular SSCs are quite small, especially once we distinguish between academic and vocational qualifications. This is particularly true of Skillset, Creative & Cultural Skills, SkillsActive and Lantra SSCs.[5] Where appropriate, we highlight the limitations of these small sample sizes, although the confidence intervals that are presented in the Statistical Annex to this report obviously take such small sample sizes into account.

5.1 Descriptive analysis

5.1.1 Aggregate qualifications by SSC and gender

At first glance, Table 1 clearly supports the need for a sector based approach to considering the role of qualifications and skill in the labour market. There are clearly very big differences between the different SSCs in terms of the proportion of the work force with different levels of qualifications. This reflects differences in both relative supply and demand across the different sectors. We start by considering the proportion of unskilled men and women in each sector. As summarised in Figure A:[6]

[5] For both men and women, these four SSCs comprise less than 1% of the total sample size used in the analysis, so they are small in relative as well as absolute size.

[6] Figure A uses a 'traffic-light' legend to identify the SSCs at the top and bottom of the distribution, with the delineation being set at approximately ± one standard deviation from the mean across the SSCs. Thus, for example, the average proportion of workers with no qualifications is approximately 13%

- For men, less than 5% of the workforce have no qualifications in Financial Services, e-skills UK and Lifelong Learning UK;
- For men, more than 20% of the workforce have no qualifications in Lantra, Improve Ltd and Skillfast-UK;
- For women, there are no sectors that have very low proportions of workers with no qualifications (i.e. less than 5%);
- For women, more than 20% of the workforce is unskilled in Improve Ltd, Skillfast-UK, SEMTA, Skills for Logistics and Asset Skills.

On average therefore, the number of SSCs with high proportions of unqualified women is higher than the number with high proportions of unqualified men. However, it is not always the case that a given sector employs a higher proportion of unqualified women than men. Thus in Energy & Utility Skills for example, the proportion of unqualified women is just 11% compared to the proportion of unqualified males, which is 16%. In fact across all SSCs the proportion of unqualified men and women employed is the same, at 13%. All this suggests that men and women have different patterns of employment by sector.

Similar striking differences across sectors emerge when we consider the other end of the skill distribution, namely the proportion of the work force with level 4 (degree or vocational equivalent). Figure A again summarises the main findings:

- For men, the proportion of the workforce with level 4 qualifications ranges from under 10% in Automotive Skills and Skills for Logistics, to more than 40% in Creative & Cultural Skills, Skillset, e-Skills UK, Skills for Health and Lifelong Learning UK. The proportion is more than 50% in the latter three SSCs;
- For women, the proportion of the workforce with level 4 ranged from under 10% for Skillfast UK, Skillsmart Retail, People 1st and Automotive Skills to more than 40% in Creative & Cultural Skills, Skillset and Skills for Health, and more than 50% in Lifelong Learning UK.

At level 5 the variation across the different SSCs becomes even more apparent, as does the differences in the qualification profiles of men and women in the different sectors:

- For men, very small proportions of workers (around 1%) in Skills for Logistics, Proskills, Improve Ltd and Skillfast UK have level 5 skills. By contrast 39% of male workers in the Lifelong Learning SSC have level 5 qualifications, and 21% in Skills for Health.
- A very small proportion of women have level 5 qualifications across all sectors (6%). The proportion of women with level 5 is particularly small (1%) in Skills for Logistics, Proskills, Improve Ltd, Skillfast, Automotive Skills, Skillsmart Retail and People 1st. For women there are no SSCs with very high proportions of level 5 workers, although 11% of women in Creative & Cultural Skills do have level 5 qualifications.

Thus at both the upper and lower end of the skills spectrum, we observe very substantial differences in the types of workers employed by each SSC. Whilst this is unsurprising given the different products and services covered by each SSC, it does

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across the 24 SSC groups, with a standard deviation of just over 7%. Hence the SSCs at the top and bottom of the distribution are those with more than 20% with no qualifications (in red) and those with fewer than 5% (in green). The remaining SSCs are within one standard deviation of the mean.

illustrate the need to consider the supply and demand for skilled labour separately by sector.

5.1.2 Disaggregate qualifications by SSC and gender

Table 1 showed aggregate differences in the use of qualified labour across sectors. However, this may hide substantial differences in the utilisation of specific types of qualifications across sectors. Table 2 shows the distribution of disaggregated qualifications across different SSCs by gender. Just as in Table 1, differences across sectors in the utilisation of differently qualified staff are substantial. What is noticeable about Table 2 however, is the relatively small proportion of males across the workforce who hold vocational qualifications, especially higher level vocational qualifications. For example, whilst across all sectors 21% of males hold academic level 3 qualifications, only 14% hold vocational level 3 qualifications. Given the policy discussion above about the perceived shortage of intermediate vocationally trained labour, this is potentially important. Later in the report we analyse the returns to level 3 vocational qualifications to determine whether the relatively low supply of such qualifications reflects a major skill shortage area or whether it partly reflects the relatively low demand for such qualifications. At level 4 the picture is similar - 19% of males hold an academic level 4 qualification, whilst only 9% hold a similar level of vocational qualification.

Whilst a higher proportion of women hold vocational qualifications, this is largely at the lower end of the skill spectrum, particularly level 1. Thus while 5% of males hold a vocational level 1, 15% of women do. It is still the case however that more women hold academic qualifications than have vocational qualifications. Thus whilst 46% of women have an academic level 1 qualification, 15% have a vocational equivalent. At level 4, 19% of women have a degree, whilst 12% have a vocational level 4 qualification of some sort. The proportion of females with level 3 qualifications is even lower than for males, at just 9%. Again this reiterates the point made above that there is a genuinely low supply of these qualifications.

As in Table 1, there is substantial variation across SSCs by qualification type. For females, Skillfast-UK, Automotive Skills, Skillsmart Retail, People 1st and Skills for Logistics all have workforces with less than 10% graduate labour. At the same time, Lifelong Learning UK and Creative & Cultural Skills both employ more than 40% graduates. For males, Lantra, Proskills, Improve Ltd, Skillfast-UK, Automotive Skills, People 1st, GoSkills and Skills for Logistics all have less than 10% graduate employment, while the Lifelong Learning UK SSC employs more than 60% graduate labour. The variation is substantial for vocational qualifications too. At the intermediate level for males, for example, more than 20% of individuals employed by SEMTA and Construction & SummitSkills SSC have a level 3 vocational qualification. By contrast, fewer than 10% of the individuals employed in Skillfast-UK, Skillsmart Retail, Skills for Logistics, Financial Services and Creative & Cultural Skills have level 3 vocational qualifications.

5.1.3 Distribution of employment by SSC and gender

The gender distribution of employment in each SSC is summarised in Table 3. As can be seen, in five of the 27 SSC groups, more than 4-in-5 of all those in

employment are men. In contrast, only the Skills for Care and Development SSC has such a high concentration of women, despite the fact that women comprise nearly half of all those in employment in aggregate. The evidence of the sectoral segregation/concentration of men is even more evident when we focus on full-time employees only. As shown in Table 3, in 11 of the 27 SSC groups, more than three-quarters of all full-time employees are men. Only Skills for Care and Development is similarly concentrated by women's full-time employment.

5.1.4 Nominal hourly pay for full-time employees by SSC and gender

Before considering differences in the rate of return to different qualifications across the various sectors, we start by considering raw wage differences. Table 4 reports nominal hourly pay across the various sectors by gender and the distribution of average hourly pay for men and women in 2004 by SSC is depicted in Figure B. It is striking that there are large differences in pay between SSCs. Of course this is unsurprising as the table shows an average hourly wage rate for the entire sector and, as we have just seen in Tables 1 and 2, the qualification rates of the sector workforces differ substantially. It is to be expected that hourly wage rates would be lower in sectors where more than 20% of the workforce has no qualifications, for example, as compared to those where very few workers are unskilled. There are other possible reasons for the very substantial differences in mean hourly pay across the sectors. Sectors differ in the types of jobs they offer. Mirroring differences in qualification levels across sectors, we also expect the distribution of occupations to differ across sectors. Clearly there are far more professional level jobs in Lifelong Learning UK, for instance, as compared to Lantra or Skillfast-UK. Another potential issue is the geographical location of firms in each sector. Firms in some sectors are clustered in particular regions, which tend to have different living and labour costs as compared to the national average. Comparing hourly pay rates across sectors without taking into account their spatial distribution can be somewhat misleading therefore. We take such factors into account when we use regression analysis to determine average wage premiums for each qualification, as discussed below. However, a brief consideration of raw hourly pay is still illuminating.

The gap in hourly wage rates between the highest paid sectors and lowest paid sectors is substantial. For example, male workers in 2004 in Financial Services, e-skill UK, Skillset and Creative & Cultural Skills received on average more than £15 per hour, whereas those in Lantra, Skillfast-UK, Automotive Skills, People 1st and Skills for Logistics received less than £9 per hour on average. The gender pay gap is clearly evident in these average hourly pay rates. For instance, only in Skillset did women earn more than £15 per hour on average, and in 11 of the 27 SSC groups they received less than £9 per hour. Thus female workers in 2004 in Lantra, Proskills, Improve Ltd, Skillfast-UK, Automotive Skills, Skillsmart Retail, People 1st, Asset Skills, Skills for Care and Development and SkillsActive SSCs all received less than £9 per hour on average. The concentration of women's pay at the lower end of the distribution is especially evident in Figure B.[7]

[7] While Skillset stands out as providing a relatively high average wage for women, this is the smallest SSC in terms of LFS sample size, and the estimate of average wages should thus be viewed with caution.

In fact, the gap in hourly wages between men and women would have been even greater had the analysis included part-time women, who tend to earn even less than their full-time counterparts. However, due to problems of comparability with the males and the small sample sizes involved, the analysis is restricted to full-time women only. What is particularly striking is that women by and large earn lower rates of pay than men, even in the same sector. For example, women earn on average £11.32 in the Financial Services SSC, compared to men in that sector who earn £20.03. Of course there may be many reasons for these hourly pay differences between men and women. For example, we know that men and women have different levels of qualification (from Table 1 and Table 2), and may also differ in terms of labour market experience and other characteristics. Again we attempt to control for these other potential differences in the regression analysis below.

5.2 Returns to qualifications

5.2.1 Returns to aggregate and disaggregate qualification levels by gender

In order to provide a benchmark for comparative purposes, we first estimate the average rates of return across the whole sample without distinguishing between the individual SSCs. Table 5 presents estimates of these average rates of returns across all SSCs. In aggregate, the returns to qualifications are quite similar for full-time men and women, with the exception of level 4, where the returns are slightly higher for women, consistent with previous work on this issue (e.g. Dearden et al. 2002). The rate of return to level 1 qualifications is negligible or zero; while at level 2 and above, the returns are positive and significant, and quite substantial – around 13-16% for both level 2 and level 3 qualifications, and rising to 23-31% for level 4 and level 5 qualifications. These patterns are illustrated in Figure 1. Recall that since indicators of all qualifications are included in the earnings functions, these returns can be cumulated across the different NQF levels. Thus, for example, a man with level 3 and level 4 qualifications will earn, on average, (15.3+28.1=) around 43% more than a otherwise similar man (in age, ethnicity etc) with only level 2 qualifications.

The returns distinguishing between academic and vocational qualification levels are also presented in Table 5, and are illustrated in Figure 2. A number of features are evident. First, as can be clearly seen, the patterns in the aggregate rates of return in Figure 1 are driven in the main by the returns to academic qualifications. This is no real surprise given that rather fewer individuals hold vocational qualifications than have academic qualifications as seen in Table 2 above. Second, returns to academic qualifications at level 1 are zero, but are more than 15% for level 2, almost 15% for level 3, and more than 20% at level 4. Third, the returns to vocational level 1 and level 2 qualifications are negative for both men and women, and are very low at level 3. Fourth, with the exception of level 5, the returns to academic qualifications are greater than those to vocational qualifications at every level.[8] Finally, it would appear that there are increasing incremental returns to higher vocational qualifications, such that at level 5 (which includes graduate membership of professional institutes, and other post-graduate professional qualifications such as ACA), returns exceed those to level 5 academic qualifications such as PGCEs and PhDs.

[8] Although since, in general, academic qualifications take more years to gain than the equivalent level vocational qualifications, the annualised returns which take account of the number of years of full-time equivalent study are rather more similar (see Dearden et al, 2002, and Dickerson, 2005).

5.2.2 Returns to aggregate qualification levels by SSCs and gender

Figure 3M and 3F present the rates of returns results for the 24 SSCs that can be distinguished in the LFS. The detailed regression results on which they are based are in the Statistical Annex, Tables A6M/F. There is an alternative way of presenting this information, and that is by qualification level rather than by SSC. Figures A1M/F in the Statistical Annex present the returns by qualification level, including the 95% confidence intervals so that where the sample size is too small to give robust results, this can be readily seen. Thus, for example, in Figure A1M, while the 'best' estimate of the returns to level 1 qualifications for men working in Lantra SSC is 3.4% as illustrated in the first bar of the graph, the 95% confidence interval spanned by the 'I-beam' is -2.4% to 9.7%. Thus the estimated rate of return is quite imprecise in this particular case, and this is because of the relative small number of observations available since Lantra is one of the smaller SSCs in terms of employment. Actual numbers of observations available for estimating the returns to each qualification level are presented in Table A4.

Figure 3M and 3F shows the returns to levels of qualification, regardless of type (i.e. academic or vocational). The returns to qualifications at level 2 or above, for both men and women, are positive and significant in almost all SSCs. However, level 1 qualifications generally attract a negligible or even negative return for both males and females, especially in the more service orientated SSCs where it is very uncommon for level 1 to be an employee's highest qualification (e.g. e-skills UK and Financial Services). Using the same

Another noticeable feature of Figures 3M and 3F is the high return to level 4 (and indeed level 5) qualifications, for both males and females. While the return to degrees specifically will be discussed below, it is important to note that despite the major expansion at level 4 it is evident that the average return to level 4 qualifications remains high as shown in Figure 1. There is, however, variation across sectors. For example, for males the return to level 4 qualifications in the Improve Ltd SSC is around 42% and just under 40% in Cogent, SEMTA and Skills for Health. By contrast in the People 1st, Skills for Justice and Creative & Cultural Skills SSCs, the return to level 4 fails to reach 15% for males. For females, the return to level 4 is 56% in Skillfast-UK and more than 40% in Skills for Health and Skills for Care and Development. By contrast, for females the return to level 4 is less than 15% in Energy & Utility Skills, GoSkills, Skills for Logistics, Skills for Justice, Skillset and Creative & Cultural Skills (the latter two have relatively small samples however).

Figure C picks out the SSCs with particularly high or low rates of return for level 2, level 3 and level 4 qualifications, separately for men and women. Once again, 'high' and 'low' rates are defined as being greater than one standard deviation away from the mean rate averaged across the 24 SSC groups, and thus are a *relative* concept. For example, for both men and women in Lantra, the returns to level 2 are relatively low. One interpretation of this finding is that this means there are few incentives to achieve this level for the high proportions of workers who are not qualified to this level. Similarly, there are relatively high returns to level 4 qualifications for both men and women in Skills for Health SSC. This may be because there is a relatively high

demand for individuals with level 4 qualifications in this SSC or, alternatively, a comparatively short supply of such individuals.

It is evident that Figure 3M and 3F can also inform policy makers about differences in returns to qualifications by gender. In many sectors the pattern of returns for females is quite similar to those for males. This of course does not mean that men and women earn similar amounts of pay in these sectors (as is evident from Table 4). However, it suggests that the wage premium for specific qualifications is quite similar across men and women. There are a large minority of sectors however, where there are clear differences in the returns by gender. In particular, a number of sectors that have relatively low proportions of women in employment, such as Energy & Utility Skills and Construction & SummitSkills have different patterns of returns for men and women. In the case of Energy & Utility skills, women earn a lower return to level 1, level 2, level 3 and level 4 qualifications. In Construction & SummitSkills, women earn a lower return to all levels of qualifications. By contrast, Creative & Cultural Skills employs a much higher proportion of women and women tend to have higher returns to all levels of qualification, bar level 4 (in the case of level 1, women attract less of a negative wage penalty than males for this level of qualification). Some of these differences may be explained by men and women holding different types of qualifications i.e. vocational versus academic, an issue which we explore below.

5.2.3 Returns to disaggregate qualification levels by SSCs and gender

Figure 4M and 4F present the rates of return results disaggregated by gender and type of qualification for the 24 SSCs that can be distinguished in the LFS. The detailed regression results on which they are based are in the Statistical Annex, Tables A7M/F. There is an alternative way of presenting this information, and that is by qualification level rather than by SSC. Figures A2M/F in the Statistical Annex present the returns by qualification level, including the 95% confidence intervals so that where the sample size is too small to give robust results, this can be seen. Actual numbers of observations available for estimating the returns to each qualification level are presented in Table A5.

Figure 4M and 4F shows quite different results by type of qualification, i.e. vocational and academic. It is apparent that the significant positive returns overall are driven by the positive returns to academic rather than vocational qualifications. It is very evident that academic qualifications offer both men and women strong returns across almost all sectors and across all levels. By contrast, there is much greater variability in the return to vocational qualifications by sector, for both men and women. This is consistent both with the notion that employers find it hard to understand the economic value of each of the plethora of vocational qualifications available and also that the actual content of these qualifications varies considerably between sectors, resulting in significant variation in returns across different SSCs.

While there is substantial volatility (in part due to small sample sizes as well as the compositional effects from aggregating disparate qualifications into NQF levels), a striking feature of the results is that the returns to vocational level 2 qualifications are negligible or negative for a large number of SSCs for both men and women. This is consistent with the aggregate picture as depicted in Dearden *et al.* (2004b) and Dickerson (2005).

For men, these negative returns to level 2 vocational qualifications are particularly large in the more service orientated SSCs for which level 3 vocational returns are also weak. In contrast, while the returns to level 2 qualifications are frequently insignificantly different from zero for the more production orientated SSCs, there are strong positive returns at vocational level 3 for these SSCs. This suggests that there are important sector-specific lower level vocational qualifications that are deemed to be important for employment and wages in certain SSCs. For women, there are some similar patterns, but in general they are less distinct.

One of the primary purposes of this report was to identify particular SSCs where lower level vocational qualifications offered a significant wage premium. Only the Energy & Utility Skills and People 1st sectors show a positive significant return to level 2 vocational qualifications for males, for example. For women, the return to level 2 vocational qualifications is positively significant in just one SSC, Automotive Skills (albeit with the relatively low sample size of 47). In some sectors, workers with level 1 and 2 qualifications earn substantially less than their unqualified counterparts. For example in Financial Services, males with level 1 vocational qualifications earn 13% less than males with no qualifications; males with level 2 vocational qualifications earn 20% less than unqualified males. Clearly there is a need to explore the nature of these qualifications across the different sectors to explain why low level vocational qualifications do at least have some value in some sectors (albeit very few), whilst in others they do not. In summary however, the evidence here confirms the results from studies that have taken a more aggregated approach, including those presented in Table 5 above, namely that lower level vocational qualifications generally offer no wage return for either men or women.

At level 3, the results seem to suggest that whilst there are by no means shortages of these intermediate level vocational skills across the board, some sectors do offer a robust return to these qualifications. Returns to level 3 vocational qualifications exceed 10% for males in just five SSCs, notably Lantra (small sample sizes), Cogent, Improve Ltd, Skillfast-UK and Energy & Utility Skills. These SSCs by and large do not have higher than average proportions of men with level 3 vocational qualifications, suggesting it is not necessarily in the SSCs that employ the greatest proportion of men with level 3 vocational qualifications that we see the highest returns. A further eight SSCs have returns which are in excess of 5%, but less than 10%. For women, the returns to level 3 vocational qualifications exceed 10% in only two sectors, Improve Ltd, which offers returns of nearly 22% to these qualifications, and Skills for Logistics, which offers a return of 12%. Again these two sectors do not employ particularly high proportions of women with level 3 vocational qualifications. A further eight SSCs have returns between 5% and 10%. There are two notable features of these particular findings. First, the return to level 3 vocational qualifications for males (females) is insignificantly different from zero in 13 (19) sectors. This result is partly because the returns are genuinely low in many SSCs and partly due to small sample sizes for some SSCs. Second, the evidence suggests that the demand for level 3 vocational qualifications is relatively stronger in the production-orientated SSCs (at least in jobs done traditionally by males), since it is in these sectors that the rate of return to such qualifications is significantly positive. However, the magnitudes of the returns suggests that there is by no means a national shortage of level 3 vocational

skills, at least as indicated by the premium that employers are willing to pay for these skills.

One policy issue that we raised earlier was the extent to which the return to degrees has been depressed by the large expansion in the supply of graduates. Level 4 academic qualifications give a high return across the board. For males, in five of the SSCs, the return to a degree exceeds 30% (Cogent, Improve Ltd, Skillfast-UK, SEMTA and Skills for Health). For women, the return to a degree exceeds 30% in five sectors (Improve Ltd, Skillfast-UK, SEMTA, Automotive Skills and Skills for Care and Development). The results clearly show that in the majority of sectors, for both men and women, there is a very substantial return to a degree. In some specific SSCs however, for males the return is lower. For example, the return is just 12% in People 1st and 13% in SkillsActive. Nonetheless, this is still a substantial return relative to the return to other qualifications. For women, we observe that in many sectors the returns to a degree are somewhat lower than for men. This is an interesting result as older and more aggregated data has generally suggested the reverse (Dearden *et al.*, 2002), which may reflect changes in the return to a degree for women over time and/or different patterns of gender sector segregation, an issue we return to below. In four SSCs, Energy & Utility Skills, GoSkills, Skillset and Creative & Cultural Skills, the return to a degree for women is below 10% but in many instances these estimates are insignificant due to small sample sizes. We conclude from this that in some service sectors particularly, the return to a degree is substantially lower than average, especially for women. This is in line with other evidence that the returns to a degree are significantly lower for certain (generally arts and humanities) subjects.

Another feature of the results is the very high returns to level 5 qualifications, both academic and vocational. In fact the return to level 5 vocational qualifications is generally higher than to academic level 5 qualifications and in some cases, it is extremely high. For males, the returns to level 5 vocational qualifications reach nearly 100% in Skillfast-UK (with small samples), 82% in Skills for Health and 56% in Energy & Utility Skills and Asset Skills. For females, the returns to level 5 vocational qualifications reach 114% in Skills for Logistics, 64% in Skillsmart Retail and more than 50% in Skillfast-UK, Skills for Justice and SkillsActive. At first glance this suggests that, whatever the problems with the content and value of lower level vocational qualifications, at the upper end of the spectrum the demand for higher level vocational qualifications is sufficient to keep returns high. However, the high returns to level 5 vocational qualifications are somewhat anomalous – these are typical postgraduate professional qualifications (accounting, legal, PGCE etc) for which an academic level 4 qualification is a pre-requisite (at least nowadays).

As has been mentioned already, the returns to academic and vocational qualifications vary across the genders. The literature generally suggests higher returns for women. Yet if one looks at these estimates of recent returns by SSC, this pattern is not evident. For example, it is the case that women earn a lower return to a degree than men in 17 of the SSCs, compared to just seven SSCs where women earn a higher return. Some of these differences are substantial. For example, women earn just under half the return to a degree (13.6%) that men do (27.3%) in the Proskills SSC. In GoSkills females earn just 7% to a degree, whilst males earn 22%. This begs the question why on average the returns to a degree for women appear

marginally higher in studies that take a more aggregated approach. One potential explanation is that women hold different types of qualifications to males (see Table 1). However, the pattern observed above for academic qualifications, where women earn the same or lower returns in a large number of sectors, is also evident when one considers vocational qualifications. In approximately half of all SSCs, women earn a lower return to level 3 and 4 vocational qualifications, as compared to men. Again some of the differences are substantial. For instance women earn just a 10% return to a level 3 vocational qualification in Energy & Utility Skills, as compared to a 17% return for men in the same sector. There is some evidence that gendered workforces have lower pay. This could also be the case in terms of the return to qualifications across sectors. However, the highest returns to a degree for women can be found in the Skillfast-UK, SEMTA, Automotive Skills and Skills for Care and Development SSCs. Some of these are popular sectors for women. For example, half of the workforce in Skillfast-UK is female, and Skills Care and Development is dominated by women. By contrast the work force in SEMTA and Automotive Skills is male dominated. Yet another explanation is that the return to education differs by whether women work part-time or full-time. In our analysis we are only able to consider full-time women. We may therefore be understating the return to qualifications if part-time women on average earn a higher return to their qualifications. This is clearly an issue that merits further research.

6. Conclusions

In this report, we present a sector-based approach to the analysis of the distribution and returns to qualifications to inform those working on skill issues in the SSCs, as well as policy-makers concerned with national education and training policy. This is the first piece of research to undertake this kind of analysis using SSC-based sectoral definitions and as such acts as a further input to SSCs undertaking their individual skills needs assessments, for instance for their Sector Skills Agreements (SSAs).

We can draw out a number of conclusions from the work. Firstly, the different SSCs have hugely differing demand for skilled and unskilled labour. Mirroring this, the gap in raw hourly wage rates between the highest paid and lowest paid sectors is also substantial. The regression analysis suggests furthermore that, overall, the returns to intermediate and, especially, higher level skills in the UK remains quite substantial while that for lower levels skills is negligible or zero. These results confirm previous analyses using similar data but for earlier time periods. However, the main focus in this report is on the considerable variation in these returns between SSCs. While the differences in the returns to academic qualifications between sectors are large, the returns to vocational qualifications differ even more substantially across sectors. One possible interpretation is that not all qualifications are necessarily portable across sectors, or at least that there are barriers that prevent individuals working in one sector that pays a low return to a particular qualification from moving to an alternative sector that pays a higher rate of return. For example, the curriculum content of vocational qualifications at the same level may vary hugely across the different types of work involved in different sectors. Alternatively, we noted that there are a large number of vocational qualifications on offer and it is perhaps difficult for employers to ascertain the true value of different vocational qualifications.

The sector-based approach used in this report is consistent with the previous more aggregate literature in suggesting that, in general, employers value academic qualifications more highly than vocational qualifications. Whilst the supply of academic qualifications greatly exceeds the supply of vocational qualifications, it is the academic qualifications that yield the highest return. Although the gap is somewhat lessened if the time taken to achieve different qualifications is taken into account, it is still the case that, in general, academic qualifications at any given level receive a greater return than vocational qualifications. This result also holds across all sectors at almost all levels (with the exception of level 5 where there is arguably some blurring of the distinction between academic and vocational). The UK therefore still faces its perennial problem of a vocational offer that has low labour market value and appears to be poorly valued and/or understood by employers.

We also investigated whether the sector-based approach could help us understand the zero or even negative returns to low level vocational qualifications. Our results here are rather disappointing. The returns to vocational level 2 qualifications are negligible or negative for almost all SSCs for both men and women. Thus it is not the case that some sectors have well developed lower level vocational qualifications that offer substantial labour market return. Only in the Energy & Utility Skills and People 1st sectors do men earn a positive significant return to level 2 vocational qualifications. For women, the return to level 2 vocational qualifications is positively significant in just one SSC, Automotive Skills (but with a low sample size of 47). Clearly we need further qualitative work to understand the nature of low level vocational qualifications and why they have very little labour market value.

Another issue we considered was the supply of intermediate skills. We conclude that whilst the supply of level 3 vocational qualifications is indeed relatively low (compared to the supply of academic qualifications at this level), there is no evidence of across-the-board shortages of these particular skills. Some (mostly production-orientated) SSCs do give reasonable returns to level 3 vocational qualifications but equally in just under half of SSCs the return to level 3 vocational qualifications is essentially zero. This suggests that while there are sector-specific vocational qualifications that are deemed to be important for employment and wages in certain SSCs, one cannot conclude that there is a national shortage of level 3 vocational skills according to the evidence presented here. One possible interpretation is that faced with an inadequate supply of intermediate skills historically, employers in certain sectors have adopted working practices that do not require such skills. These may include low-skilled practices and hence there is a fundamental weakness in demand for such qualifications. Alternatively, they may use higher skilled individuals, but perhaps reward these skills poorly. This would therefore appear to support the Leitch assertion that the skills problem in the UK is as much one of low demand relative to our competitors, as well as a shortage in supply. Further research, probably of a more qualitative nature, is required to really unravel this conundrum and to explore with employers the means to enhancing skill levels and to ensure skills are on a par with our international competitors. The SSCs' SSAs provides one basis to do this.

Another policy issue of concern is whether the substantial expansion of higher education has resulted in excess supply of graduates, leading to a fall in returns to a degree. We found that degrees give a high return across almost all SSCs which does

not suggest that there is an excess supply of graduates. In some, particularly service-oriented, SSCs however, the return to a degree is substantially lower than average, especially for women. This is in line with other evidence that there is excess supply of certain types of degree subject (generally arts and humanities), and which are concentrated in certain sectors. Thus whilst we may not be concerned about an overall excess supply of graduates, we may still be worried that we are not producing the type of graduate skills that are in greatest demand by employers. There is a case for SSCs to understand supply and demand issues in their sectors and ensure graduates attain the qualifications and skills most in demand.

Lastly, we sought to address the issue of the gender pay gap. Our aggregate analysis confirmed that women earn a higher return to level 4 qualifications, for example. However, when we focused on different types of qualification across different sectors, we found that women earned lower returns than men across a range of SSCs and types and level of qualification. Thus, not only do women earn less than men but they also attract a lower wage premium for their education in many SSCs. This suggests that our sector based analyses paint a somewhat different picture of the gender gap in returns to education, as compared to the previous literature which has often found that in aggregate the return to education is higher for women. Further investigation of this issue is required to understand this disparity.

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Table 1: Aggregate qualifications held by SSC and gender

MALE	Qualifications							
SSC group	no qual	level 1	level 2	level 3	level4	level 5	apprent.	other
1. Lantra	27%	35%	31%	20%	13%	2%	13%	34%
2. Cogent	12%	40%	45%	35%	29%	8%	24%	35%
3. Proskills	16%	38%	34%	24%	13%	2%	30%	32%
4. Improve Ltd	23%	34%	29%	21%	13%	2%	18%	37%
5. Skillfast-UK	29%	32%	25%	16%	10%	2%	16%	25%
6. SEMTA	12%	42%	38%	33%	23%	4%	39%	33%
7. Energy & Utility Skills	16%	40%	40%	33%	25%	5%	29%	39%
8. Construction & Summit	13%	38%	34%	30%	17%	4%	41%	32%
9. Automotive Skills	15%	44%	30%	25%	7%	1%	39%	30%
10. Skillsmart Retail	16%	52%	46%	27%	14%	2%	10%	25%
11. People 1st	15%	47%	41%	26%	13%	2%	10%	36%
12. GoSkills	18%	33%	29%	20%	12%	2%	21%	50%
13. Skills for Logistics	19%	37%	24%	14%	7%	1%	15%	42%
14. Financial Services	3%	45%	69%	53%	36%	12%	5%	46%
15. Asset Skills	20%	33%	40%	32%	23%	7%	15%	32%
16. e-skills UK	2%	46%	67%	57%	50%	11%	15%	35%
17. Government Skills	5%	43%	61%	46%	38%	10%	17%	42%
18. Skills for Justice	5%	47%	58%	38%	25%	4%	18%	48%
19. Lifelong Learning UK	3%	33%	65%	61%	70%	39%	16%	38%
20. Skills for Health	6%	35%	55%	46%	55%	21%	13%	45%
21. Care and Development	9%	40%	51%	40%	40%	11%	13%	41%
22. Skillset	5%	44%	60%	51%	43%	9%	12%	26%
23. Creative & Cultural	7%	41%	61%	48%	46%	10%	11%	30%
24. SkillsActive	10%	54%	52%	34%	21%	3%	13%	46%
25. Non-SSC1: Primary	18%	39%	37%	28%	18%	4%	26%	28%
26. Non-SSC2: Wholesale	17%	38%	36%	23%	16%	3%	16%	34%
27. Non-SSC3: Services	7%	36%	61%	52%	49%	20%	14%	38%
Total	13%	40%	44%	34%	25%	7%	23%	36%

FEMALE	Qualifications							
SSC group	no qual	level 1	level 2	level 3	level4	level 5	apprent.	other
1. Lantra	17%	51%	51%	27%	22%	3%	4%	31%
2. Cogent	16%	50%	50%	34%	30%	8%	3%	27%
3. Proskills	20%	51%	42%	20%	16%	2%	3%	24%
4. Improve Ltd	26%	44%	32%	17%	13%	2%	3%	31%
5. Skillfast-UK	38%	37%	25%	12%	9%	1%	5%	17%
6. SEMTA	21%	51%	39%	22%	16%	3%	4%	27%
7. Energy & Utility Skills	11%	60%	54%	35%	25%	5%	3%	28%
8. Construction & Summit	10%	57%	50%	29%	23%	5%	3%	29%
9. Automotive Skills	19%	58%	37%	17%	7%	1%	4%	22%
10. Skillsmart Retail	20%	56%	41%	20%	10%	1%	3%	21%
11. People 1st	19%	55%	43%	22%	10%	1%	4%	30%
12. GoSkills	12%	53%	49%	26%	19%	2%	4%	38%
13. Skills for Logistics	21%	51%	38%	18%	12%	1%	2%	27%
14. Financial Services	5%	63%	63%	35%	19%	3%	1%	33%
15. Asset Skills	21%	49%	41%	22%	16%	3%	3%	29%
16. e-skills UK	5%	55%	62%	42%	36%	7%	2%	30%
17. Government Skills	7%	54%	62%	39%	33%	8%	2%	30%
18. Skills for Justice	8%	60%	62%	35%	28%	5%	3%	35%
19. Lifelong Learning UK	5%	46%	65%	49%	56%	22%	3%	40%
20. Skills for Health	9%	49%	53%	30%	47%	6%	4%	36%
21. Care and Development	13%	48%	43%	27%	25%	4%	4%	41%
22. Skillset	7%	53%	68%	50%	43%	8%	4%	30%
23. Creative & Cultural	5%	48%	67%	51%	48%	11%	1%	32%
24. SkillsActive	11%	62%	53%	30%	19%	2%	4%	43%
25. Non-SSC1: Primary	14%	52%	51%	33%	26%	4%	5%	27%
26. Non-SSC2: Wholesale	16%	54%	45%	24%	16%	3%	4%	27%
27. Non-SSC3: Services	8%	49%	58%	42%	40%	12%	6%	34%
Total	13%	52%	51%	31%	28%	6%	4%	31%

Notes to Table 1:

1. Source: LFS 2000-2004, pooled, wave 1 observations only, weighted.
2. Sample: all men of working age (16-64 inclusive) and all women of working age (16-59 inclusive).
3. Definitions of SSC groups are in Table A2.
4. Level1-level5 are the five levels of the NQF classification. The figures in the table are the proportions of the sample holding qualifications at each level.
5. Apprenticeships may be at either vocational level 2 or level 3, but may also be separately certificated (e.g. with City and Guilds diploma). Thus they are treated separately in the analysis.
6. 'Other' denotes 'other professional/vocational qualifications/foreign qualifications' which are not distinguished in the LFS and therefore cannot be classified further. As with apprenticeships, these are treated as a separate category.

Table 2: Disaggregate qualifications held by SSC and gender

MALE	Academic qualifications					Vocational qualifications				
SSC group	level 1	level 2	level 3	level 4	level5	level 1	level 2	level 3	level 4	level5
1. Lantra	33%	25%	11%	9%	1%	5%	7%	10%	5%	1%
2. Cogent	38%	39%	21%	20%	6%	6%	8%	15%	12%	2%
3. Proskills	37%	28%	11%	9%	1%	5%	8%	14%	6%	1%
4. Improve Ltd	32%	23%	11%	8%	2%	6%	8%	11%	5%	1%
5. Skillfast-UK	30%	21%	8%	7%	1%	5%	6%	9%	5%	0%
6. SEMTA	40%	31%	12%	13%	3%	6%	10%	22%	13%	1%
7. Energy & Utility Skills	38%	33%	16%	14%	3%	6%	10%	19%	13%	2%
8. Construction & Summit	36%	27%	11%	10%	2%	5%	9%	20%	9%	2%
9. Automotive Skills	42%	22%	7%	4%	0%	7%	10%	19%	4%	1%
10. Skillsmart Retail	50%	41%	19%	11%	1%	5%	7%	9%	5%	1%
11. People 1st	45%	35%	17%	9%	1%	6%	8%	11%	5%	1%
12. GoSkills	31%	25%	11%	8%	1%	5%	6%	11%	5%	1%
13. Skills for Logistics	35%	20%	7%	5%	1%	5%	6%	8%	3%	1%
14. Financial Services	44%	68%	45%	30%	6%	4%	3%	9%	7%	6%
15. Asset Skills	31%	37%	22%	18%	3%	5%	5%	10%	7%	4%
16. e-skills UK	44%	64%	44%	40%	9%	5%	5%	15%	14%	2%
17. Government Skills	41%	57%	33%	28%	7%	5%	6%	15%	14%	3%
18. Skills for Justice	45%	54%	26%	18%	2%	6%	6%	13%	10%	2%
19. Lifelong Learning UK	31%	62%	49%	61%	34%	5%	6%	15%	22%	6%
20. Skills for Health	33%	51%	37%	40%	16%	4%	6%	11%	22%	5%
21. Care and Development	37%	43%	28%	31%	8%	7%	10%	14%	13%	3%
22. Skillset	43%	59%	40%	35%	7%	3%	4%	12%	11%	2%
23. Creative & Cultural	40%	59%	42%	40%	7%	3%	3%	9%	9%	3%
24. SkillsActive	53%	45%	21%	13%	1%	6%	9%	15%	10%	2%
25. Non-SSC1: Primary	37%	30%	15%	13%	3%	5%	8%	13%	6%	1%
26. Non-SSC2: Wholesale	36%	32%	14%	11%	2%	5%	6%	9%	6%	1%
27. Non-SSC3: Services	34%	58%	44%	43%	10%	4%	5%	9%	14%	10%
Total	38%	39%	21%	19%	4%	5%	7%	14%	9%	3%

FEMALE	Academic qualifications					Vocational qualifications				
SSC group	level 1	level 2	level 3	level 4	level5	level 1	level 2	level 3	level 4	level5
1. Lantra	45%	47%	21%	15%	2%	16%	7%	7%	8%	1%
2. Cogent	45%	47%	27%	24%	5%	14%	5%	8%	8%	2%
3. Proskills	44%	38%	15%	12%	1%	18%	7%	6%	5%	1%
4. Improve Ltd	38%	26%	12%	10%	1%	14%	8%	6%	4%	1%
5. Skillfast-UK	32%	21%	8%	7%	1%	12%	5%	5%	3%	0%
6. SEMTA	44%	34%	14%	11%	1%	17%	6%	8%	6%	2%
7. Energy & Utility Skills	54%	51%	24%	19%	3%	20%	7%	12%	9%	2%
8. Construction & Summit	48%	47%	20%	18%	3%	24%	7%	10%	7%	1%
9. Automotive Skills	50%	31%	10%	5%	0%	19%	8%	7%	3%	1%
10. Skillsmart Retail	52%	36%	14%	7%	0%	13%	8%	7%	4%	1%
11. People 1st	51%	37%	14%	7%	1%	11%	9%	8%	4%	0%
12. GoSkills	49%	44%	18%	13%	2%	14%	8%	9%	7%	1%
13. Skills for Logistics	45%	33%	12%	8%	1%	16%	6%	7%	5%	0%
14. Financial Services	57%	61%	27%	16%	2%	17%	5%	9%	5%	2%
15. Asset Skills	42%	36%	16%	12%	2%	18%	7%	7%	6%	1%
16. e-skills UK	51%	59%	34%	30%	5%	14%	6%	9%	8%	2%
17. Government Skills	46%	58%	29%	24%	5%	20%	7%	11%	14%	3%
18. Skills for Justice	53%	58%	27%	21%	3%	20%	7%	10%	9%	2%
19. Lifelong Learning UK	37%	62%	41%	46%	16%	17%	7%	12%	22%	6%
20. Skills for Health	43%	48%	23%	22%	4%	14%	7%	9%	33%	2%
21. Care and Development	43%	34%	15%	16%	3%	14%	12%	13%	11%	1%
22. Skillset	48%	64%	44%	39%	6%	10%	6%	7%	6%	2%
23. Creative & Cultural	42%	66%	46%	43%	9%	10%	3%	7%	9%	2%
24. SkillsActive	56%	48%	20%	13%	1%	15%	10%	12%	7%	1%
25. Non-SSC1: Primary	45%	48%	27%	22%	3%	18%	6%	7%	5%	1%
26. Non-SSC2: Wholesale	47%	41%	16%	11%	1%	18%	7%	8%	6%	1%
27. Non-SSC3: Services	43%	55%	34%	31%	4%	15%	6%	9%	16%	8%
Total	46%	46%	23%	19%	3%	15%	7%	9%	12%	3%

Notes to Table 2:

1. Source: LFS 2000-2004, pooled, wave 1 observations only, weighted.
2. Sample: all of working age (i.e. men aged 16-64 inclusive and women aged 16-59 inclusive).
3. Definitions of SSC groups are in Table A2.
4. Level1-level5 are the five levels of the NQF classification, distinguishing between academic and vocational qualifications. The figures in the table are the proportions of the sample holding qualifications at each level.

Table 3: Gender distribution of employment in the SSCs

SSC group	All in employment (%) male	female	total	Full-time employees (%) male	female	total
1. Lantra	72	28	100	76	24	100
2. Cogent	74	27	100	77	24	100
3. Proskills	78	22	100	82	18	100
4. Improve Ltd	67	33	100	72	28	100
5. Skillfast-UK	49	51	100	54	46	100
6. SEMTA	81	19	100	83	17	100
7. Energy & Utility Skills	76	24	100	79	21	100
8. Construction & Summit	89	11	100	89	11	100
9. Automotive Skills	80	20	100	84	16	100
10. Skillsmart Retail	39	61	100	52	48	100
11. People 1st	42	58	100	51	49	100
12. GoSkills	81	19	100	82	18	100
13. Skills for Logistics	80	20	100	85	15	100
14. Financial Services	48	52	100	54	46	100
15. Asset Skills	49	51	100	55	45	100
16. e-skills UK	73	27	100	76	24	100
17. Government Skills	48	52	100	56	44	100
18. Skills for Justice	62	38	100	67	33	100
19. Lifelong Learning UK	43	57	100	51	49	100
20. Skills for Health	22	78	100	29	71	100
21. Care and Development	17	83	100	24	76	100
22. Skillset	61	39	100	62	38	100
23. Creative & Cultural	58	42	100	59	41	100
24. SkillsActive	51	49	100	65	36	100
25. Non-SSC1: Primary	71	29	100	75	25	100
26. Non-SSC2: Wholesale	68	32	100	73	27	100
27. Non-SSC3: Services	35	65	100	43	57	100
Total	55	45	100	63	37	100

Notes to Table 3:
1. Source: pooled LFS 2000-2004, wave 1 observations only, weighted.
2. Sample: all of working age (i.e. men aged 16-64 inclusive and women aged 16-59 inclusive).
3. The figures in the table are the percentages of men and women in the sample.

Table 4: Nominal hourly pay for full-time employees by SSC and gender

	MALE					FEMALE				
SSC group	2000	2001	2002	2003	2004	2000	2001	2002	2003	2004
1. Lantra	£5.91	£6.72	£6.90	£7.24	£6.66	£5.02	£7.34	£6.56	£7.46	£6.81
2. Cogent	£11.03	£12.03	£11.95	£13.46	£12.47	£9.29	£9.61	£10.45	£10.32	£11.41
3. Proskills	£9.51	£10.33	£11.07	£10.48	£11.17	£6.90	£7.29	£8.52	£8.96	£8.25
4. Improve Ltd	£8.63	£8.50	£8.79	£9.61	£9.77	£6.45	£6.86	£7.59	£7.91	£8.30
5. Skillfast-UK	£8.05	£7.65	£7.89	£8.09	£8.95	£5.33	£5.93	£6.33	£6.39	£7.41
6. SEMTA	£9.81	£10.55	£10.89	£11.05	£11.76	£7.52	£8.00	£8.48	£8.89	£9.56
7. Energy & Utility Skills	£10.18	£10.28	£10.77	£11.95	£11.37	£8.22	£8.55	£9.72	£8.76	£9.16
8. Construction & Summit	£9.55	£10.14	£10.39	£11.17	£11.37	£8.62	£8.80	£9.12	£9.35	£9.62
9. Automotive Skills	£7.32	£7.66	£7.97	£8.33	£8.81	£6.31	£6.42	£6.72	£7.53	£7.25
10. Skillsmart Retail	£8.45	£8.65	£8.85	£8.54	£9.00	£6.28	£6.60	£6.77	£7.25	£6.86
11. People 1st	£6.59	£6.89	£7.59	£7.74	£7.84	£5.55	£6.21	£6.28	£6.37	£7.26
12. GoSkills	£9.62	£10.11	£10.33	£11.17	£10.91	£9.12	£9.20	£9.60	£9.07	£10.44
13. Skills for Logistics	£7.49	£7.97	£8.25	£8.38	£8.74	£7.49	£7.81	£7.55	£8.76	£9.41
14. Financial Services	£16.02	£16.56	£16.68	£17.51	£20.03	£10.39	£10.58	£10.65	£12.03	£11.32
15. Asset Skills	£10.31	£10.61	£11.43	£11.41	£12.62	£8.01	£7.89	£9.03	£9.18	£8.98
16. e-skills UK	£15.16	£17.18	£16.79	£17.10	£17.05	£10.80	£12.71	£12.48	£13.73	£12.85
17. Government Skills	£10.96	£11.49	£12.02	£12.85	£12.92	£8.75	£8.96	£9.84	£10.28	£10.48
18. Skills for Justice	£11.62	£12.11	£11.98	£13.25	£13.56	£9.63	£9.65	£9.86	£10.70	£10.84
19. Lifelong Learning UK	£11.84	£12.56	£12.77	£13.44	£14.09	£9.83	£10.58	£10.82	£11.14	£11.95
20. Skills for Health	£10.90	£10.92	£12.42	£12.69	£13.41	£8.60	£9.37	£9.41	£9.76	£10.35
21. Care and Development	£9.32	£9.39	£9.11	£10.06	£11.18	£7.33	£7.85	£7.73	£7.90	£8.76
22. Skillset	£14.34	£14.44	£14.09	£13.19	£15.84	£11.46	£10.17	£11.35	£12.45	£17.29
23. Creative & Cultural	£12.65	£14.12	£14.66	£15.51	£16.06	£9.51	£11.20	£11.13	£12.30	£12.01
24. SkillsActive	£8.04	£8.90	£9.01	£8.79	£10.03	£6.90	£6.45	£6.49	£7.29	£7.53
25. Non-SSC1: Primary	£9.09	£9.99	£9.98	£10.04	£10.35	£8.49	£8.96	£9.68	£11.14	£9.78
26. Non-SSC2: Wholesale	£10.48	£10.68	£10.47	£10.51	£11.37	£8.16	£8.35	£8.81	£9.05	£8.72
27. Non-SSC3: Services	£11.93	£12.68	£13.03	£13.77	£13.31	£10.01	£10.46	£10.97	£11.11	£11.37
Average	£10.28	£10.90	£11.14	£11.60	£11.93	£8.45	£8.95	£9.25	£9.65	£9.92

Notes to Table 4:
1. Source: LFS 2000-2004, pooled, wave 1 observations only, weighted.
2. Sample: all of working age who are full-time employees.
3. Definitions of SSC groups are in Table A2.

Table 5: Average aggregate and disaggregate returns by gender

	MALE			FEMALE		
	Aggregate	Disaggregate quals		Aggregate	Disaggregate quals	
NQF level:	quals	Academic	Vocational	quals	Academic	Vocational
level1	-0.9%	1.3%	-3.8%	-1.4%	0.5%	-1.1%
level2	16.1%	19.6%	-3.4%	15.8%	18.6%	-5.2%
level3	15.3%	16.3%	6.5%	13.1%	14.4%	2.4%
level4	28.1%	24.3%	14.5%	31.2%	24.4%	17.3%
level5	24.0%	17.0%	27.6%	23.2%	18.3%	21.7%
N	69,562	69,562		44,817	44,817	
R^2	0.400	0.404		0.411	0.417	

Notes to Table 5:

1. Source: LFS 2000-2004, pooled, wave 1 observations only.
2. Sample: full-time employees of working age (men 16-64 and women 16-59 inclusive).
3. Controls are age, age squared, ethnicity (6 categories), region of work (21 categories), public sector, firm size (6 categories), apprenticeship, other qualifications; year dummies.
4. Rates of return are calculated as $\{\exp(\beta)-1\}\times 100\%$.
5. Given that indicators of all qualifications levels are included in the earnings functions, these estimated rates of return can be cumulated. Thus, for example, a woman with level 3 and level 4 qualifications can expect to earn approximately (13.1%+31.2%=) 44% more per hour than an otherwise identical women (in terms of her age, ethnicity etc) with only a level 2 qualification but no more. This cumulative calculation ignores the potential interactions among qualifications, but to the extent that higher level qualifications are frequently only obtained after lower and intermediate level pre-requisites are completed, this illustrative computation is probably not inappropriate.

Figure A: Summary of the distribution of high and low skill workers by SSC

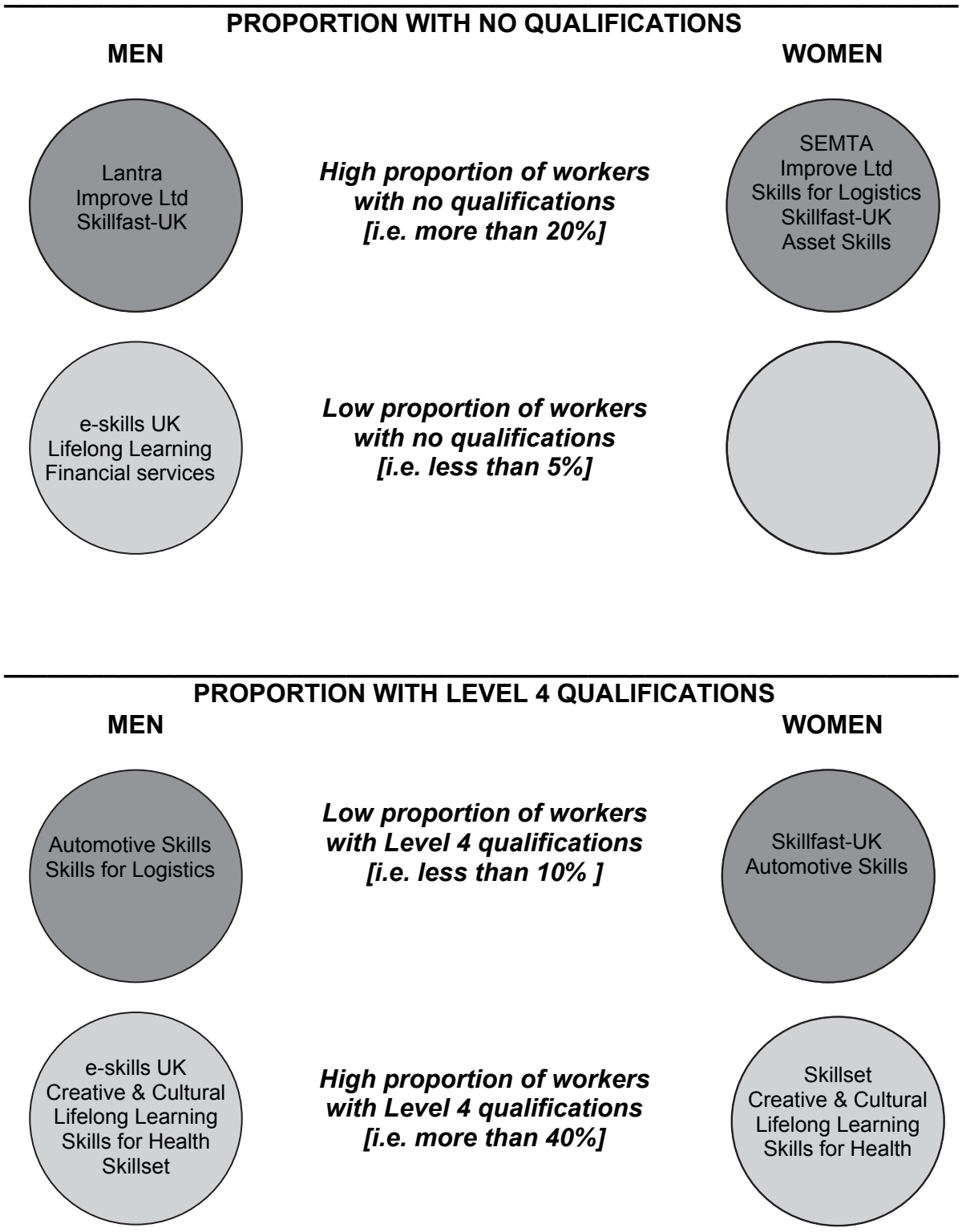
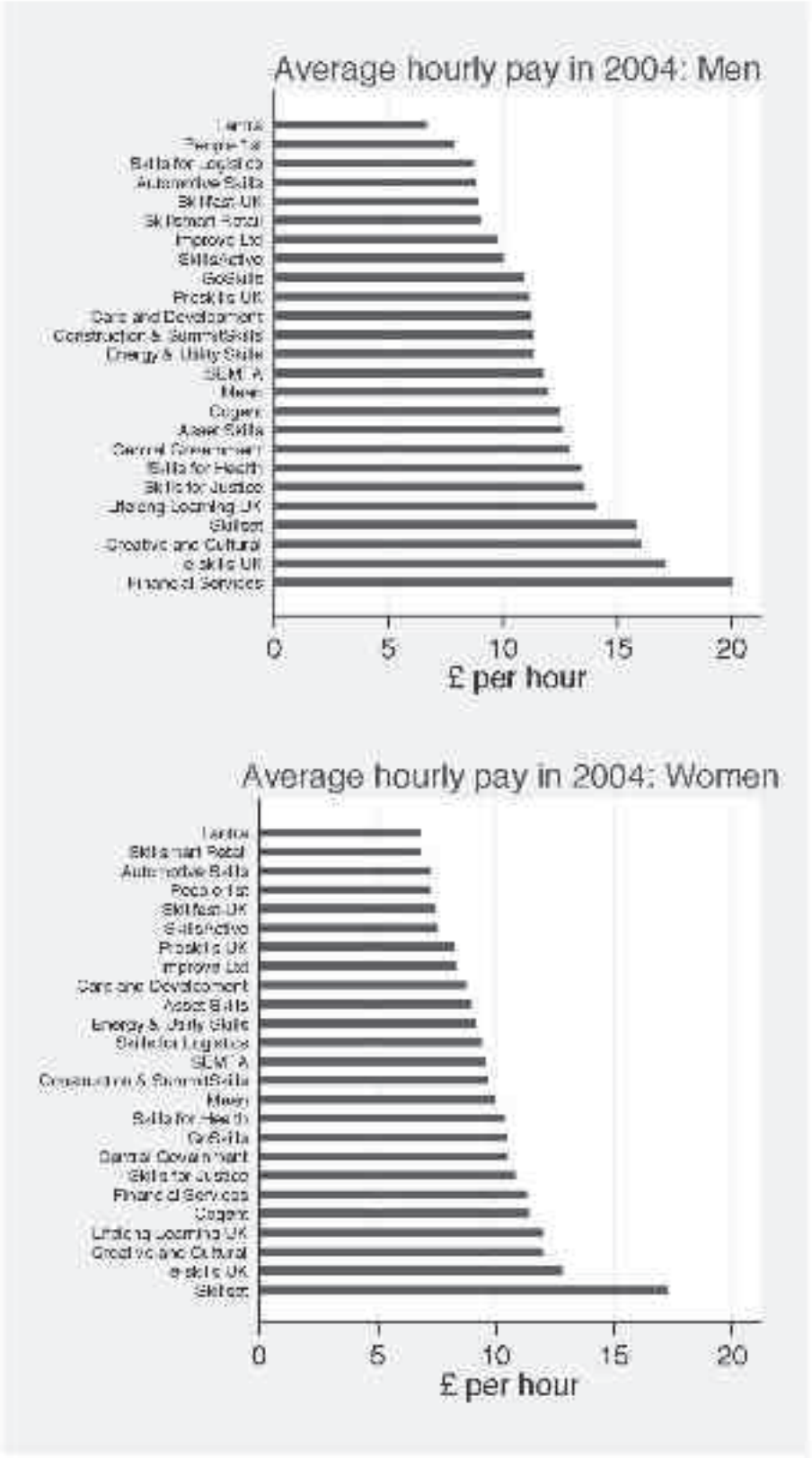


Figure B: Summary of the distribution of average hourly earnings by SSC



Note to Figure B

1. Average nominal hourly pay for men and women in 2004 by SSC. Source: LFS.

Figure C: Summary of the returns to Level 2, Level 3 and Level 4 qualifications by SSC

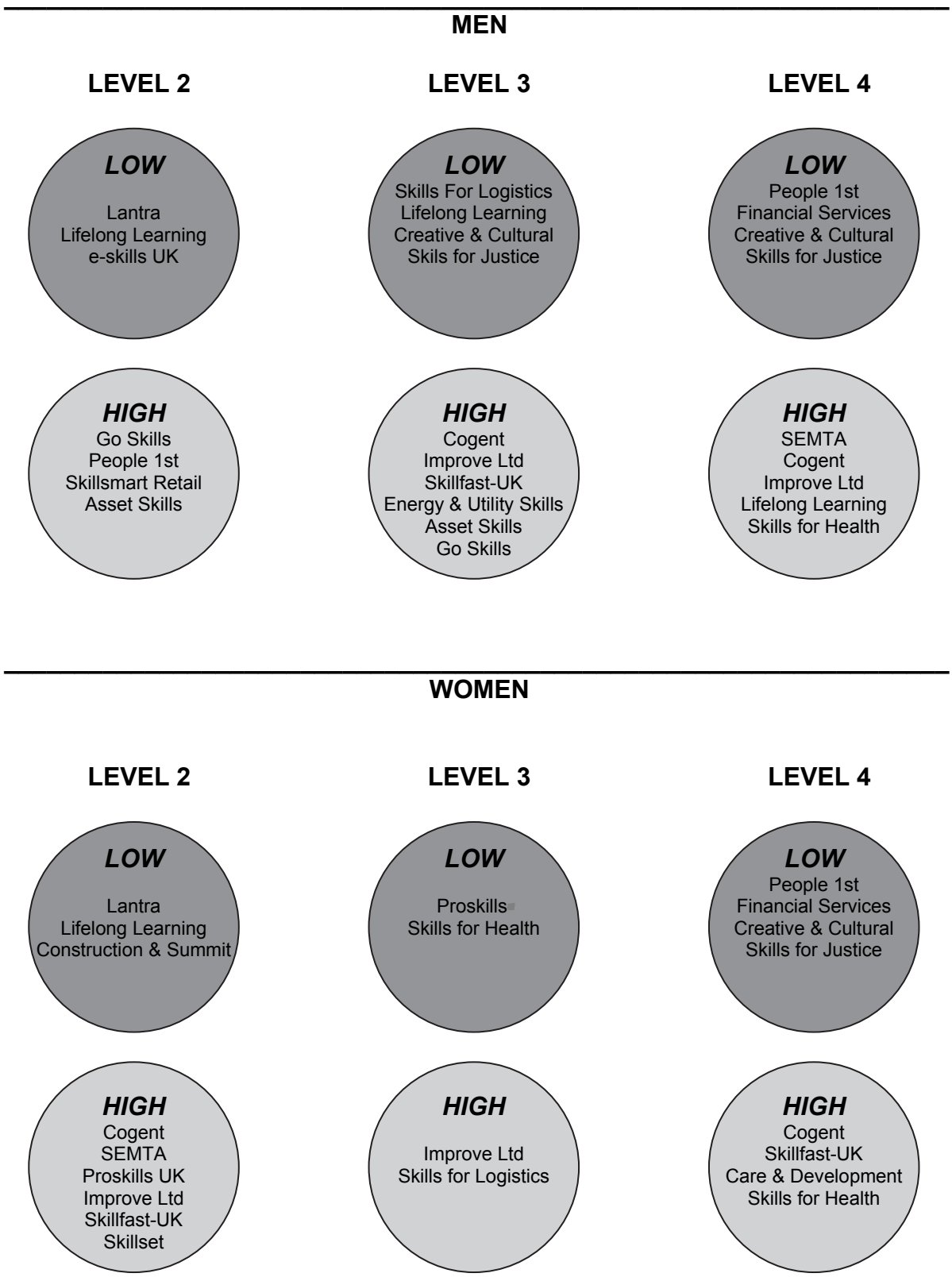


Figure 1: Returns to aggregate qualification levels by gender

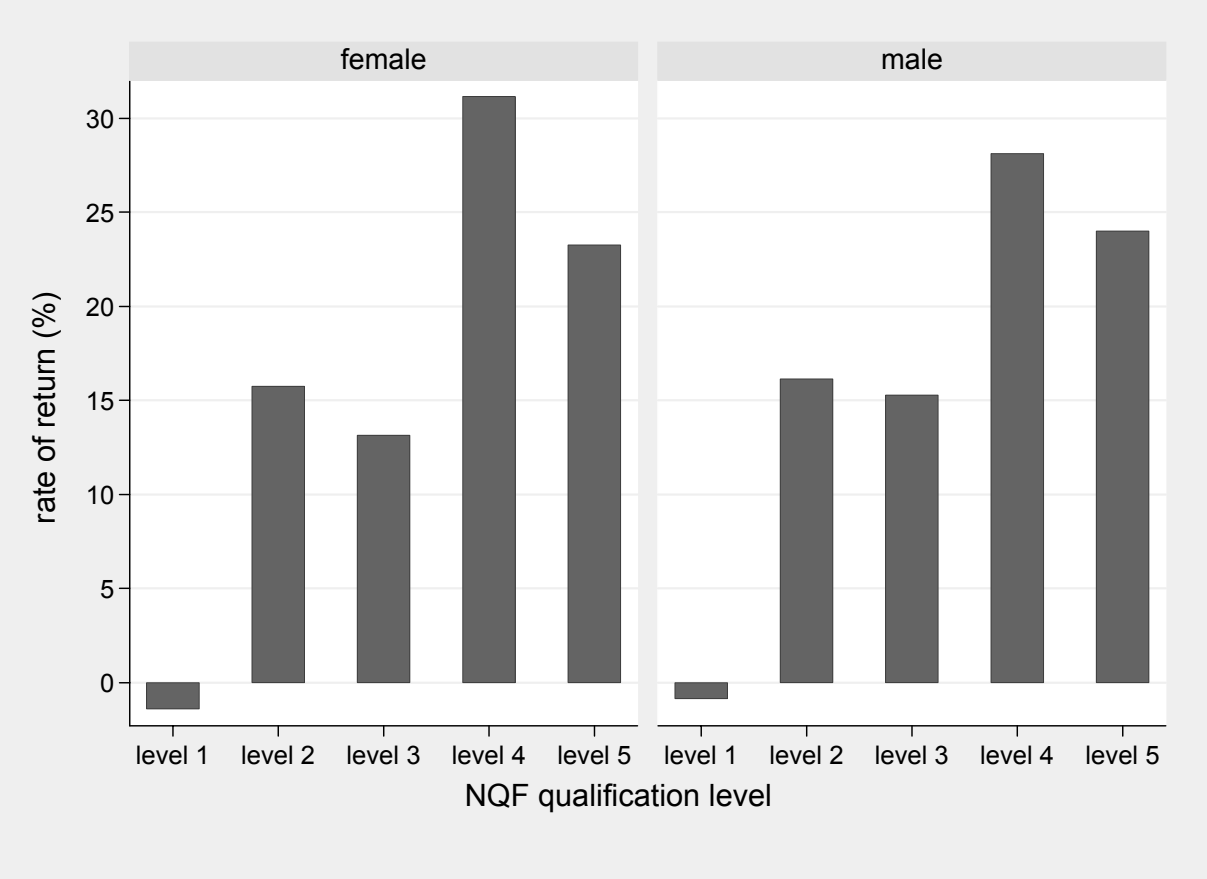


Figure 2: Returns to disaggregate qualification levels by gender

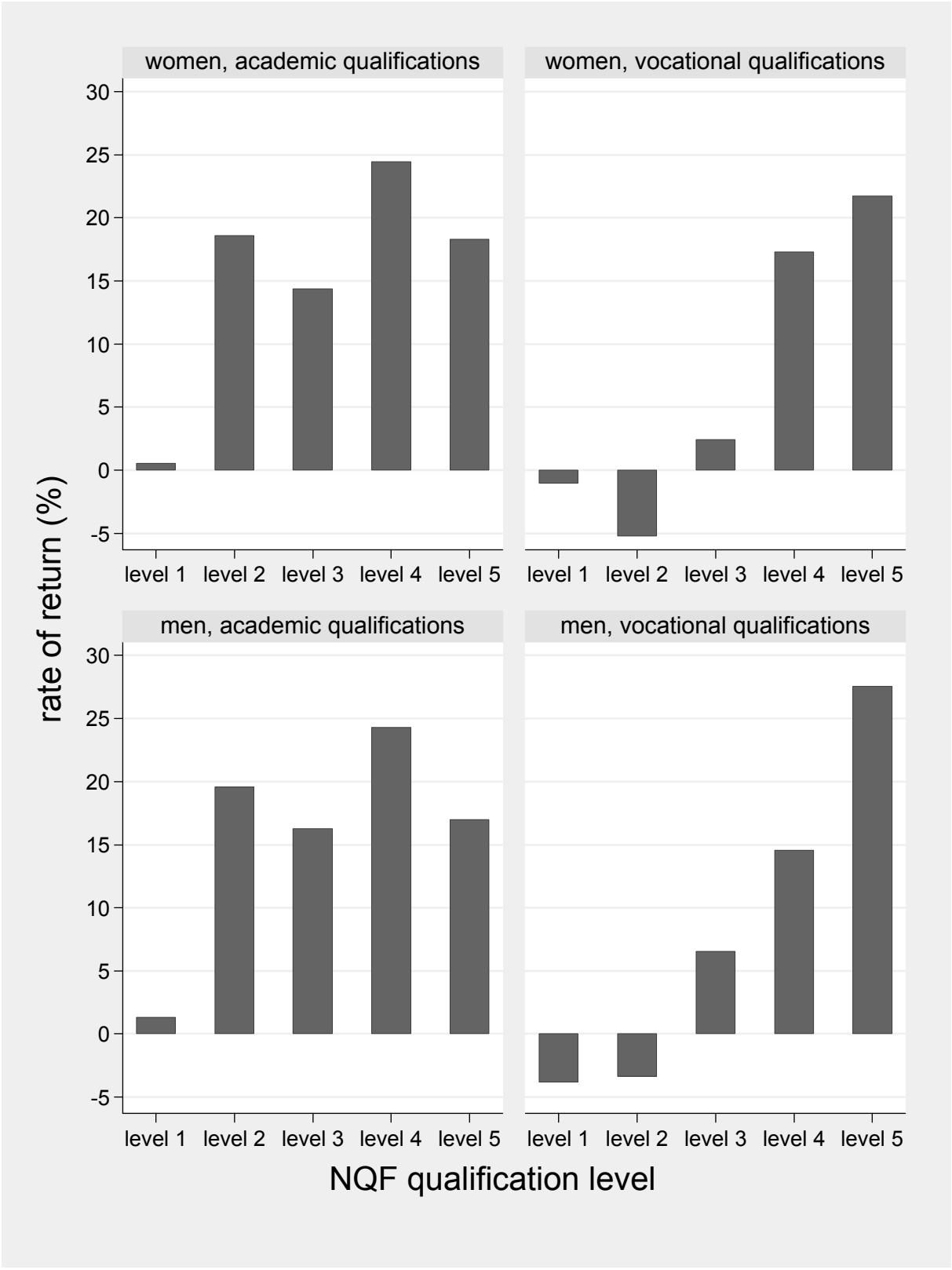


Figure 3M: Returns to aggregate qualification levels by SSCs - Male

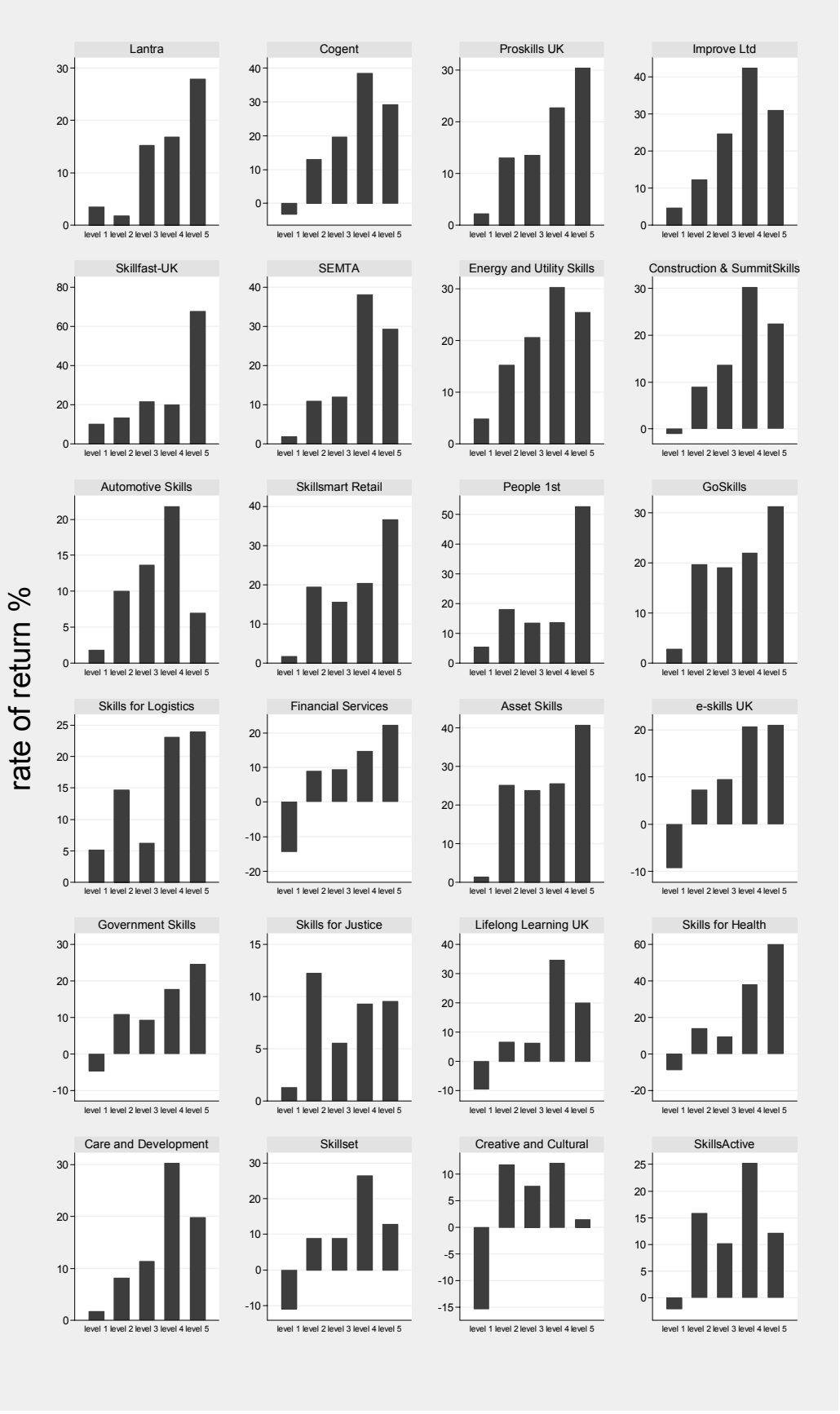


Figure 3F: Returns to aggregate qualification levels by SSCs - Female

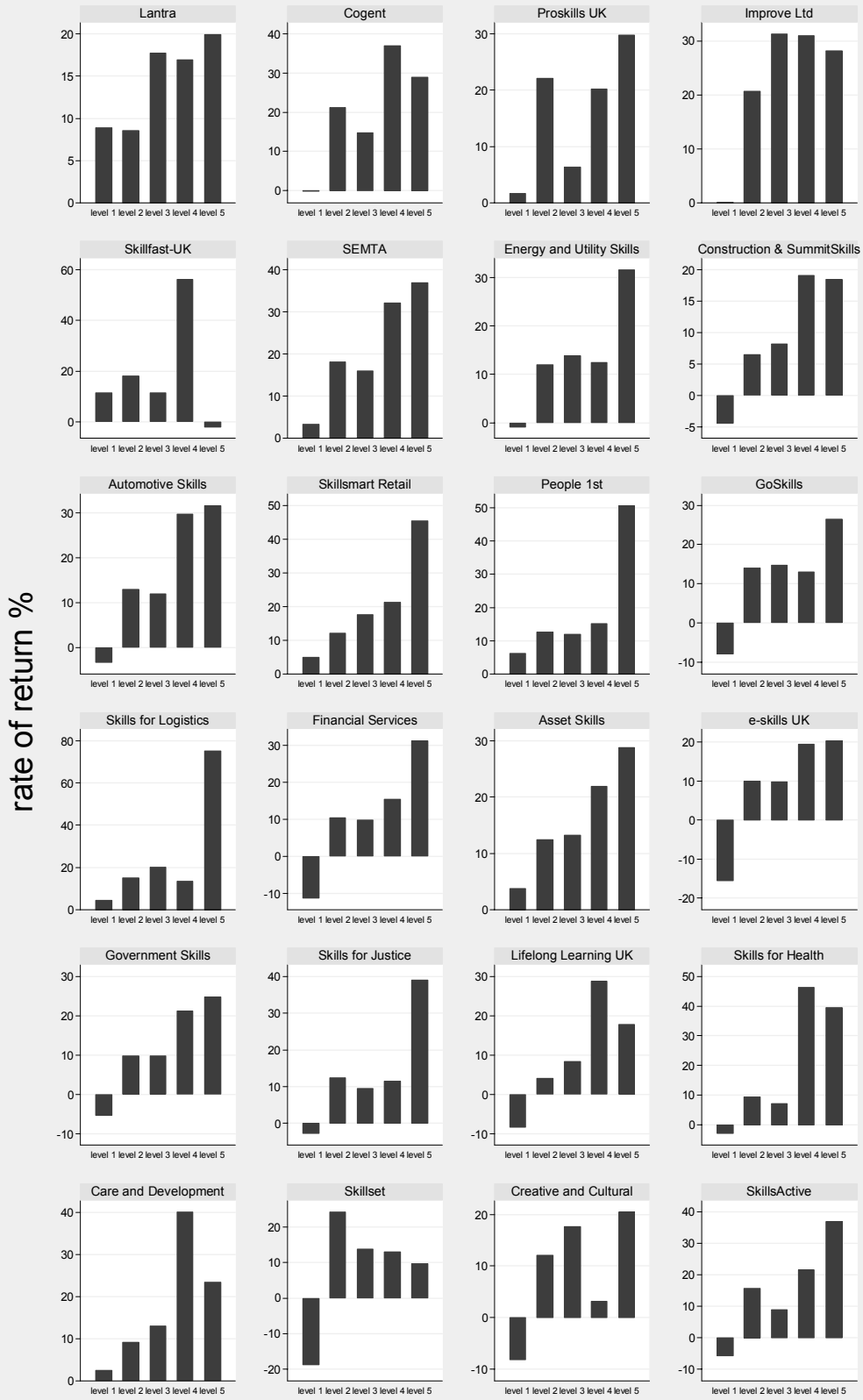


Figure 4M-A: Returns to disaggregate qualification levels by SSCs – Male Academic

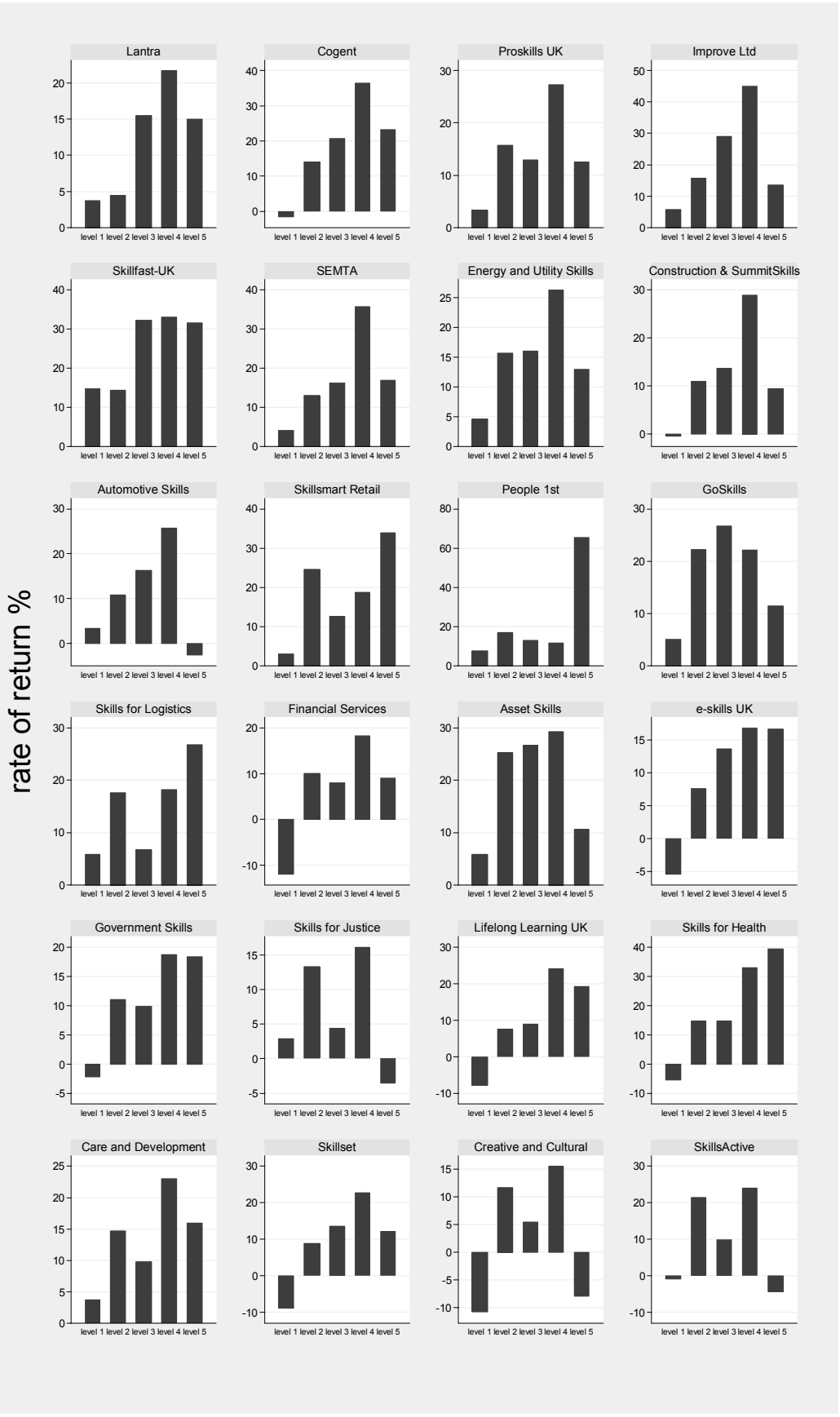


Figure 4M-V: Returns to disaggregate qualification levels by SSCs – Male Vocational

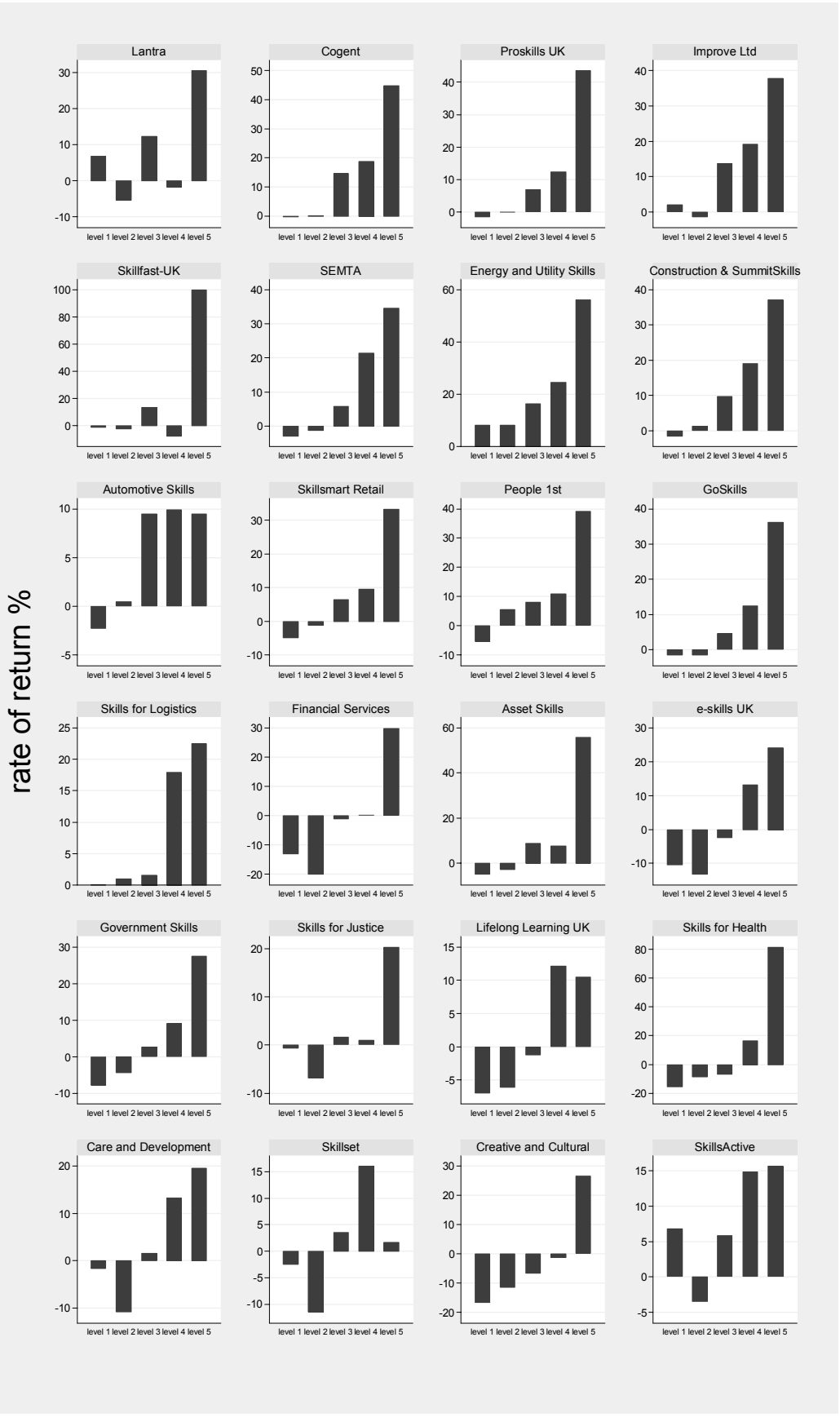


Figure 4F-A: Returns to disaggregate qualification levels by SSCs – Female Academic

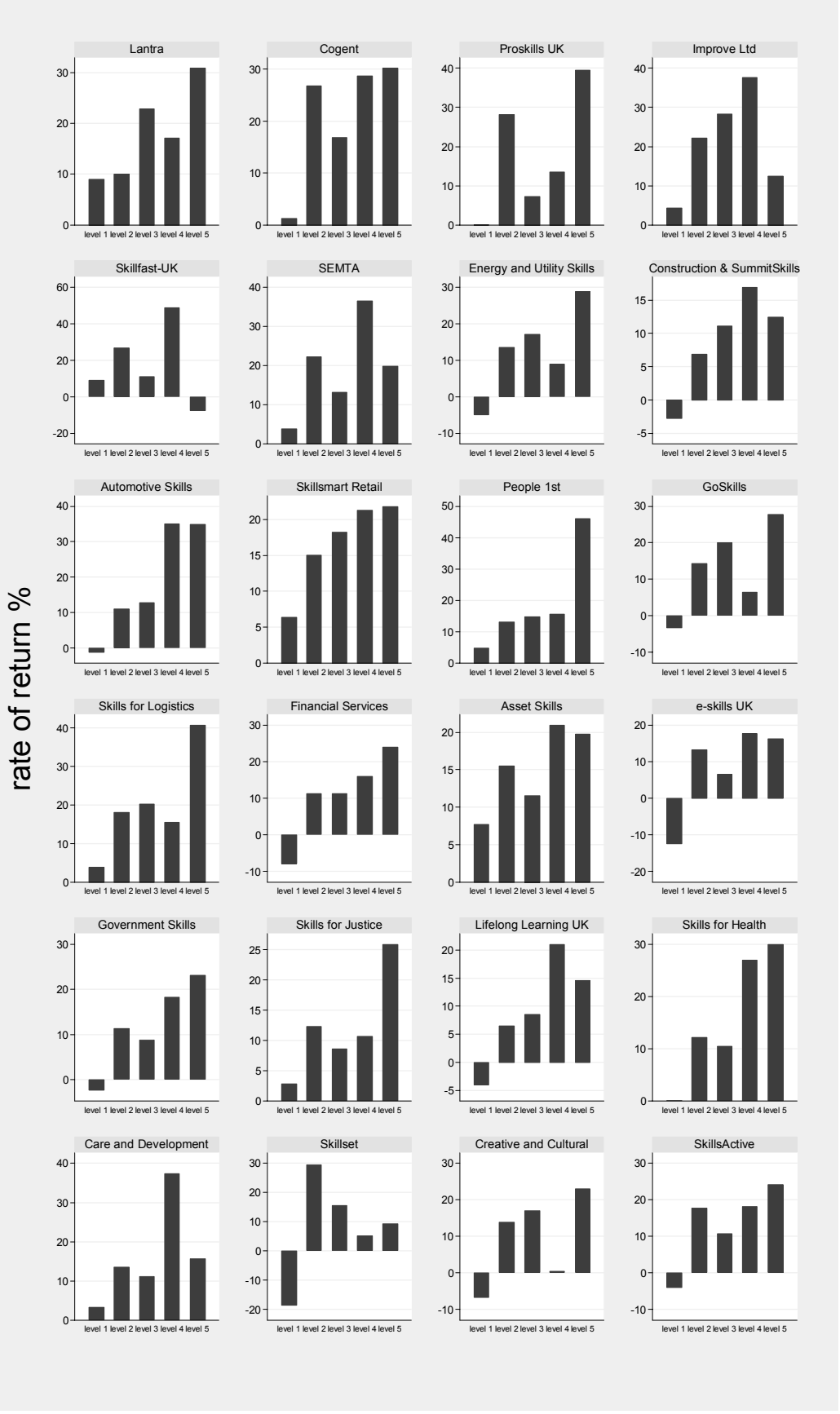
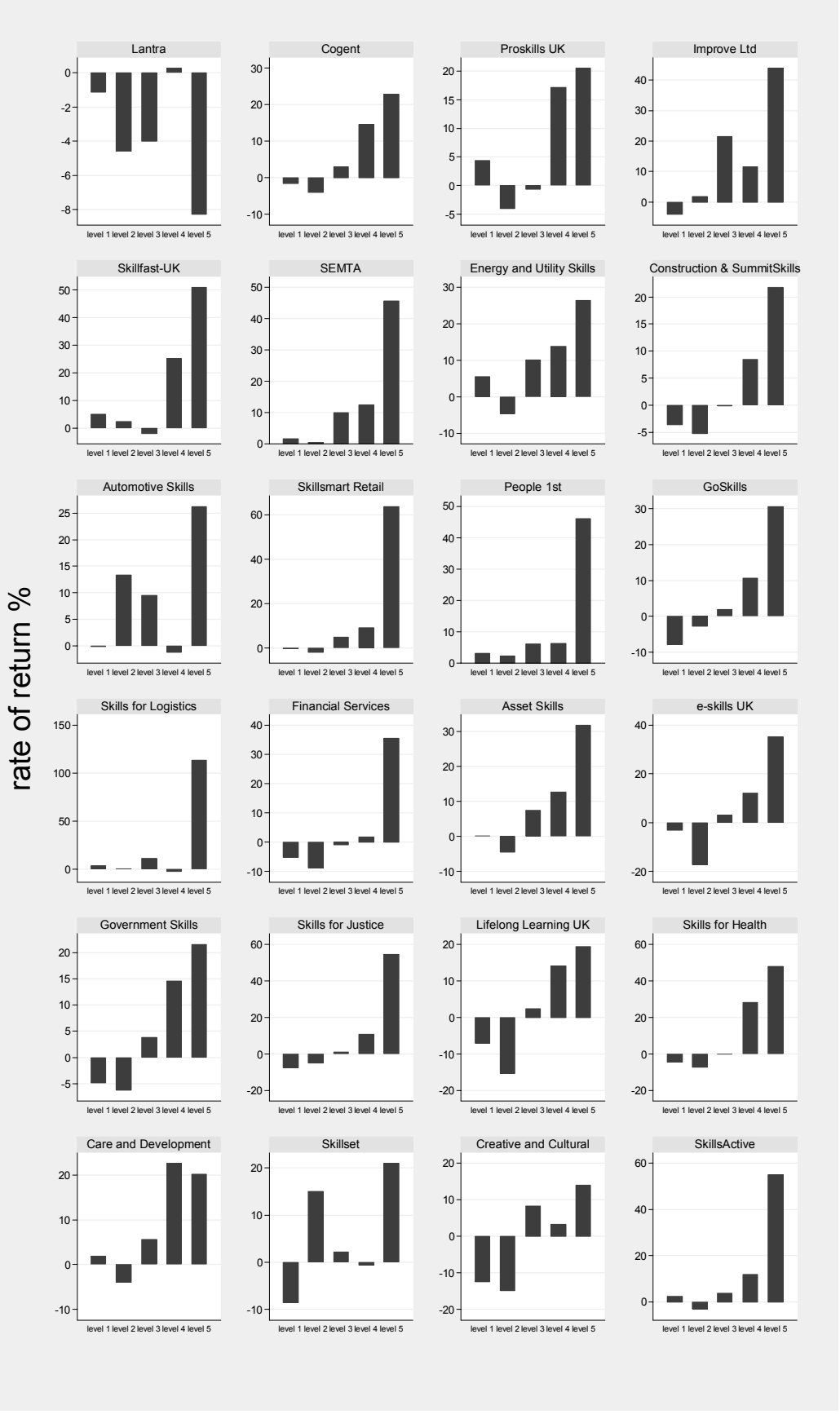


Figure 4F-V: Returns to disaggregate qualification levels by SSCs – Female Vocational



STATISTICAL ANNEX

Table A1: SSC definitions by 4-digit SIC2003 codes

SSC name	SSC description	SIC definition
Lantra Web: www.lantra.co.uk	Environmental and land-based industries	01, 02, 05.02, 85.2, 92.53
	Note: Lantra also cover industries which are small elements of other SIC codes not necessarily within their core, e.g. floristry, fencemaking, farriers	
Cogent Web: www.cogent-ssc.com	Chemicals, nuclear, oil and gas, petroleum and polymer industries	11, 23, 24.11-24.2, 24.41-24.63, 24.65,24.66, 25.13-25.24, 50.5
	Note: Cogent also cover the nuclear industry and sign making, but it is not possible to isolate these in terms of SIC.	
Proskills Web: www.proskills.co.uk	Process and manufacturing of extractives, coatings, refractories, building products, paper and print	10, 12-14, 21, 22.2, 24.3, 26.1, 26.26, 26.4-26.8, 40.3
Improve Ltd Web: www.improveltd.co.uk	Food and drink manufacturing and processing	15.11-15.91, 15.93-15.98, 51.38
Skillfast-UK Web: www.skillfast-uk.org	Apparel, footwear and textile industry	17-19, 24.7, 51.16, 51.24, 51.41, 51.42, 52.71, 93.01
SEMTA Web: www.semta.org.uk	Science, engineering and manufacturing technologies	25.11, 25.12, 27.4-28.3, 28.5-28.7, 29-35
	Note: SEMTA also cover science sectors, not exclusively defined by SIC	
Energy & Utility Skills Web: www.euskills.co.uk	Electricity, gas, waste management and water industries	37, 40.1, 40.2, 41, 51.54, 51.55, 60.3, 90
	Note: Energy and Utility Skills also have an interest in gas fitters, covered by SummitSkills SSC.	
ConstructionSkills Web: www.constructionskills.net/	Development and maintenance of the built environment	45.1, 45.2, 45.32, 45.34, 45.4, 45.5, 71.32, 74.2
	Note: A substantial proportion of construction work is sub-contracted to self-employed individuals (without employees).	
SummitSkills Web: www.summitskills.org.uk	Building services engineering (electro-technical, heating, ventilating, air conditioning, refrigeration and plumbing)	45.31, 45.33, 52.72
Automotive Skills Web: www.automotiveskills.org.uk	Retail motor industry	50.1, 50.2, 50.3, 50.4, 71.1
Skillsmart Retail Web: www.skillsmartretail.com	Retail industry	52.1-52.6
People 1st Web: www.people1st.co.uk	Hospitality, leisure, travel and tourism	55.1, 55.21, 55.23, 55.3-55.5, 63.3, 92.33, 92.71
Goskills Web: www.goskills.org	Passenger transport	60.1, 60.21-60.23, 61, 62.1, 62.2, 63.2, 80.41
Skills for Logistics Web: www.skillsforlogistics.org	Freight logistics industry	60.24, 63.1, 63.4, 64.1
	Note: Skills for Logistics also cover rail and water freight transport, for which there are no specific SIC codes.	
Financial Services Web: www.fssc.org.uk	Financial services industry	65-67
Asset Skills Web: www.assetskills.org	Property, housing, cleaning and facilities management	70, 74.7
	Note: Facilities Management, although as an industry is included in SIC code 70, is also an occupation employed across all industries, so is not fully represented through SIC. Some social housing management activity also falls within 85.31 Social Work activities with accommodation.	
e-skills UK Web: www.e-skills.com	IT, telecoms and contact centres	22.33, 64.2, 72, 74.86

SSC name	SSC description	SIC definition
	Note: e-skills UK covers IT & telecoms professionals across all industries. Additionally, as a fast changing sector, sector boundaries are continually changing.	
Government Skills Web: www.government-skills.gov.uk/	Central government	75.1, 75.21, 75.22, 75.25, 75.3
	Note: Most of the above SIC codes also incorporate local government. It is not possible to identify through SIC central or local government establishments.	
Skills for Justice Web: www.skillsforjustice.com	Custodial care, community justice and police	75.23, 75.24
Lifelong Learning UK Web: www.lifelonglearninguk.org	Community-based learning and development, further education, higher education, library and information services, work-based learning	80.22, 80.3, 80.42, 92.51
Skills for Health Web: www.skillsforhealth.org.uk	NHS, independent and voluntary health organisations	85.1
Skills for Care and Development email: sscadmin@skilsforcare.org.uk	Social care including children, families and young children	85.3
Skillset Web: www.skillset.org	Broadcast, film, video, interactive media and photo imaging	22.32, 24.64, 74.81, 92.1, 92.2
	Note: Photo-imaging is spread across a range of SIC codes, it is not possible to isolate the retail element. Interactive media, the largest sector in scope to Skillset, is not exclusively coded and is included within the core of e-skills UK. Additionally, self-employed people without employees represent most of the sector in areas such as film production and independent production. For these reasons, the data presented for Skillset should be interpreted with caution.	
Creative & Cultural Skills Web: www.ccskills.org.uk	Arts, museums and galleries, heritage, crafts and design	22.14, 22.31, 36.3, 74.4, 92.31, 92.32, 92.34, 92.4, 92.52
SkillsActive Web: www.skillsactive.com	Sport and recreation, health and fitness, playwork, the outdoors and caravans. *Note: SkillsActive covers sectors which form only a portion of other SIC codes.*	55.22, 92.6, 93.04
Non-SSC employers: Primary		05.01, 15.92, 16, 20, 22.11-22.13, 22.15, 26.21-26.25, 26.3, 27.1-27.3, 28.4, 36.1, 36.2, 36.4-36.6
Non-SSC employers: Wholesale/Retail		51.11-51.15, 51.17-51.23, 51.25-51.37, 51.39, 51.43-51.53, 51.56-51.90, 52.73, 52.74
Non-SSC employers: Business and Public services		62.3, 71.2, 71.31, 71.33, 71.34, 71.4, 73, 74.1, 74.3, 74.5, 74.6, 74.82, 74.85, 74.87, 80.10, 80.21, 91, 92.72, 93.02, 93.03, 93.05

Notes to Table A1:

2. These are the definitions used in the *Working Futures* sectoral projections presented in Dickerson *et al.* (2006). These definitions are a 'best' fit to each SSC's core business sectors, but the extent to which this is an exact fit to the SSC varies between SSCs. In some cases, the use of the core SIC codes excludes certain elements of the SSC footprint because they are included in other areas.
3. The SIC2003 codes highlighted are not separately identified in the LFS either because LFS does not provide the required detail or because LFS uses SIC1992 rather than SIC2003. These codes are therefore allocated differently in the analysis. Full details of this required reallocation are provided in Table A2.

Table A2: Feasible SSC group definitions using LFS

	SSC group name	4-digit SIC1992 coverage and details of differences from A1
1	Lantra	matched
2	Cogent	50.5 (Retail sale of automotive fuel), c. 53,000 workers representing 10.5% of employment, is combined with 50.1 and 50.3 (Sales of motors, parts etc) in the LFS, and is allocated to Automotive Skills
3	Proskills	matched
4	Improve Ltd	51.38 (Wholesale of other food including fish, crustaceans and molluscs), c. 17,000 workers representing 3.7% of employment, is combined with 51.21-51.70 (Wholesale) in the LFS, and is allocated to Non-SSC2: Wholesale/Retail
5	Skillfast-UK	51.16 (Agents involved in the sale of textiles, clothing, footwear and leather goods), c. 12,000 workers representing 3.7% of employment, is combined with 51.11-51.19 (Wholesale on fee or contract basis) in the LFS, and is allocated to Non-SSC2: Wholesale/Retail 51.24 (Wholesale of hides, skins and leather), c. 2,000 workers representing 0.5% of employment, and 51.41 (Wholesale of textiles), c. 16,000 workers representing 5.1% of employment, and 51.42 (Wholesale of clothing and footwear), c. 41,000 workers representing 12.9% of employment, are combined with 51.21-51.70 (Wholesale) in the LFS, and are allocated to Non-SSC2: Wholesale/Retail
6	SEMTA	matched
7	Energy & Utility Skills	51.54 (Wholesale of hardware, plumbing and heating equipment and supplies), c. 55,000 workers representing 17.7% of employment, and 51.55 (Wholesale of chemical products), c. 21,000 workers representing 6.6% of employment, are combined with 51.21-51.70 (Wholesale) in the LFS, and are allocated to Non-SSC2: Wholesale/Retail
8	Construction and SummitSkills	45 (Construction) is not disaggregated in the LFS. Since SIC45 contains the majority of both ConstructionSkills (1,507,000 workers representing 77.7% of employment) and of SummitSkills (c. 393,000 workers representing 95.3% of employment), we necessarily have to combine these two SSCs in the analysis
9	Automotive Skills	50.1, 50.3 and 50.5 (Sales of motors, parts etc) are combined in the LFS, and so this SSC group also includes 50.5 (Retail sale of automotive fuel), c. 53,000 workers representing an extra 8.7% of employment, which should be in Cogent
10	Skillsmart Retail	matched
11	People 1st	matched
12	GoSkills	matched
13	Skills for Logistics	matched
14	Financial Services	matched
15	Asset Skills	matched
16	e-skills UK	74.86 (Call centre activities), c.49,000 workers representing 5.7% of employment is a new code in SIC2003 but not in SIC92 and thus is not separately identified in the LFS
17	Government Skills	matched
18	Skills for Justice	matched
19	Lifelong Learning UK	matched
20	Skills for Health	matched
21	Care and Development	matched
22	Skillset	matched
23	Creative & Cultural	matched
24	SkillsActive	matched
25	Non-SSC1: Primary	matched
26	Non-SSC2: Wholesale/Retail	All of 51.11-51.19 (Wholesale on fee or contract basis) and 51.21-51.70 (Wholesale) are allocated to this group. This results in an estimated additional c. 163,000 workers representing 16% of employment

27	Non-SSC3: Business and public services	Special education: state and Special education: private are separately identified in the LFS but do not have SIC92 codes, and thus are allocated to this group

Notes to Table A2:
1. 'matched' indicates that the exact definition in Table A1 is available from the LFS.
2. The employment estimates are based on ABI data.

Table A3: Allocation of qualifications to NQF levels

	NQF level	Qualification	All	Male	Female
1		no qualification	18.2%	16.9%	19.6%
2	level 1A	any poor GCSE or equiv.	20.5%	19.2%	21.9%
3	level 1A	< 5 GCSE or equiv. passes	35.5%	32.5%	38.7%
4	level 1A	1 AS-level	0.4%	0.4%	0.5%
5	level 1V	RSA other	5.0%	0.9%	9.4%
6	level 1V	City & Guilds found 1	1.7%	1.9%	1.5%
7	level 1V	BTEC 1st cert	0.3%	0.3%	0.4%
8	level 1V	NVQ1	1.1%	1.0%	1.3%
9	level 1V	GNVQ foundation	0.3%	0.2%	0.3%
10	level 1V	YT certificate	0.5%	0.5%	0.6%
11	level 1V	SCOTVEC modules	0.7%	0.6%	0.8%
12	level 2A	1 A-level	2.8%	2.5%	3.2%
13	level 2A	2/3 AS-levels	0.3%	0.3%	0.3%
14	level 2A	5+ GCSE passes	37.4%	35.4%	39.6%
15	level 2A	1 or 2 SCE highers	0.7%	0.5%	0.8%
16	level 2V	RSA diploma	0.2%	0.1%	0.4%
17	level 2V	City & Guilds craft 2	2.4%	3.5%	1.2%
18	level 2V	BTEC 1st diploma	0.3%	0.3%	0.4%
19	level 2V	NVQ2	3.3%	2.5%	4.1%
20	level 2V	GNVQ intermediate	0.7%	0.6%	0.8%
21	level 3A	2+ A-levels	17.7%	17.8%	17.5%
22	level 3A	4+ AS-levels	0.2%	0.2%	0.3%
23	level 3A	3+ SCE highers	2.1%	2.0%	2.2%
24	level 3A	CSYS	0.3%	0.2%	0.3%
25	level 3V	ONC/OND	2.0%	3.1%	0.9%
26	level 3V	RSA advanced cert or dip	0.1%	0.0%	0.3%
27	level 3V	City & Guilds advanced 3	3.6%	6.0%	1.0%
28	level 3V	BTEC national dip or cert	1.7%	1.6%	1.9%
29	level 3V	NVQ3	2.4%	2.0%	2.8%
30	level 3V	GNVQ advanced	0.8%	0.7%	0.9%
31	level 2/3V	trade apprenticeship	12.3%	20.6%	3.5%
32	level 4A	first degree	14.1%	14.9%	13.3%
33	level 4A	other HE	1.0%	0.9%	1.1%
34	level 4A	HE diploma	1.6%	1.3%	1.9%
35	level 4V	HNC/HND	4.4%	6.2%	2.5%
36	level 4V	teaching: FE	0.5%	0.4%	0.7%
37	level 4V	teaching: secondary	0.8%	0.6%	0.9%
38	level 4V	teaching: primary	0.7%	0.2%	1.3%
39	level 4V	nursing	2.3%	0.5%	4.1%
40	level 4V	RSA higher diploma	0.1%	0.0%	0.1%
41	level 4V	BTEC higher	0.3%	0.4%	0.3%
42	level 4V	NVQ4	0.4%	0.4%	0.5%
43	level 5A	higher degree	3.2%	3.9%	2.5%
44	level 5V	other degree	1.2%	1.6%	0.8%
45	level 5V	teaching PGCE	0.8%	0.6%	1.1%
46	level 5V	NVQ5	0.1%	0.1%	0.1%
47	other	other pro/voc/OS quals	30.2%	32.7%	27.5%
	NOBS		330,795	166,446	164,349

Notes to Table A3:

1. Source: pooled LFS 2000-2004, wave 1 observations only, weighted. All of working age – i.e. male aged 16-64, female aged 16-59 inclusive.
2. Level1-level5 are the five levels of the NQF classification; the suffix A (V) denotes academic (vocational) qualifications. The figures in the table are the proportions of the sample holding each qualification or qualification level.

3. Trade apprenticeships (line 31) may be at either vocational level 2 or level 3, but may also be separately certificated (e.g. with City & Guilds diploma). Thus they are treated separately in the analysis – see text for details.
4. 'Other' (line 47) denotes 'other professional/vocational qualifications/foreign qualifications' which are not distinguished in the LFS and therefore cannot be classified further. As with apprenticeships, these are treated as a separate category – see text for further discussion.

Table A4: Number of observations in aggregate regressions by SSC and gender

MALE	Qualifications								
SSC group	no qual	level 1	level 2	level 3	level4	level 5	apprent.	other	total
1. Lantra	156	325	228	148	82	22	100	318	767
2. Cogent	277	1,111	1,182	944	764	205	617	925	2,505
3. Proskills	327	939	781	583	304	45	678	775	2,196
4. Improve Ltd	356	637	520	389	244	43	348	713	1,736
5. Skillfast-UK	190	261	199	129	67	13	125	170	688
6. SEMTA	1,004	4,253	3,783	3,300	2,288	396	3,646	3,239	9,242
7. Energy & Utility Skills	210	660	671	567	405	79	464	624	1,516
8. Construction & Summit	770	3,366	3,142	2,784	1,821	424	2,934	2,821	7,641
9. Automotive Skills	245	1,036	674	558	160	21	804	717	2,027
10. Skillsmart Retail	476	1,951	1,661	1,035	606	106	474	1,223	3,741
11. People 1st	228	898	777	520	309	47	230	802	1,848
12. GoSkills	236	848	818	570	321	70	509	1,189	2,170
13. Skills for Logistics	635	1,569	1,018	565	298	53	599	1,719	3,791
14. Financial Services	53	1,422	2,237	1,693	1,118	363	156	1,449	3,027
15. Asset Skills	169	416	483	390	283	81	165	367	1,049
16. e-skills UK	48	1,409	2,040	1,737	1,503	342	486	1,013	2,935
17. Government Skills	187	1,939	2,740	2,104	1,712	482	785	1,889	4,356
18. Skills for Justice	57	784	914	613	392	58	297	777	1,550
19. Lifelong Learning UK	30	557	1,090	1,043	1,178	681	291	651	1,626
20. Skills for Health	113	808	1,093	903	1,096	389	322	962	2,054
21. Care and Development	76	459	584	476	476	125	145	473	1,073
22. Skillset	11	155	201	175	158	35	47	91	325
23. Creative & Cultural	27	201	284	235	214	47	51	134	448
24. SkillsActive	43	276	270	184	128	24	80	264	524
25. Non-SSC1: Primary	384	1,004	875	661	430	85	613	683	2,320
26. Non-SSC2: Wholesale	367	1,078	980	649	429	97	427	980	2,567
27. Non-SSC3: Services	374	2,248	3,729	3,235	3,132	1,243	756	2,139	5,728
Total	7,049	30,610	32,974	26,190	19,918	5,576	16,149	27,107	69,450

FEMALE	Qualifications								
SSC group	no qual	level 1	level 2	level 3	level4	level 5	apprent.	other	total
1. Lantra	28	160	150	93	75	11	9	87	264
2. Cogent	123	478	493	337	291	74	26	249	892
3. Proskills	91	291	227	117	89	14	16	144	524
4. Improve Ltd	168	317	250	143	114	17	21	252	717
5. Skillfast-UK	258	253	159	74	60	7	23	108	643
6. SEMTA	393	1,060	802	476	370	82	87	577	1,997
7. Energy & Utility Skills	27	274	251	164	124	26	17	142	415
8. Construction & Summit	69	670	586	353	290	65	28	323	1,054
9. Automotive Skills	63	304	196	92	41	10	20	125	465
10. Skillsmart Retail	636	2,182	1,618	889	540	68	157	1,031	3,792
11. People 1st	293	1,153	926	525	288	27	100	776	2,005
12. GoSkills	27	297	291	154	112	21	15	211	496
13. Skills for Logistics	122	407	319	163	109	13	16	208	734
14. Financial Services	95	1,874	1,911	1,127	670	122	41	1,065	2,881
15. Asset Skills	92	548	486	274	227	42	32	367	955
16. e-skills UK	38	585	664	446	372	78	15	315	1,001
17. Government Skills	147	2,069	2,382	1,539	1,327	334	93	1,136	3,550
18. Skills for Justice	35	510	528	306	245	42	27	302	779
19. Lifelong Learning UK	31	796	1,131	931	1,047	467	45	648	1,619
20. Skills for Health	356	2,798	2,980	1,780	2,887	382	251	2,077	5,356
21. Care and Development	299	1,717	1,633	1,104	1,156	182	134	1,512	3,441
22. Skillset	13	113	144	113	107	23	9	67	212
23. Creative & Cultural	20	169	226	180	170	38	3	96	328
24. SkillsActive	30	225	188	112	74	7	18	158	335
25. Non-SSC1: Primary	106	466	416	278	210	32	43	220	807
26. Non-SSC2: Wholesale	151	619	511	275	204	32	38	299	1,054
27. Non-SSC3: Services	315	4,414	5,792	4,357	4,536	1,397	337	2,944	8,364
Total	4,026	24,749	25,260	16,402	15,735	3,613	1,621	15,439	44,680

Notes to Table A4:

1. Source: LFS 2000-2004, pooled, wave 1 observations only.
2. Sample: all men and women of working age who are full-time employees.
3. Definitions of SSC groups are in Table A2.
4. Level1-level5 are the five levels of the NQF classification. The figures in the table are the number of individuals in the sample holding qualifications at each level.
5. Apprenticeships may be at either vocational level 2 or level 3, but may also be separately certificated (e.g. with City and Guilds diploma). Thus they are treated separately in the analysis.
6. 'Other' denotes 'other professional/vocational qualifications/foreign qualifications' which are not distinguished in the LFS and therefore cannot be classified further. As with apprenticeships, these are treated as a separate category.

Table A5: Number of observations in disaggregate regressions by SSC and gender

MALE	Academic qualifications					Vocational qualifications				
SSC group	level 1	level 2	level 3	level 4	level5	level 1	level 2	level 3	level 4	level5
1. Lantra	300	160	80	55	13	45	80	75	33	9
2. Cogent	1,048	1,018	554	542	161	169	220	421	304	44
3. Proskills	891	623	235	184	26	132	213	372	142	19
4. Improve Ltd	592	398	178	162	27	104	152	220	100	17
5. Skillfast-UK	241	152	57	43	8	44	62	78	30	5
6. SEMTA	4,014	2,988	1,171	1,286	262	657	1,038	2,216	1,265	136
7. Energy & Utility Skills	618	537	257	235	50	97	174	332	220	29
8. Construction & Summit	3,173	2,543	1,125	1,098	229	515	784	1,743	963	195
9. Automotive Skills	981	483	139	83	6	162	237	430	89	15
10. Skillsmart Retail	1,881	1,425	685	438	51	245	342	402	211	55
11. People 1st	857	623	279	200	28	146	214	264	124	19
12. GoSkills	803	686	294	200	39	133	171	295	149	33
13. Skills for Logistics	1,481	798	263	185	23	230	285	323	134	30
14. Financial Services	1,378	2,190	1,429	930	173	152	103	312	240	190
15. Asset Skills	389	441	256	216	35	65	61	141	95	47
16. e-skills UK	1,361	1,944	1,309	1,202	274	174	171	485	438	68
17. Government Skills	1,839	2,579	1,464	1,253	318	258	268	726	669	165
18. Skills for Justice	745	855	392	267	36	106	101	244	163	22
19. Lifelong Learning UK	522	1,026	813	1,018	595	87	106	271	383	88
20. Skills for Health	760	989	639	718	290	106	135	295	547	100
21. Care and Development	431	499	332	376	93	77	113	167	155	33
22. Skillset	152	195	136	126	30	11	18	46	42	5
23. Creative & Cultural	194	274	202	183	34	20	17	47	45	13
24. SkillsActive	269	227	97	83	8	37	62	92	62	16
25. Non-SSC1: Primary	946	702	328	302	57	154	220	354	158	28
26. Non-SSC2: Wholesale	1,020	855	385	296	59	149	181	286	162	39
27. Non-SSC3: Services	2,145	3,514	2,720	2,739	606	290	321	606	966	638
Total	29,031	28,724	15,819	14,420	3,531	4,365	5,849	11,243	7,889	2,058

FEMALE	Academic qualifications					Vocational qualifications				
SSC group	level 1	level 2	level 3	level 4	level5	level 1	level 2	level 3	level 4	level5
1. Lantra	144	141	74	53	7	48	30	23	25	4
2. Cogent	427	460	264	236	51	137	56	81	77	23
3. Proskills	251	201	83	67	5	105	43	38	25	9
4. Improve Ltd	276	207	96	86	10	109	62	47	35	7
5. Skillfast-UK	219	128	51	48	6	71	43	28	17	1
6. SEMTA	919	721	305	265	41	370	142	186	135	42
7. Energy & Utility Skills	246	231	112	92	15	96	39	60	42	11
8. Construction & Summit	572	546	244	221	46	268	84	120	91	19
9. Automotive Skills	262	162	55	32	5	108	47	40	13	5
10. Skillsmart Retail	2,023	1,364	581	405	30	508	363	350	169	38
11. People 1st	1,063	751	307	191	16	285	285	239	119	11
12. GoSkills	272	259	110	80	15	95	47	48	37	7
13. Skills for Logistics	360	276	107	79	7	130	58	63	41	6
14. Financial Services	1,692	1,833	878	556	63	521	167	282	155	59
15. Asset Skills	466	431	193	165	21	210	79	98	86	21
16. e-skills UK	534	629	361	325	61	155	63	112	73	17
17. Government Skills	1,771	2,260	1,124	966	221	767	242	486	539	116
18. Skills for Justice	450	492	230	187	25	169	63	87	80	17
19. Lifelong Learning UK	662	1,082	753	884	360	284	105	218	399	109
20. Skills for Health	2,485	2,726	1,291	1,396	257	774	379	562	2,076	125
21. Care and Development	1,536	1,281	616	741	130	481	462	549	530	53
22. Skillset	102	140	98	98	17	29	6	17	12	6
23. Creative & Cultural	158	222	160	150	28	33	12	29	29	10
24. SkillsActive	198	165	68	56	4	55	41	49	24	3
25. Non-SSC1: Primary	401	382	212	172	23	166	52	76	49	9
26. Non-SSC2: Wholesale	539	468	176	137	16	216	71	106	83	16
27. Non-SSC3: Services	3,930	5,511	3,729	3,605	466	1,301	500	747	1,802	932
Total	21,958	23,069	12,278	11,293	1,946	7,491	3,541	4,741	6,763	1,676

Notes to Table A5:

1. Source: LFS 2000-2004, pooled, wave 1 observations only.
2. Sample: all men and women of working age who are full-time employees.
3. Definitions of SSC groups are in Table A2.
4. Level1-level5 are the five levels of the NQF classification, distinguishing between academic and vocational qualifications. The figures in the table are the numbers in the sample holding qualifications at each level.

Table A6M: Returns to aggregate qualification levels by SSC - Male

WITH CONTROLS											RATES OF RETURN				
MALE	level 1	*se*	level 2	*se*	level 3	*se*	level 4	*se*	level 5	*se*	level 1	level 2	level 3	level 4	level 5
1. Lantra	0.034	*0.030*	0.018	*0.037*	0.142	*0.052*	0.155	*0.065*	0.246	*0.118*	3.4%	1.8%	15.3%	16.8%	27.9%
2. Cogent	-0.032	*0.018*	0.122	*0.020*	0.180	*0.021*	0.325	*0.023*	0.257	*0.032*	-3.2%	13.0%	19.7%	38.4%	29.3%
3. Proskills	0.022	*0.017*	0.122	*0.020*	0.127	*0.021*	0.205	*0.031*	0.266	*0.087*	2.2%	13.0%	13.6%	22.7%	30.4%
4. Improve Ltd	0.045	*0.022*	0.115	*0.028*	0.221	*0.030*	0.354	*0.039*	0.271	*0.075*	4.6%	12.2%	24.7%	42.4%	31.1%
5. Skillfast-UK	0.098	*0.034*	0.127	*0.038*	0.196	*0.050*	0.183	*0.078*	0.516	*0.114*	10.3%	13.5%	21.7%	20.0%	67.6%
6. SEMTA	0.019	*0.008*	0.104	*0.009*	0.113	*0.009*	0.323	*0.011*	0.257	*0.022*	1.9%	10.9%	12.0%	38.2%	29.3%
7. Energy & Utility Skills	0.048	*0.020*	0.142	*0.022*	0.188	*0.023*	0.265	*0.027*	0.227	*0.055*	4.9%	15.3%	20.7%	30.3%	25.4%
8. Construction & Summit	-0.009	*0.009*	0.086	*0.010*	0.128	*0.010*	0.265	*0.013*	0.203	*0.021*	-0.9%	9.0%	13.6%	30.3%	22.5%
9. Automotive Skills	0.018	*0.018*	0.096	*0.019*	0.128	*0.021*	0.197	*0.037*	0.068	*0.123*	1.8%	10.0%	13.6%	21.8%	7.0%
10. Skillsmart Retail	0.017	*0.016*	0.177	*0.016*	0.144	*0.018*	0.185	*0.025*	0.312	*0.055*	1.7%	19.4%	15.5%	20.3%	36.6%
11. People 1st	0.052	*0.023*	0.166	*0.023*	0.126	*0.026*	0.128	*0.035*	0.423	*0.101*	5.4%	18.0%	13.5%	13.6%	52.7%
12. GoSkills	0.027	*0.020*	0.180	*0.023*	0.174	*0.026*	0.199	*0.033*	0.273	*0.059*	2.8%	19.7%	19.1%	22.0%	31.3%
13. Skills for Logistics	0.050	*0.013*	0.137	*0.015*	0.060	*0.021*	0.208	*0.030*	0.215	*0.071*	5.1%	14.7%	6.2%	23.1%	23.9%
14. Financial Services	-0.155	*0.017*	0.086	*0.022*	0.089	*0.019*	0.138	*0.018*	0.201	*0.028*	-14.3%	9.0%	9.4%	14.8%	22.2%
15. Asset Skills	0.013	*0.029*	0.224	*0.031*	0.214	*0.031*	0.228	*0.035*	0.342	*0.050*	1.3%	25.2%	23.8%	25.6%	40.7%
16. e-skills UK	-0.098	*0.018*	0.070	*0.021*	0.091	*0.021*	0.188	*0.020*	0.190	*0.029*	-9.3%	7.3%	9.5%	20.6%	21.0%
17. Government Skills	-0.047	*0.011*	0.103	*0.012*	0.088	*0.011*	0.163	*0.013*	0.219	*0.020*	-4.6%	10.8%	9.2%	17.7%	24.5%
18. Skills for Justice	0.013	*0.018*	0.115	*0.018*	0.054	*0.019*	0.089	*0.022*	0.091	*0.068*	1.3%	12.2%	5.5%	9.3%	9.6%
19. Lifelong Learning UK	-0.102	*0.020*	0.063	*0.021*	0.060	*0.020*	0.298	*0.024*	0.181	*0.022*	-9.7%	6.5%	6.1%	34.7%	19.9%
20. Skills for Health	-0.092	*0.019*	0.131	*0.022*	0.091	*0.021*	0.322	*0.021*	0.471	*0.030*	-8.8%	14.0%	9.5%	38.0%	60.2%
21. Care and Development	0.017	*0.023*	0.078	*0.025*	0.107	*0.025*	0.264	*0.027*	0.181	*0.036*	1.7%	8.2%	11.3%	30.2%	19.8%
22. Skillset	-0.118	*0.049*	0.085	*0.054*	0.086	*0.059*	0.235	*0.058*	0.121	*0.075*	-11.1%	8.8%	8.9%	26.5%	12.8%
23. Creative & Cultural	-0.167	*0.049*	0.111	*0.060*	0.075	*0.064*	0.113	*0.067*	0.014	*0.068*	-15.4%	11.7%	7.7%	12.0%	1.5%
24. SkillsActive	-0.022	*0.046*	0.147	*0.048*	0.097	*0.047*	0.225	*0.048*	0.114	*0.115*	-2.2%	15.9%	10.2%	25.2%	12.1%
25. Non-SSC1: Primary	0.034	*0.017*	0.105	*0.019*	0.146	*0.020*	0.209	*0.027*	0.211	*0.056*	3.5%	11.1%	15.7%	23.2%	23.5%
26. Non-SSC2: Wholesale	0.001	*0.019*	0.169	*0.022*	0.161	*0.027*	0.280	*0.031*	0.237	*0.064*	0.1%	18.4%	17.5%	32.3%	26.7%
27. Non-SSC3: Services	-0.060	*0.013*	0.210	*0.017*	0.155	*0.016*	0.237	*0.017*	0.116	*0.016*	-5.8%	23.4%	16.8%	26.7%	12.3%
NOBS					69,450										
R2					0.968										

Table A6F: Returns to aggregate qualification levels by SSC - Female

WITH CONTROLS											RATES OF RETURN				
FEMALE	level 1	*se*	level 2	*se*	level 3	*se*	level 4	*se*	level 5	*se*	level 1	level 2	level 3	level 4	level 5
1. Lantra	0.085	*0.062*	0.082	*0.063*	0.164	*0.061*	0.157	*0.064*	0.182	*0.151*	8.9%	8.6%	17.8%	16.9%	20.0%
2. Cogent	-0.001	*0.029*	0.193	*0.035*	0.138	*0.036*	0.315	*0.036*	0.255	*0.059*	-0.1%	21.2%	14.8%	37.0%	29.0%
3. Proskills	0.017	*0.033*	0.200	*0.040*	0.062	*0.041*	0.184	*0.048*	0.261	*0.106*	1.7%	22.2%	6.4%	20.2%	29.8%
4. Improve Ltd	0.001	*0.029*	0.188	*0.035*	0.272	*0.042*	0.270	*0.045*	0.249	*0.120*	0.1%	20.7%	31.3%	31.0%	28.2%
5. Skillfast-UK	0.109	*0.029*	0.167	*0.036*	0.110	*0.043*	0.446	*0.057*	-0.019	*0.108*	11.5%	18.2%	11.6%	56.2%	-1.9%
6. SEMTA	0.033	*0.017*	0.167	*0.020*	0.149	*0.025*	0.278	*0.029*	0.315	*0.043*	3.4%	18.2%	16.1%	32.1%	37.0%
7. Energy & Utility Skills	-0.008	*0.035*	0.113	*0.033*	0.130	*0.039*	0.117	*0.046*	0.275	*0.086*	-0.8%	12.0%	13.9%	12.5%	31.6%
8. Construction & Summit	-0.046	*0.024*	0.063	*0.024*	0.079	*0.027*	0.175	*0.028*	0.170	*0.045*	-4.5%	6.5%	8.2%	19.1%	18.5%
9. Automotive Skills	-0.033	*0.038*	0.123	*0.037*	0.113	*0.052*	0.261	*0.083*	0.276	*0.204*	-3.3%	13.1%	12.0%	29.8%	31.7%
10. Skillsmart Retail	0.048	*0.014*	0.114	*0.014*	0.163	*0.018*	0.193	*0.024*	0.374	*0.065*	4.9%	12.1%	17.7%	21.3%	45.4%
11. People 1st	0.061	*0.019*	0.119	*0.020*	0.113	*0.023*	0.141	*0.030*	0.410	*0.092*	6.3%	12.6%	12.0%	15.2%	50.7%
12. GoSkills	-0.082	*0.036*	0.131	*0.037*	0.137	*0.039*	0.123	*0.045*	0.235	*0.110*	-7.9%	14.0%	14.7%	13.1%	26.5%
13. Skills for Logistics	0.042	*0.031*	0.142	*0.035*	0.183	*0.039*	0.127	*0.046*	0.561	*0.131*	4.3%	15.2%	20.1%	13.5%	75.3%
14. Financial Services	-0.118	*0.016*	0.100	*0.016*	0.095	*0.017*	0.144	*0.020*	0.272	*0.041*	-11.2%	10.6%	10.0%	15.5%	31.3%
15. Asset Skills	0.037	*0.026*	0.117	*0.029*	0.125	*0.035*	0.199	*0.035*	0.253	*0.056*	3.8%	12.4%	13.3%	22.0%	28.8%
16. e-skills UK	-0.171	*0.032*	0.095	*0.034*	0.094	*0.032*	0.178	*0.035*	0.185	*0.054*	-15.7%	9.9%	9.8%	19.5%	20.3%
17. Government Skills	-0.055	*0.011*	0.093	*0.012*	0.094	*0.012*	0.193	*0.013*	0.221	*0.023*	-5.4%	9.7%	9.8%	21.3%	24.8%
18. Skills for Justice	-0.028	*0.025*	0.117	*0.023*	0.092	*0.024*	0.109	*0.027*	0.329	*0.062*	-2.8%	12.4%	9.6%	11.6%	39.0%
19. Lifelong Learning UK	-0.088	*0.018*	0.039	*0.021*	0.081	*0.019*	0.254	*0.021*	0.164	*0.021*	-8.4%	4.0%	8.5%	28.9%	17.8%
20. Skills for Health	-0.031	*0.010*	0.091	*0.010*	0.069	*0.011*	0.380	*0.010*	0.333	*0.024*	-3.0%	9.5%	7.1%	46.3%	39.5%
21. Care and Development	0.025	*0.013*	0.088	*0.014*	0.123	*0.014*	0.337	*0.015*	0.211	*0.027*	2.5%	9.2%	13.0%	40.1%	23.5%
22. Skillset	-0.206	*0.060*	0.216	*0.075*	0.129	*0.070*	0.122	*0.073*	0.093	*0.106*	-18.6%	24.1%	13.8%	13.0%	9.8%
23. Creative & Cultural	-0.084	*0.049*	0.115	*0.055*	0.163	*0.064*	0.032	*0.057*	0.186	*0.071*	-8.1%	12.1%	17.7%	3.2%	20.5%
24. SkillsActive	-0.060	*0.042*	0.146	*0.040*	0.086	*0.041*	0.197	*0.053*	0.316	*0.109*	-5.8%	15.7%	9.0%	21.7%	37.1%
25. Non-SSC1: Primary	-0.036	*0.030*	0.169	*0.036*	0.164	*0.043*	0.168	*0.038*	0.027	*0.071*	-3.5%	18.4%	17.9%	18.3%	2.7%
26. Non-SSC2: Wholesale	0.020	*0.026*	0.136	*0.026*	0.133	*0.028*	0.241	*0.034*	0.310	*0.089*	2.0%	14.6%	14.2%	27.2%	36.3%
27. Non-SSC3: Services	-0.064	*0.009*	0.143	*0.012*	0.136	*0.011*	0.339	*0.012*	0.114	*0.013*	-6.2%	15.3%	14.6%	40.4%	12.0%
NOBS					44,680										
R2					0.970										

Table A7M: Returns to disaggregate qualification levels by SSC - Male

WITH CONTROLS	ACADEMIC QUALIFICATION LEVEL										RATES OF RETURN				
MALE	level1A	*se*	level2A	*se*	level3A	*se*	level4A	*se*	level5A	*se*	level1A	level2A	level3A	level4A	level5A
1. Lantra	0.037	*0.030*	0.044	*0.047*	0.144	*0.083*	0.196	*0.080*	0.140	*0.171*	3.7%	4.5%	15.5%	21.7%	15.0%
2. Cogent	-0.015	*0.018*	0.132	*0.023*	0.188	*0.031*	0.311	*0.031*	0.209	*0.038*	-1.5%	14.1%	20.7%	36.5%	23.3%
3. Proskills	0.034	*0.017*	0.146	*0.022*	0.122	*0.039*	0.242	*0.043*	0.118	*0.134*	3.4%	15.7%	12.9%	27.3%	12.5%
4. Improve Ltd	0.056	*0.022*	0.146	*0.034*	0.255	*0.061*	0.372	*0.058*	0.128	*0.086*	5.7%	15.8%	29.0%	45.1%	13.6%
5. Skillfast-UK	0.138	*0.037*	0.135	*0.044*	0.280	*0.079*	0.286	*0.087*	0.275	*0.149*	14.8%	14.4%	32.3%	33.1%	31.7%
6. SEMTA	0.041	*0.008*	0.123	*0.011*	0.151	*0.019*	0.305	*0.017*	0.156	*0.026*	4.2%	13.1%	16.3%	35.7%	16.9%
7. Energy & Utility Skills	0.046	*0.020*	0.146	*0.027*	0.149	*0.041*	0.234	*0.039*	0.122	*0.072*	4.7%	15.7%	16.0%	26.3%	13.0%
8. Construction & Summit	-0.004	*0.010*	0.104	*0.012*	0.128	*0.018*	0.254	*0.018*	0.090	*0.031*	-0.4%	11.0%	13.7%	28.9%	9.4%
9. Automotive Skills	0.033	*0.018*	0.102	*0.024*	0.151	*0.047*	0.230	*0.060*	-0.026	*0.156*	3.4%	10.8%	16.3%	25.8%	-2.6%
10. Skillsmart Retail	0.030	*0.016*	0.220	*0.018*	0.119	*0.025*	0.172	*0.032*	0.292	*0.081*	3.0%	24.6%	12.7%	18.8%	33.9%
11. People 1st	0.076	*0.023*	0.158	*0.027*	0.123	*0.040*	0.110	*0.049*	0.504	*0.155*	7.9%	17.1%	13.1%	11.6%	65.6%
12. GoSkills	0.050	*0.020*	0.201	*0.026*	0.237	*0.040*	0.200	*0.043*	0.109	*0.086*	5.1%	22.2%	26.8%	22.1%	11.5%
13. Skills for Logistics	0.057	*0.013*	0.163	*0.018*	0.065	*0.040*	0.167	*0.042*	0.238	*0.110*	5.9%	17.7%	6.7%	18.2%	26.8%
14. Financial Services	-0.127	*0.017*	0.096	*0.021*	0.077	*0.020*	0.168	*0.021*	0.087	*0.039*	-11.9%	10.1%	8.0%	18.3%	9.1%
15. Asset Skills	0.057	*0.030*	0.226	*0.036*	0.236	*0.046*	0.257	*0.044*	0.101	*0.072*	5.9%	25.4%	26.7%	29.3%	10.6%
16. e-skills UK	-0.056	*0.018*	0.073	*0.021*	0.128	*0.025*	0.155	*0.024*	0.154	*0.033*	-5.4%	7.6%	13.6%	16.8%	16.7%
17. Government Skills	-0.023	*0.011*	0.105	*0.012*	0.094	*0.014*	0.172	*0.015*	0.169	*0.025*	-2.3%	11.0%	9.9%	18.8%	18.4%
18. Skills for Justice	0.028	*0.018*	0.125	*0.018*	0.043	*0.024*	0.149	*0.028*	-0.035	*0.099*	2.9%	13.3%	4.4%	16.1%	-3.5%
19. Lifelong Learning UK	-0.081	*0.020*	0.073	*0.023*	0.086	*0.024*	0.216	*0.026*	0.176	*0.026*	-7.8%	7.6%	8.9%	24.1%	19.2%
20. Skills for Health	-0.057	*0.019*	0.138	*0.023*	0.138	*0.028*	0.285	*0.027*	0.333	*0.037*	-5.6%	14.8%	14.8%	32.9%	39.5%
21. Care and Development	0.037	*0.023*	0.137	*0.029*	0.094	*0.033*	0.207	*0.031*	0.148	*0.039*	3.7%	14.7%	9.8%	23.0%	16.0%
22. Skillset	-0.094	*0.050*	0.086	*0.060*	0.128	*0.071*	0.205	*0.067*	0.115	*0.088*	-9.0%	8.9%	13.6%	22.7%	12.2%
23. Creative & Cultural	-0.116	*0.053*	0.111	*0.063*	0.053	*0.076*	0.144	*0.077*	-0.083	*0.073*	-10.9%	11.7%	5.4%	15.5%	-8.0%
24. SkillsActive	-0.009	*0.046*	0.194	*0.051*	0.094	*0.062*	0.215	*0.062*	-0.044	*0.304*	-0.9%	21.5%	9.8%	24.0%	-4.3%
25. Non-SSC1: Primary	0.052	*0.017*	0.141	*0.023*	0.197	*0.036*	0.122	*0.037*	0.149	*0.069*	5.3%	15.2%	21.7%	13.0%	16.1%
26. Non-SSC2: Wholesale	0.026	*0.019*	0.204	*0.025*	0.160	*0.042*	0.285	*0.044*	0.154	*0.076*	2.6%	22.7%	17.4%	33.0%	16.6%
27. Non-SSC3: Services	-0.025	*0.013*	0.268	*0.018*	0.150	*0.018*	0.146	*0.017*	0.106	*0.023*	-2.5%	30.8%	16.1%	15.7%	11.2%

	VOCATIONAL QUALIFICATION LEVEL										RATES OF RETURN				
	level1V	*se*	level2V	*se*	level3V	*se*	level4V	*se*	level5V	*se*	level1V	level2V	level3V	level4V	level5V
1. Lantra	0.065	*0.051*	-0.056	*0.047*	0.116	*0.057*	-0.018	*0.108*	0.266	*0.137*	6.7%	-5.5%	12.3%	-1.8%	30.5%
2. Cogent	-0.003	*0.030*	0.000	*0.029*	0.136	*0.022*	0.173	*0.025*	0.370	*0.075*	-0.3%	0.0%	14.6%	18.9%	44.8%
3. Proskills	-0.014	*0.031*	-0.001	*0.025*	0.068	*0.022*	0.117	*0.039*	0.362	*0.098*	-1.4%	-0.1%	7.0%	12.4%	43.6%
4. Improve Ltd	0.020	*0.036*	-0.014	*0.037*	0.129	*0.031*	0.175	*0.045*	0.321	*0.117*	2.1%	-1.3%	13.8%	19.2%	37.8%
5. Skillfast-UK	-0.014	*0.054*	-0.025	*0.045*	0.126	*0.056*	-0.078	*0.106*	0.694	*0.098*	-1.4%	-2.5%	13.4%	-7.5%	100.2%
6. SEMTA	-0.029	*0.016*	-0.014	*0.012*	0.056	*0.010*	0.194	*0.013*	0.297	*0.041*	-2.9%	-1.4%	5.7%	21.4%	34.6%
7. Energy & Utility Skills	0.079	*0.041*	0.079	*0.031*	0.152	*0.024*	0.220	*0.030*	0.445	*0.080*	8.3%	8.3%	16.5%	24.6%	56.1%
8. Construction & Summit	-0.015	*0.016*	0.013	*0.014*	0.092	*0.011*	0.174	*0.015*	0.316	*0.028*	-1.5%	1.3%	9.7%	19.0%	37.2%
9. Automotive Skills	-0.023	*0.026*	0.005	*0.024*	0.090	*0.022*	0.095	*0.044*	0.091	*0.156*	-2.3%	0.5%	9.5%	9.9%	9.5%
10. Skillsmart Retail	-0.052	*0.025*	-0.013	*0.020*	0.063	*0.022*	0.092	*0.036*	0.288	*0.074*	-5.1%	-1.3%	6.5%	9.6%	33.3%
11. People 1st	-0.057	*0.036*	0.055	*0.028*	0.078	*0.029*	0.105	*0.041*	0.330	*0.120*	-5.5%	5.6%	8.1%	11.0%	39.1%
12. GoSkills	-0.015	*0.035*	-0.015	*0.032*	0.045	*0.029*	0.118	*0.041*	0.309	*0.079*	-1.5%	-1.5%	4.6%	12.5%	36.2%
13. Skills for Logistics	0.000	*0.022*	0.010	*0.020*	0.015	*0.021*	0.165	*0.040*	0.203	*0.094*	0.0%	1.0%	1.6%	17.9%	22.6%
14. Financial Services	-0.140	*0.039*	-0.222	*0.040*	-0.010	*0.026*	0.000	*0.029*	0.261	*0.038*	-13.1%	-19.9%	-1.0%	0.0%	29.9%
15. Asset Skills	-0.049	*0.048*	-0.030	*0.051*	0.084	*0.037*	0.075	*0.050*	0.444	*0.060*	-4.8%	-3.0%	8.8%	7.8%	55.8%
16. e-skills UK	-0.109	*0.037*	-0.141	*0.032*	-0.026	*0.025*	0.124	*0.025*	0.217	*0.060*	-10.3%	-13.2%	-2.6%	13.1%	24.2%
17. Government Skills	-0.081	*0.020*	-0.045	*0.020*	0.026	*0.014*	0.087	*0.015*	0.243	*0.035*	-7.8%	-4.4%	2.7%	9.1%	27.6%
18. Skills for Justice	-0.007	*0.027*	-0.071	*0.034*	0.017	*0.022*	0.010	*0.025*	0.185	*0.083*	-0.7%	-6.9%	1.7%	1.0%	20.4%
19. Lifelong Learning UK	-0.072	*0.037*	-0.063	*0.031*	-0.013	*0.023*	0.115	*0.022*	0.100	*0.038*	-7.0%	-6.1%	-1.3%	12.2%	10.5%
20. Skills for Health	-0.167	*0.034*	-0.094	*0.034*	-0.069	*0.025*	0.153	*0.020*	0.596	*0.049*	-15.4%	-9.0%	-6.7%	16.6%	81.5%
21. Care and Development	-0.018	*0.038*	-0.116	*0.035*	0.015	*0.031*	0.124	*0.033*	0.179	*0.075*	-1.8%	-11.0%	1.5%	13.2%	19.6%
22. Skillset	-0.026	*0.133*	-0.123	*0.081*	0.035	*0.071*	0.149	*0.069*	0.017	*0.096*	-2.6%	-11.6%	3.5%	16.1%	1.7%
23. Creative & Cultural	-0.183	*0.105*	-0.122	*0.093*	-0.068	*0.077*	-0.014	*0.070*	0.237	*0.146*	-16.7%	-11.5%	-6.6%	-1.4%	26.7%
24. SkillsActive	0.066	*0.091*	-0.036	*0.051*	0.057	*0.052*	0.139	*0.061*	0.145	*0.094*	6.8%	-3.5%	5.8%	14.9%	15.6%
25. Non-SSC1: Primary	-0.031	*0.027*	-0.005	*0.025*	0.069	*0.021*	0.155	*0.038*	0.339	*0.087*	-3.1%	-0.5%	7.2%	16.7%	40.4%
26. Non-SSC2: Wholesale	-0.015	*0.038*	-0.051	*0.032*	0.063	*0.030*	0.152	*0.043*	0.277	*0.112*	-1.5%	-4.9%	6.5%	16.4%	31.9%
27. Non-SSC3: Services	-0.108	*0.027*	-0.124	*0.027*	0.033	*0.019*	0.096	*0.016*	0.098	*0.019*	-10.2%	-11.7%	3.4%	10.1%	10.3%
NOBS					69,450										
R2					0.968										

Table A7F: Returns to disaggregate qualification levels by SSC - Female

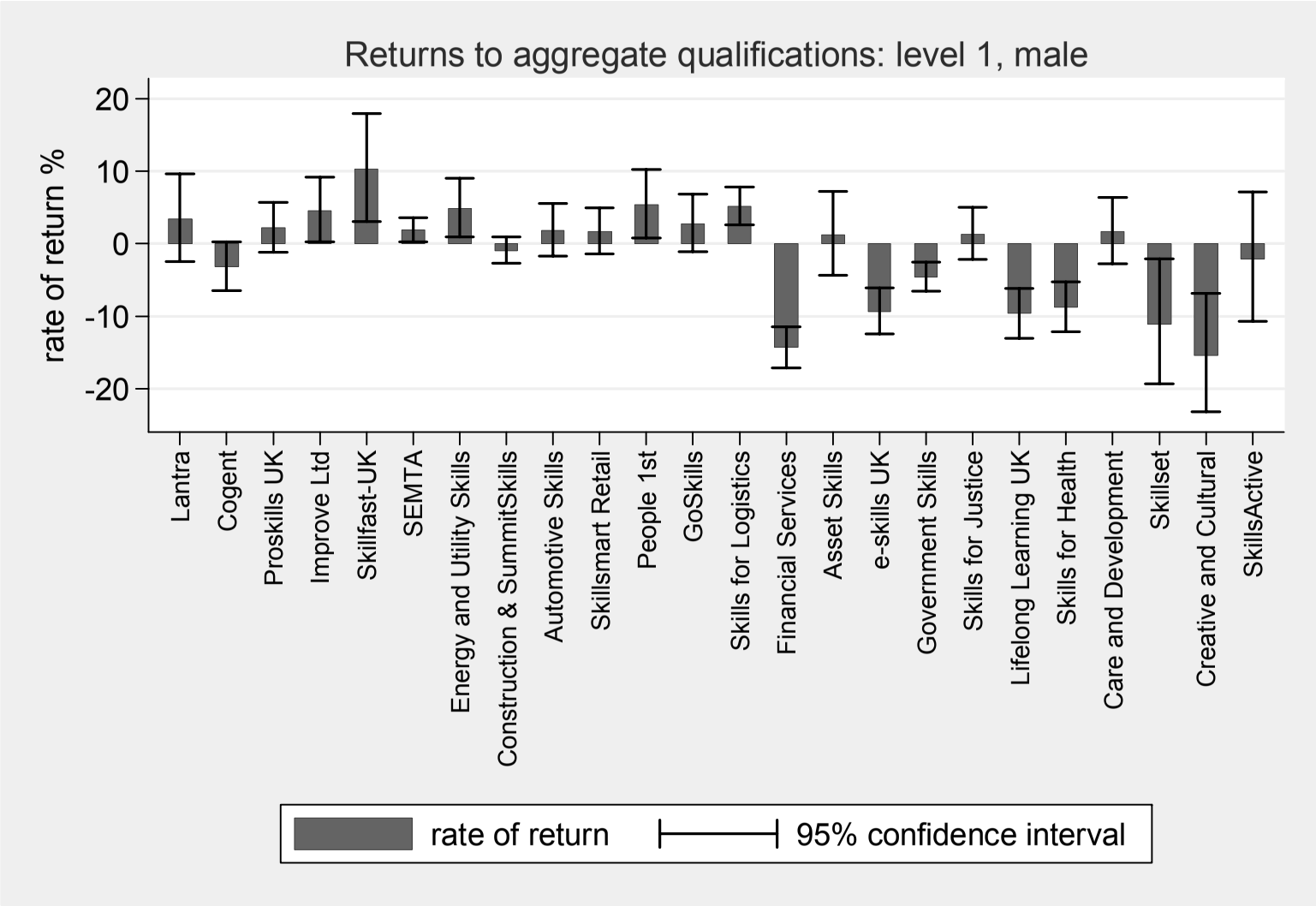
WITH CONTROLS	ACADEMIC QUALIFICATION LEVELS										RATES OF RETURN				
FEMALE	level1A	*se*	level2A	*se*	level3A	*se*	level4A	*se*	level5A	*se*	level1A	level2A	level3A	level4A	level5A
1. Lantra	0.087	*0.059*	0.096	*0.058*	0.206	*0.068*	0.158	*0.077*	0.269	*0.198*	9.0%	10.1%	22.9%	17.2%	30.9%
2. Cogent	0.013	*0.028*	0.238	*0.037*	0.156	*0.047*	0.253	*0.045*	0.264	*0.075*	1.3%	26.9%	16.9%	28.8%	30.2%
3. Proskills	0.000	*0.033*	0.248	*0.043*	0.070	*0.051*	0.127	*0.054*	0.333	*0.180*	0.0%	28.1%	7.3%	13.6%	39.5%
4. Improve Ltd	0.043	*0.029*	0.200	*0.039*	0.249	*0.061*	0.320	*0.057*	0.118	*0.203*	4.4%	22.2%	28.3%	37.7%	12.5%
5. Skillfast-UK	0.086	*0.030*	0.238	*0.040*	0.106	*0.058*	0.397	*0.066*	-0.079	*0.117*	9.0%	26.8%	11.2%	48.8%	-7.6%
6. SEMTA	0.038	*0.017*	0.201	*0.021*	0.124	*0.035*	0.312	*0.038*	0.181	*0.060*	3.9%	22.2%	13.2%	36.5%	19.9%
7. Energy & Utility Skills	-0.052	*0.032*	0.127	*0.032*	0.158	*0.057*	0.086	*0.058*	0.253	*0.073*	-5.0%	13.5%	17.1%	9.0%	28.8%
8. Construction & Summit	-0.029	*0.023*	0.067	*0.025*	0.105	*0.033*	0.156	*0.034*	0.117	*0.058*	-2.9%	6.9%	11.1%	16.9%	12.5%
9. Automotive Skills	-0.012	*0.036*	0.105	*0.039*	0.120	*0.067*	0.301	*0.113*	0.299	*0.275*	-1.2%	11.1%	12.8%	35.1%	34.9%
10. Skillsmart Retail	0.062	*0.014*	0.140	*0.016*	0.167	*0.025*	0.193	*0.031*	0.197	*0.100*	6.4%	15.1%	18.2%	21.3%	21.8%
11. People 1st	0.048	*0.019*	0.123	*0.022*	0.138	*0.031*	0.145	*0.036*	0.379	*0.118*	4.9%	13.1%	14.8%	15.6%	46.1%
12. GoSkills	-0.035	*0.034*	0.134	*0.038*	0.183	*0.053*	0.063	*0.054*	0.245	*0.105*	-3.4%	14.3%	20.1%	6.5%	27.8%
13. Skills for Logistics	0.039	*0.030*	0.167	*0.033*	0.185	*0.050*	0.145	*0.055*	0.341	*0.178*	4.0%	18.1%	20.3%	15.6%	40.7%
14. Financial Services	-0.082	*0.015*	0.108	*0.016*	0.107	*0.021*	0.148	*0.023*	0.215	*0.058*	-7.8%	11.4%	11.3%	16.0%	24.0%
15. Asset Skills	0.074	*0.026*	0.144	*0.030*	0.109	*0.046*	0.190	*0.044*	0.180	*0.072*	7.7%	15.5%	11.5%	20.9%	19.8%
16. e-skills UK	-0.135	*0.031*	0.124	*0.033*	0.064	*0.036*	0.163	*0.039*	0.150	*0.063*	-12.6%	13.3%	6.6%	17.7%	16.2%
17. Government Skills	-0.024	*0.011*	0.108	*0.012*	0.085	*0.014*	0.168	*0.016*	0.208	*0.029*	-2.3%	11.4%	8.9%	18.3%	23.1%
18. Skills for Justice	0.029	*0.023*	0.117	*0.023*	0.083	*0.029*	0.102	*0.032*	0.230	*0.085*	2.9%	12.4%	8.7%	10.7%	25.9%
19. Lifelong Learning UK	-0.042	*0.018*	0.063	*0.021*	0.082	*0.021*	0.191	*0.021*	0.136	*0.024*	-4.1%	6.5%	8.6%	21.0%	14.6%
20. Skills for Health	0.002	*0.010*	0.115	*0.011*	0.100	*0.013*	0.239	*0.013*	0.263	*0.030*	0.2%	12.2%	10.6%	27.0%	30.0%
21. Care and Development	0.033	*0.013*	0.128	*0.016*	0.106	*0.020*	0.318	*0.019*	0.146	*0.029*	3.3%	13.6%	11.2%	37.4%	15.8%
22. Skillset	-0.206	*0.060*	0.258	*0.084*	0.144	*0.080*	0.052	*0.084*	0.089	*0.129*	-18.6%	29.5%	15.5%	5.3%	9.3%
23. Creative & Cultural	-0.071	*0.049*	0.130	*0.053*	0.158	*0.067*	0.005	*0.064*	0.207	*0.089*	-6.9%	13.9%	17.1%	0.5%	23.0%
24. SkillsActive	-0.043	*0.039*	0.163	*0.042*	0.102	*0.064*	0.167	*0.066*	0.216	*0.156*	-4.2%	17.7%	10.7%	18.2%	24.1%
25. Non-SSC1: Primary	-0.020	*0.031*	0.190	*0.038*	0.150	*0.057*	0.189	*0.047*	-0.026	*0.082*	-2.0%	20.9%	16.2%	20.8%	-2.5%
26. Non-SSC2: Wholesale	0.034	*0.025*	0.139	*0.026*	0.149	*0.040*	0.226	*0.046*	0.158	*0.098*	3.5%	15.0%	16.1%	25.3%	17.1%
27. Non-SSC3: Services	-0.035	*0.009*	0.160	*0.012*	0.171	*0.013*	0.243	*0.012*	0.111	*0.021*	-3.5%	17.3%	18.7%	27.5%	11.7%

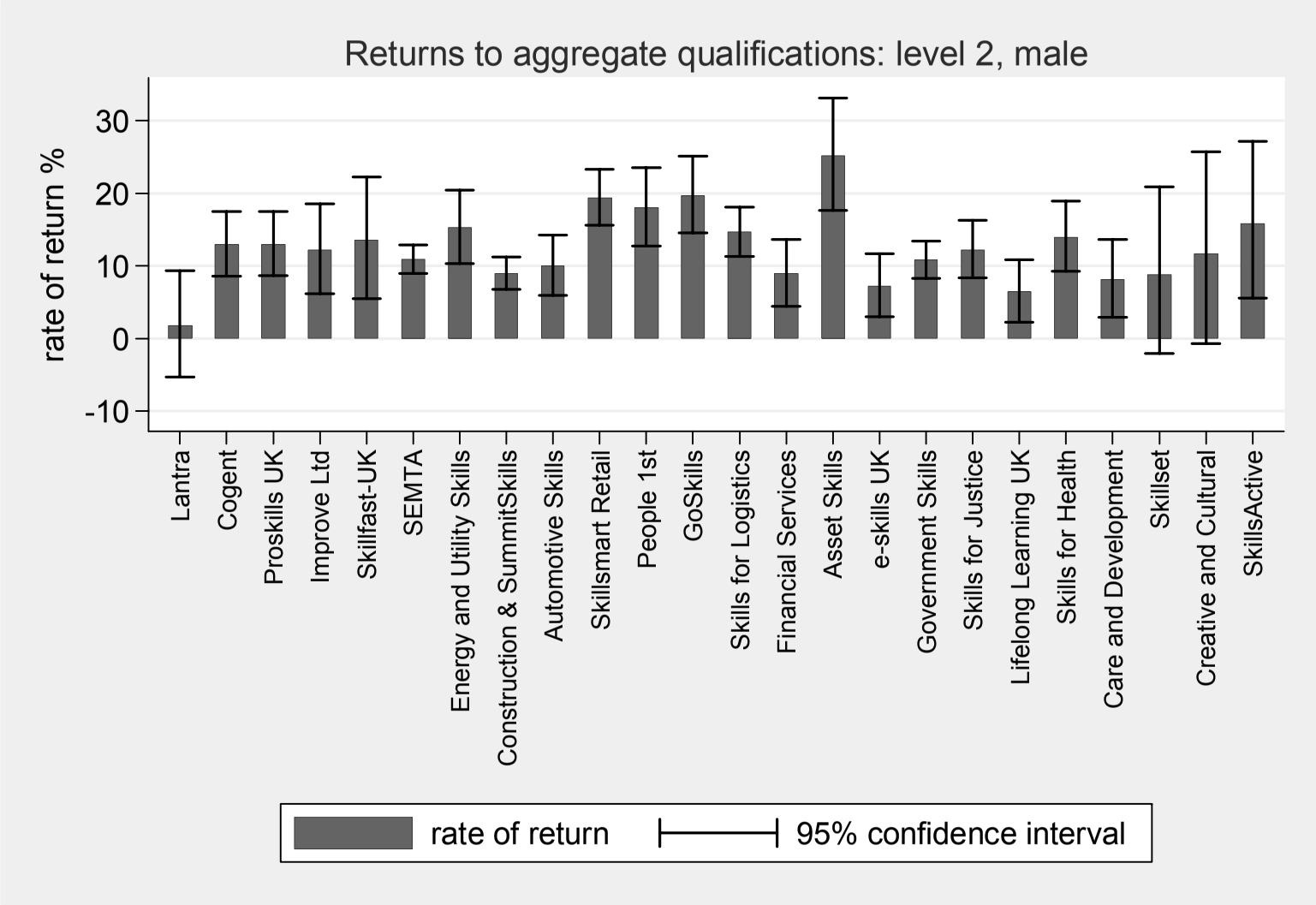
	VOCATIONAL QUALIFICATION LEVELS										RATES OF RETURN				
	level1V	*se*	level2V	*se*	level3V	*se*	level4V	*se*	level5V	*se*	level1V	level2V	level3V	level4V	level5V
1. Lantra	-0.011	*0.060*	-0.047	*0.078*	-0.041	*0.077*	0.003	*0.086*	-0.086	*0.123*	-1.1%	-4.6%	-4.0%	0.3%	-8.3%
2. Cogent	-0.018	*0.038*	-0.041	*0.041*	0.030	*0.039*	0.136	*0.045*	0.207	*0.095*	-1.8%	-4.0%	3.1%	14.6%	22.9%
3. Proskills	0.043	*0.040*	-0.042	*0.054*	-0.006	*0.053*	0.158	*0.073*	0.187	*0.128*	4.4%	-4.1%	-0.6%	17.1%	20.5%
4. Improve Ltd	-0.040	*0.034*	0.019	*0.037*	0.195	*0.047*	0.110	*0.047*	0.364	*0.086*	-4.0%	1.9%	21.5%	11.6%	43.9%
5. Skillfast-UK	0.050	*0.038*	0.025	*0.041*	-0.018	*0.065*	0.226	*0.093*	0.412	*0.100*	5.2%	2.6%	-1.8%	25.4%	51.0%
6. SEMTA	0.017	*0.020*	0.006	*0.031*	0.096	*0.026*	0.119	*0.033*	0.376	*0.059*	1.7%	0.6%	10.1%	12.6%	45.6%
7. Energy & Utility Skills	0.053	*0.035*	-0.049	*0.046*	0.096	*0.047*	0.130	*0.048*	0.234	*0.172*	5.5%	-4.8%	10.1%	13.9%	26.4%
8. Construction & Summit	-0.036	*0.024*	-0.053	*0.035*	-0.003	*0.036*	0.082	*0.043*	0.197	*0.075*	-3.6%	-5.2%	-0.3%	8.5%	21.8%
9. Automotive Skills	-0.002	*0.036*	0.126	*0.047*	0.091	*0.073*	-0.012	*0.102*	0.234	*0.293*	-0.2%	13.4%	9.6%	-1.2%	26.3%
10. Skillsmart Retail	-0.004	*0.017*	-0.019	*0.018*	0.048	*0.022*	0.090	*0.036*	0.495	*0.080*	-0.4%	-1.9%	4.9%	9.4%	64.0%
11. People 1st	0.031	*0.025*	0.022	*0.025*	0.060	*0.029*	0.062	*0.044*	0.379	*0.143*	3.1%	2.3%	6.2%	6.4%	46.1%
12. GoSkills	-0.082	*0.035*	-0.029	*0.049*	0.019	*0.043*	0.101	*0.067*	0.267	*0.234*	-7.9%	-2.8%	1.9%	10.6%	30.7%
13. Skills for Logistics	0.039	*0.036*	0.006	*0.081*	0.109	*0.046*	-0.022	*0.071*	0.760	*0.161*	4.0%	0.6%	11.6%	-2.2%	113.8%
14. Financial Services	-0.056	*0.016*	-0.093	*0.026*	-0.011	*0.020*	0.018	*0.030*	0.305	*0.059*	-5.4%	-8.9%	-1.1%	1.8%	35.6%
15. Asset Skills	0.002	*0.029*	-0.046	*0.042*	0.072	*0.038*	0.119	*0.041*	0.276	*0.085*	0.2%	-4.5%	7.4%	12.7%	31.7%
16. e-skills UK	-0.031	*0.038*	-0.190	*0.048*	0.031	*0.041*	0.114	*0.059*	0.303	*0.091*	-3.0%	-17.3%	3.2%	12.1%	35.4%
17. Government Skills	-0.049	*0.012*	-0.065	*0.019*	0.037	*0.015*	0.137	*0.015*	0.196	*0.040*	-4.8%	-6.3%	3.8%	14.6%	21.6%
18. Skills for Justice	-0.080	*0.024*	-0.049	*0.037*	0.010	*0.030*	0.103	*0.033*	0.434	*0.083*	-7.7%	-4.8%	1.0%	10.8%	54.4%
19. Lifelong Learning UK	-0.075	*0.022*	-0.166	*0.044*	0.024	*0.021*	0.131	*0.018*	0.177	*0.034*	-7.2%	-15.3%	2.4%	14.0%	19.4%
20. Skills for Health	-0.044	*0.013*	-0.079	*0.016*	-0.003	*0.016*	0.247	*0.010*	0.392	*0.043*	-4.3%	-7.6%	-0.3%	28.1%	48.0%
21. Care and Development	0.019	*0.018*	-0.040	*0.018*	0.055	*0.016*	0.204	*0.018*	0.184	*0.061*	1.9%	-3.9%	5.6%	22.6%	20.2%
22. Skillset	-0.089	*0.128*	0.140	*0.281*	0.022	*0.111*	-0.006	*0.261*	0.190	*0.127*	-8.5%	15.0%	2.2%	-0.6%	21.0%
23. Creative & Cultural	-0.133	*0.066*	-0.160	*0.133*	0.080	*0.077*	0.032	*0.057*	0.131	*0.105*	-12.4%	-14.8%	8.4%	3.3%	14.1%
24. SkillsActive	0.024	*0.042*	-0.034	*0.050*	0.038	*0.045*	0.113	*0.075*	0.439	*0.076*	2.5%	-3.3%	3.8%	12.0%	55.1%
25. Non-SSC1: Primary	0.002	*0.033*	-0.003	*0.054*	0.068	*0.041*	0.013	*0.064*	0.082	*0.145*	0.2%	-0.3%	7.1%	1.3%	8.6%
26. Non-SSC2: Wholesale	-0.017	*0.026*	0.026	*0.043*	0.056	*0.035*	0.179	*0.043*	0.412	*0.143*	-1.7%	2.7%	5.8%	19.6%	51.0%
27. Non-SSC3: Services	-0.036	*0.012*	-0.069	*0.017*	-0.029	*0.015*	0.153	*0.011*	0.067	*0.015*	-3.5%	-6.7%	-2.9%	16.6%	7.0%
NOBS	44,680														
R2	0.970														

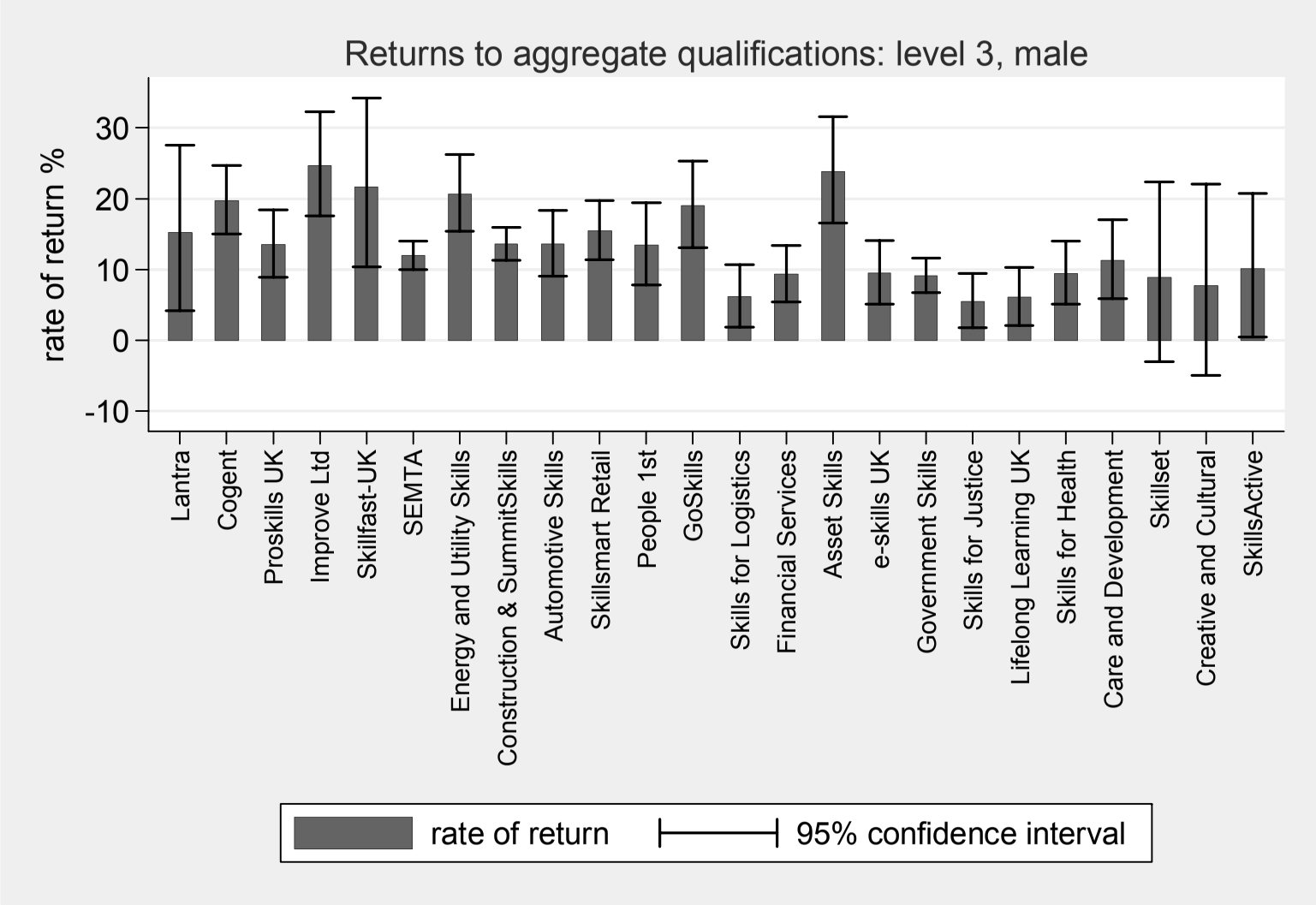
Notes to Tables A6 and A7:

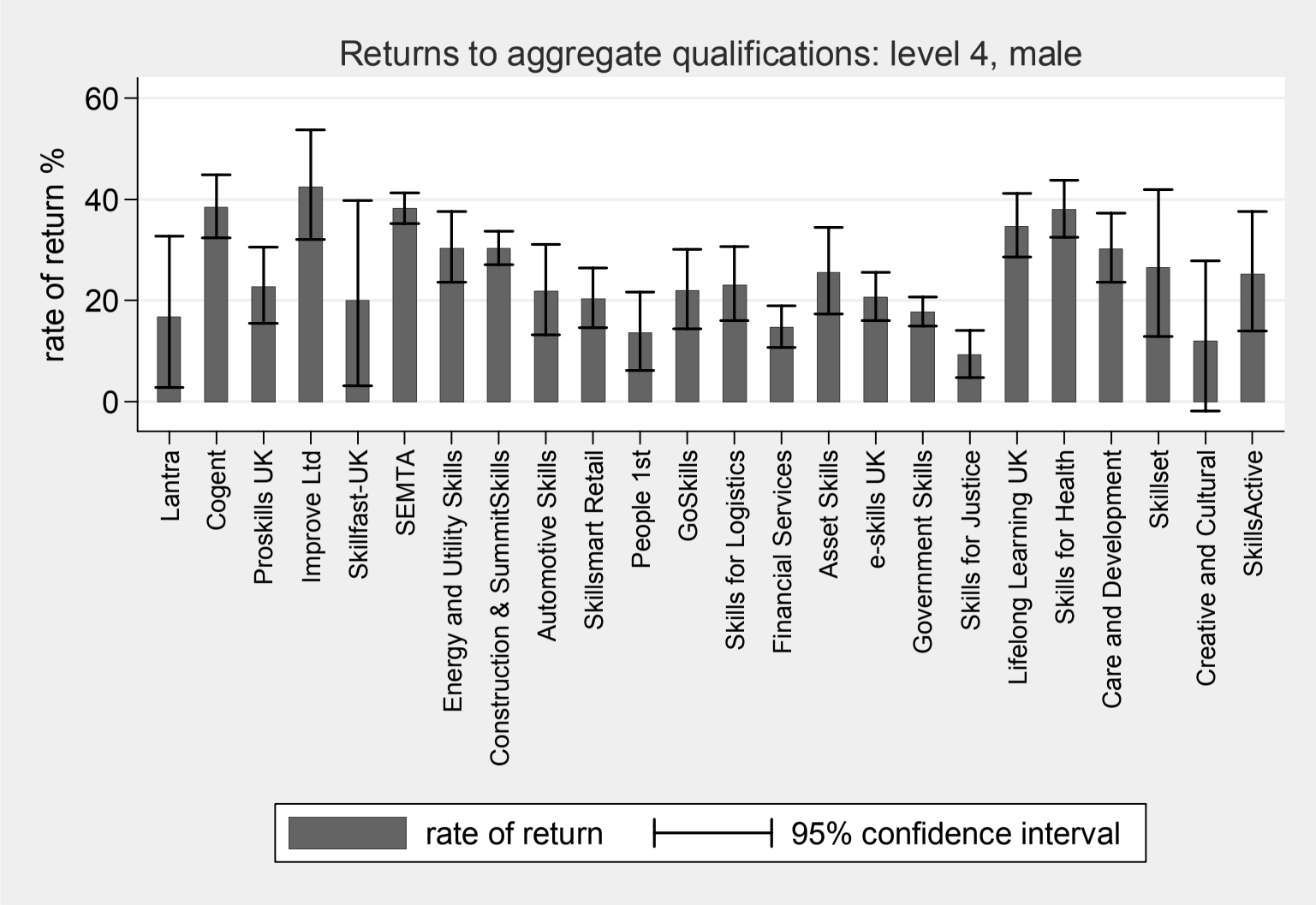
1. Source: LFS 2000-2004, pooled, wave 1 observations only.
2. Sample: full-time employees of working age (men 16-64 and women 16-59 inclusive).
3. Heteroskedastic-consistent standard errors (se) are given in italics. These give an indication of the precision of the estimates, and thus also of the rates of returns. A 95% confidence interval is ± 1.96 standard errors around the estimated coefficient.
4. Definitions of SSC groups are in Table A2.
5. Controls are age, age squared, ethnicity (6 categories), region of work (21 categories), public sector, firm size (6 categories), apprenticeship, other qualifications; year dummies.
6. Rates of return are calculated as $\{\exp(\beta)-1\}\times 100\%$.
7. Given that indicators of *all* qualifications levels are included in the earnings functions, the estimated rates of return can be cumulated. While any cumulative calculation ignores the potential interactions among qualifications, to the extent that higher level qualifications are frequently only obtained after lower level pre-requisites are completed, it probably provides a reasonable approximation to the total returns to an individual's portfolio of qualifications.

Figure A1M: Returns to aggregate qualification levels by NQF levels - Male




Returns to aggregate qualifications: level 2, male
rate of return %
30
20
10
0
-10
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval


Returns to aggregate qualifications: level 3, male
rate of return %
30
20
10
0
-10
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval


Returns to aggregate qualifications: level 4, male
rate of return %
60
40
20
0
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval

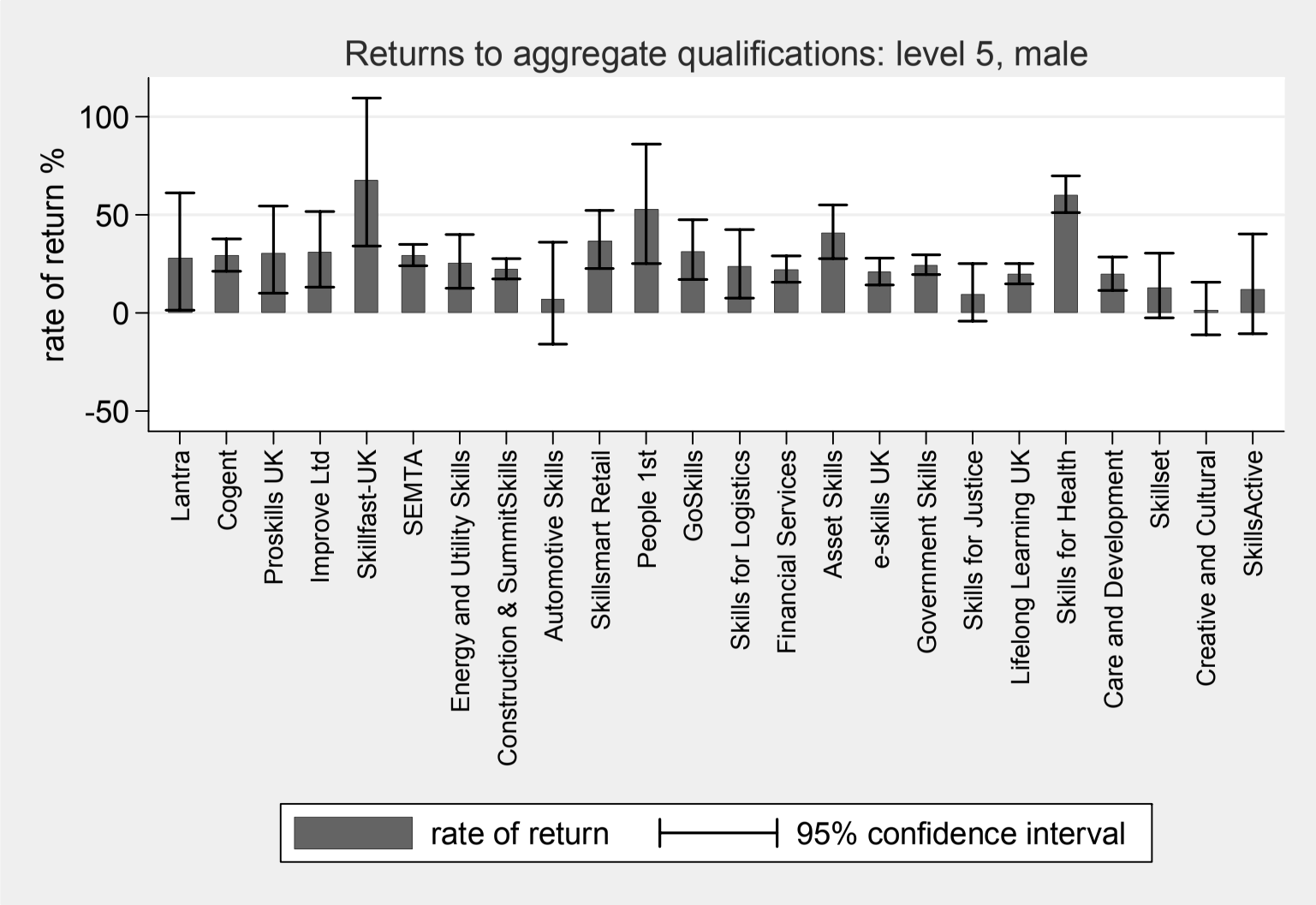
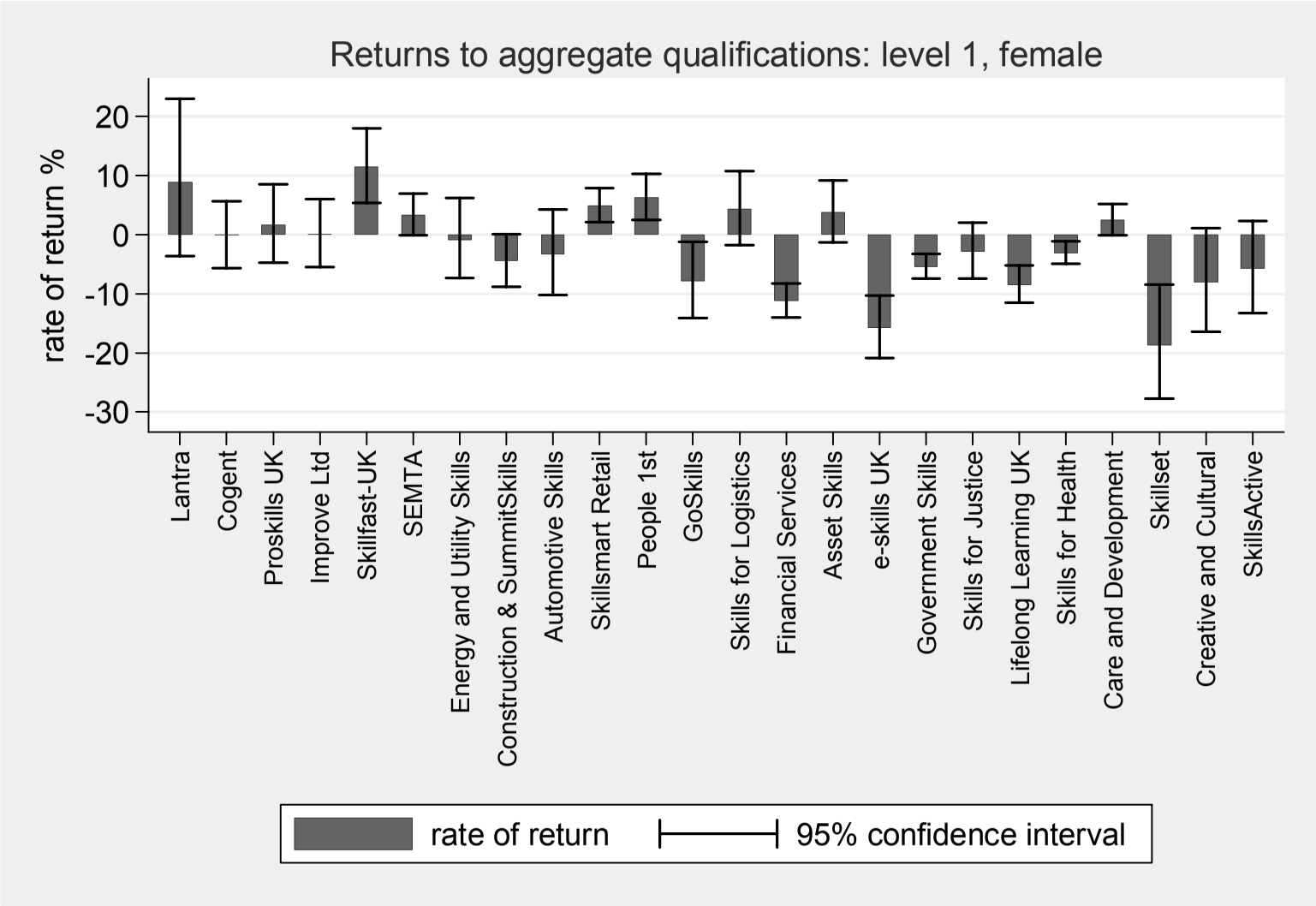
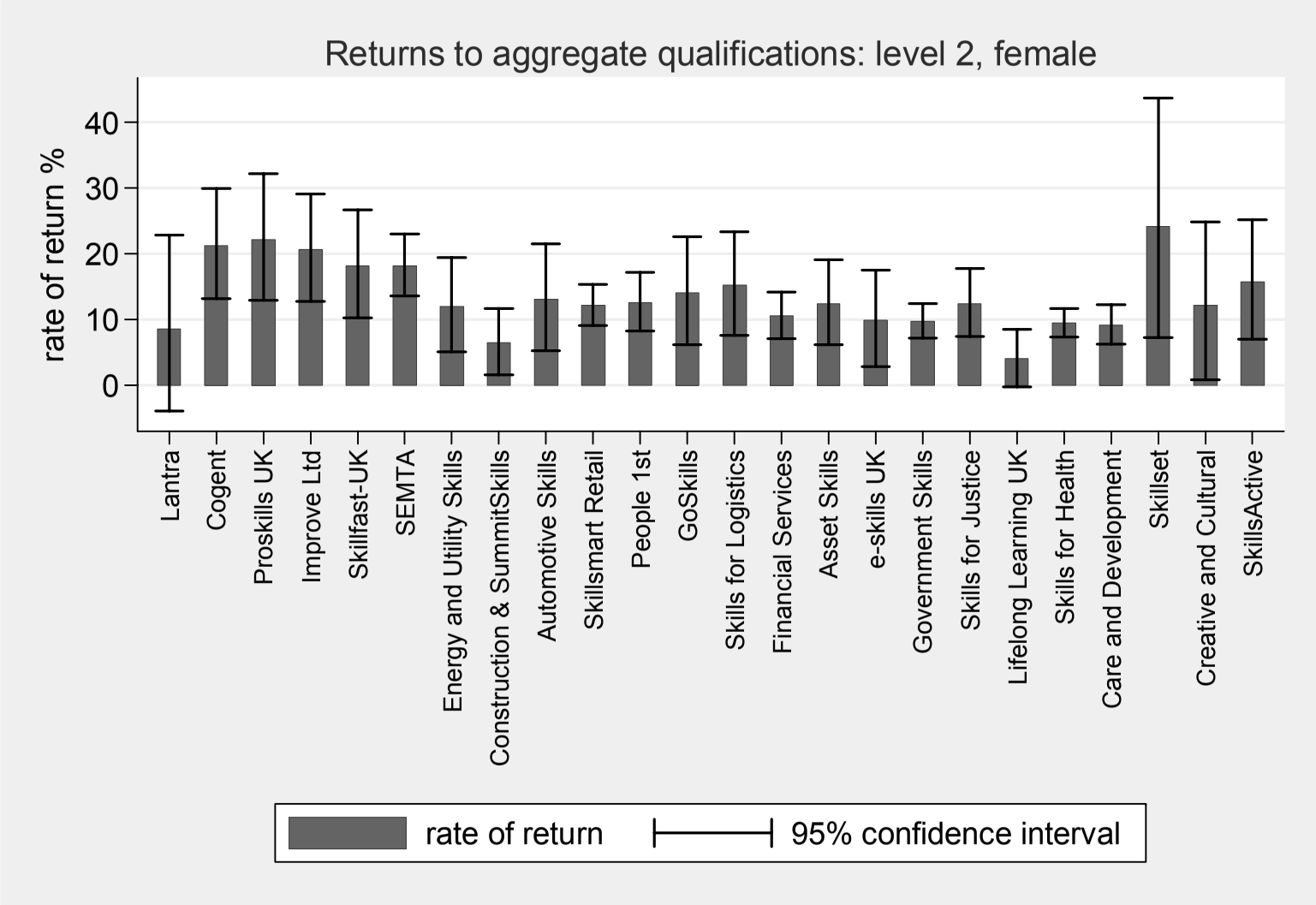
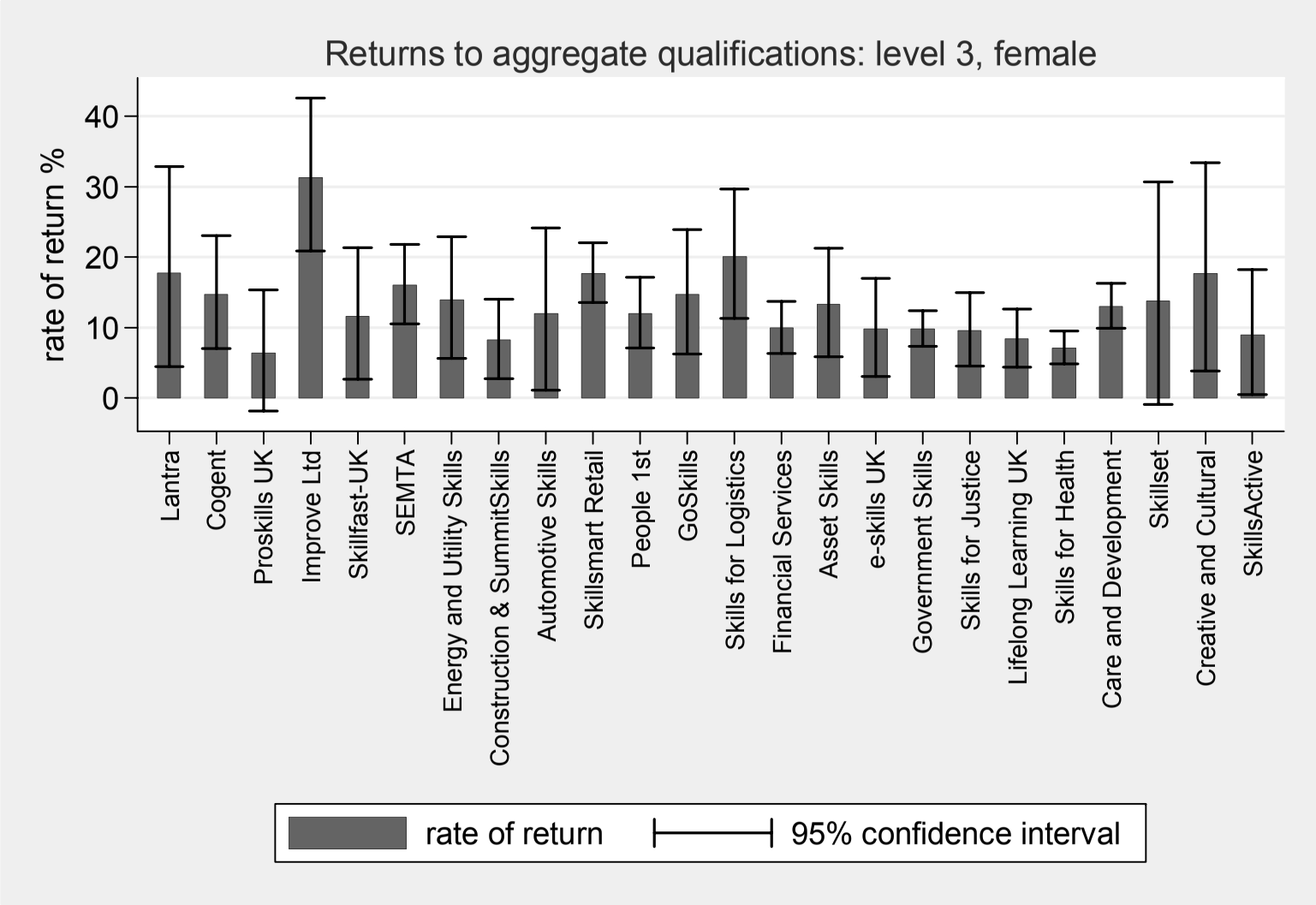
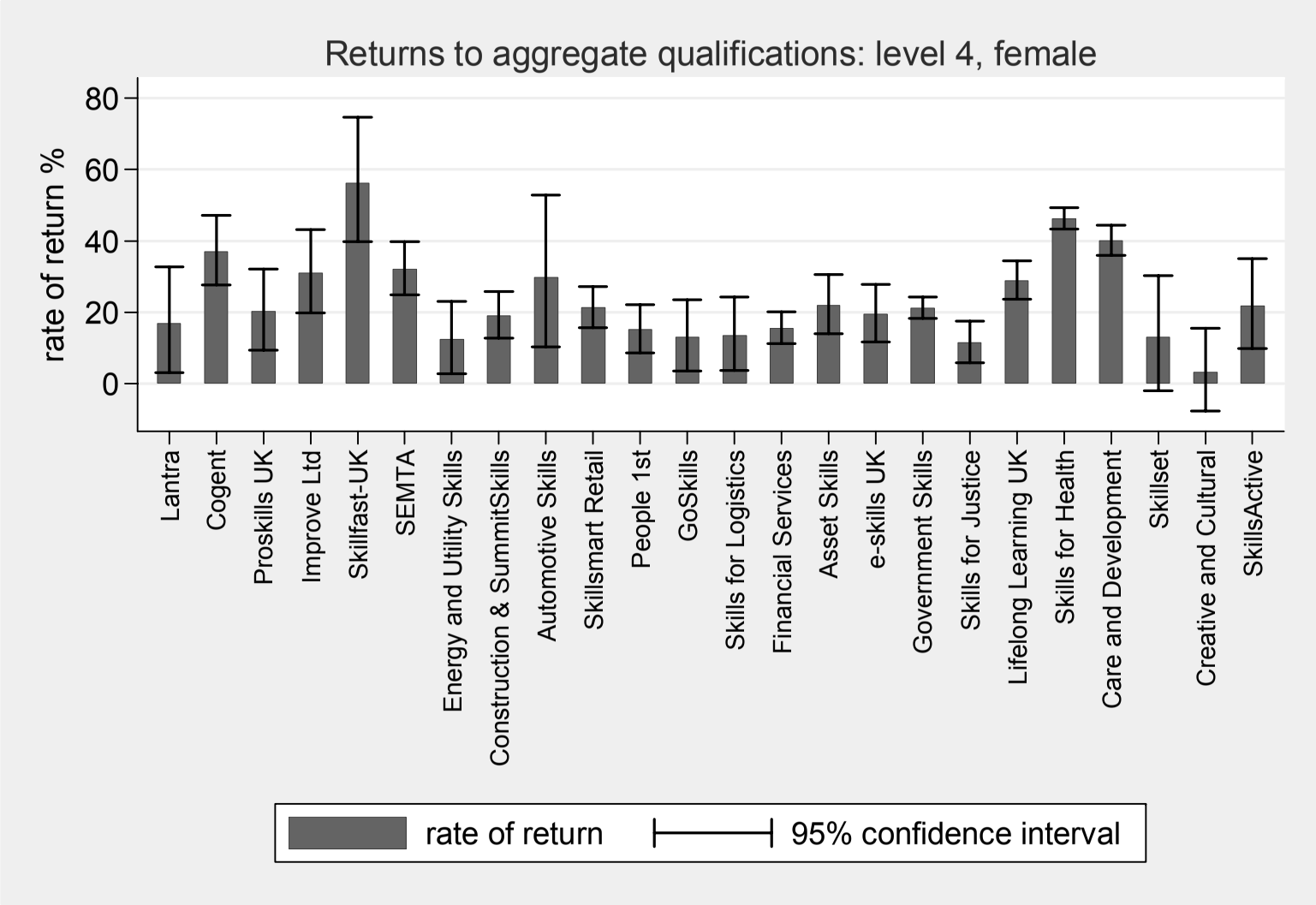

Returns to aggregate qualifications: level 5, male
rate of return %
100
50
0
-50
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval

Figure A1F: Returns to aggregate qualification levels by NQF levels - Female




Returns to aggregate qualifications: level 2, female
rate of return %
40
30
20
10
0
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval


Returns to aggregate qualifications: level 3, female
rate of return %
40
30
20
10
0
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval


Returns to aggregate qualifications: level 4, female
rate of return %
80
60
40
20
0
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval

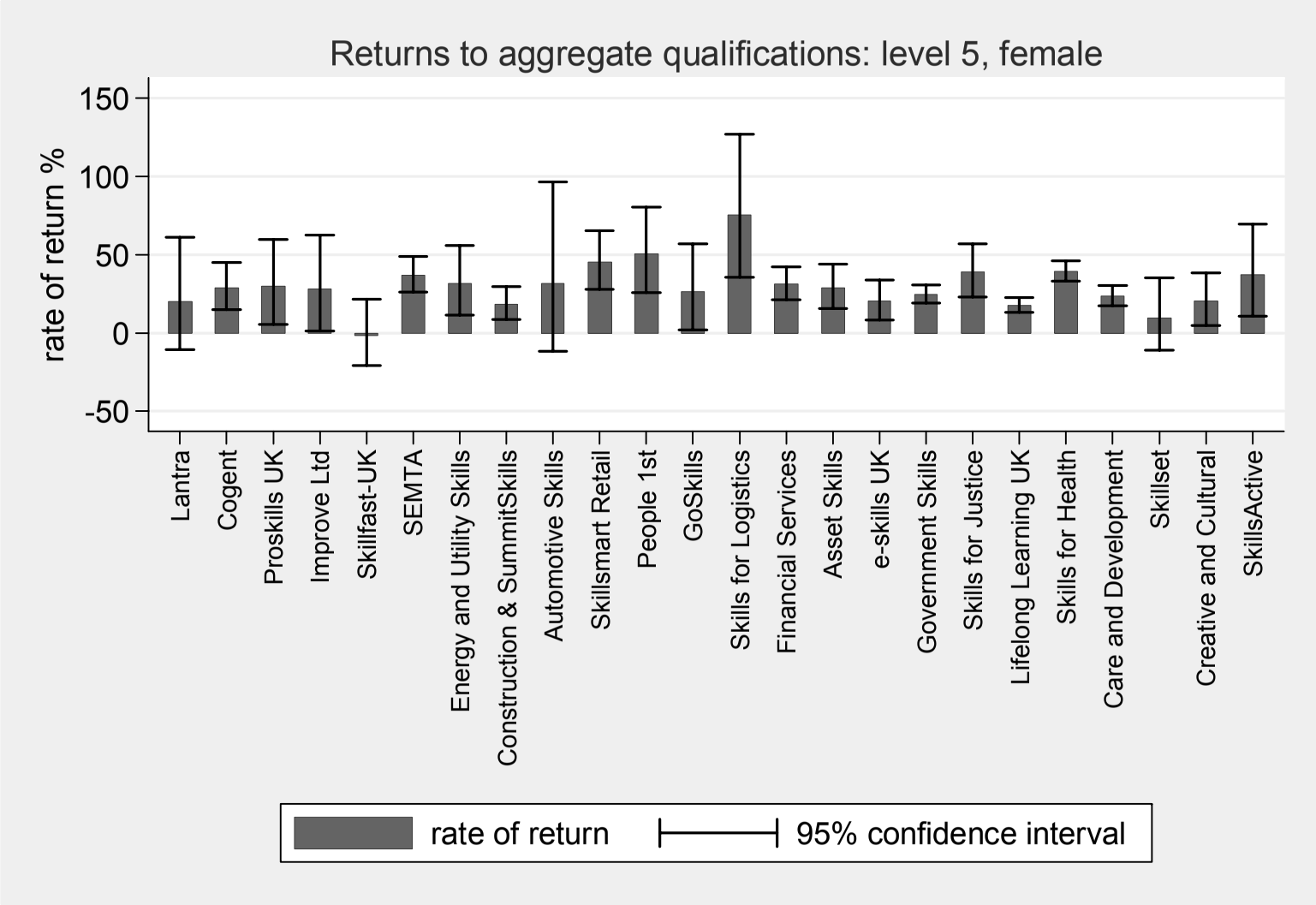
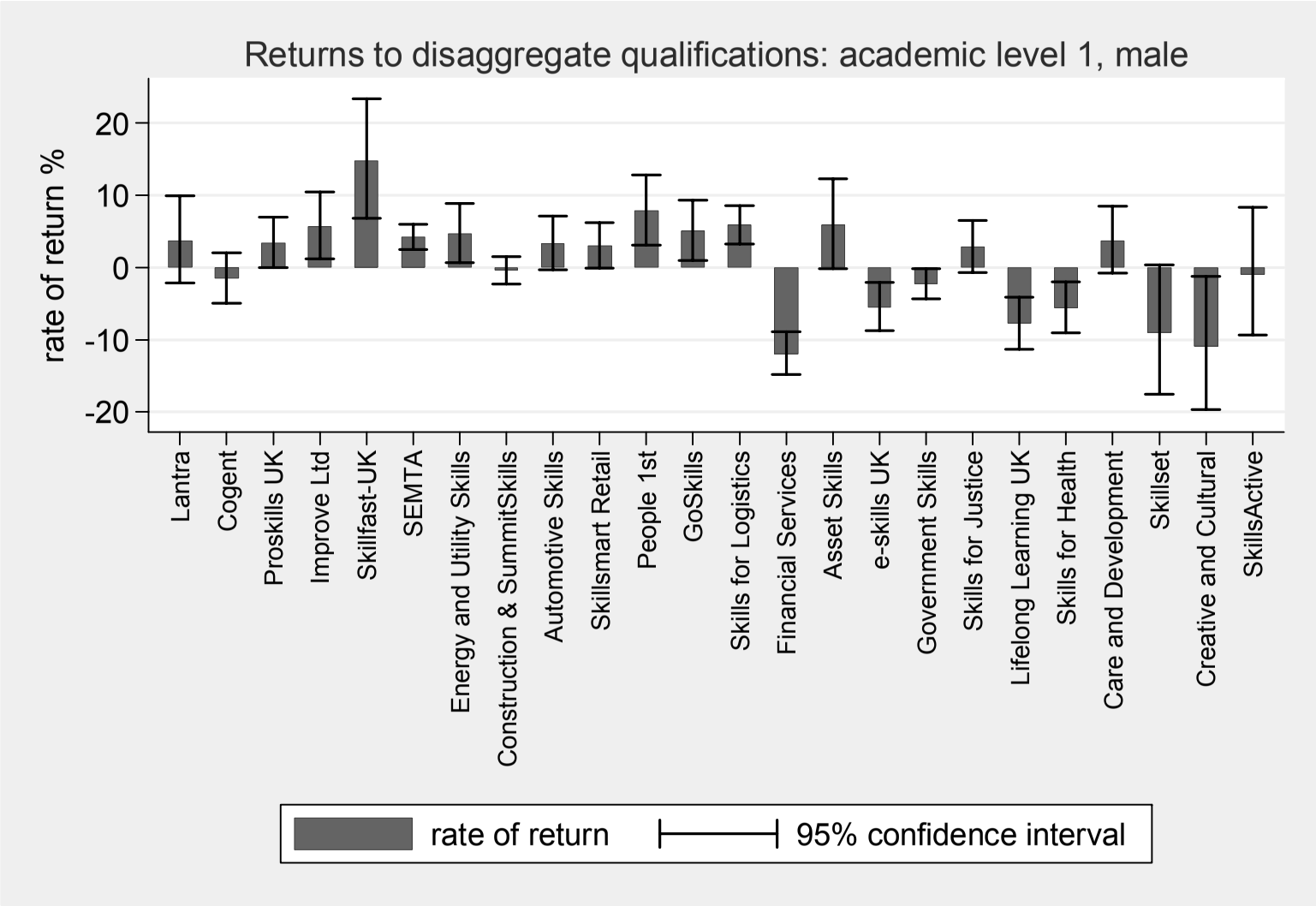
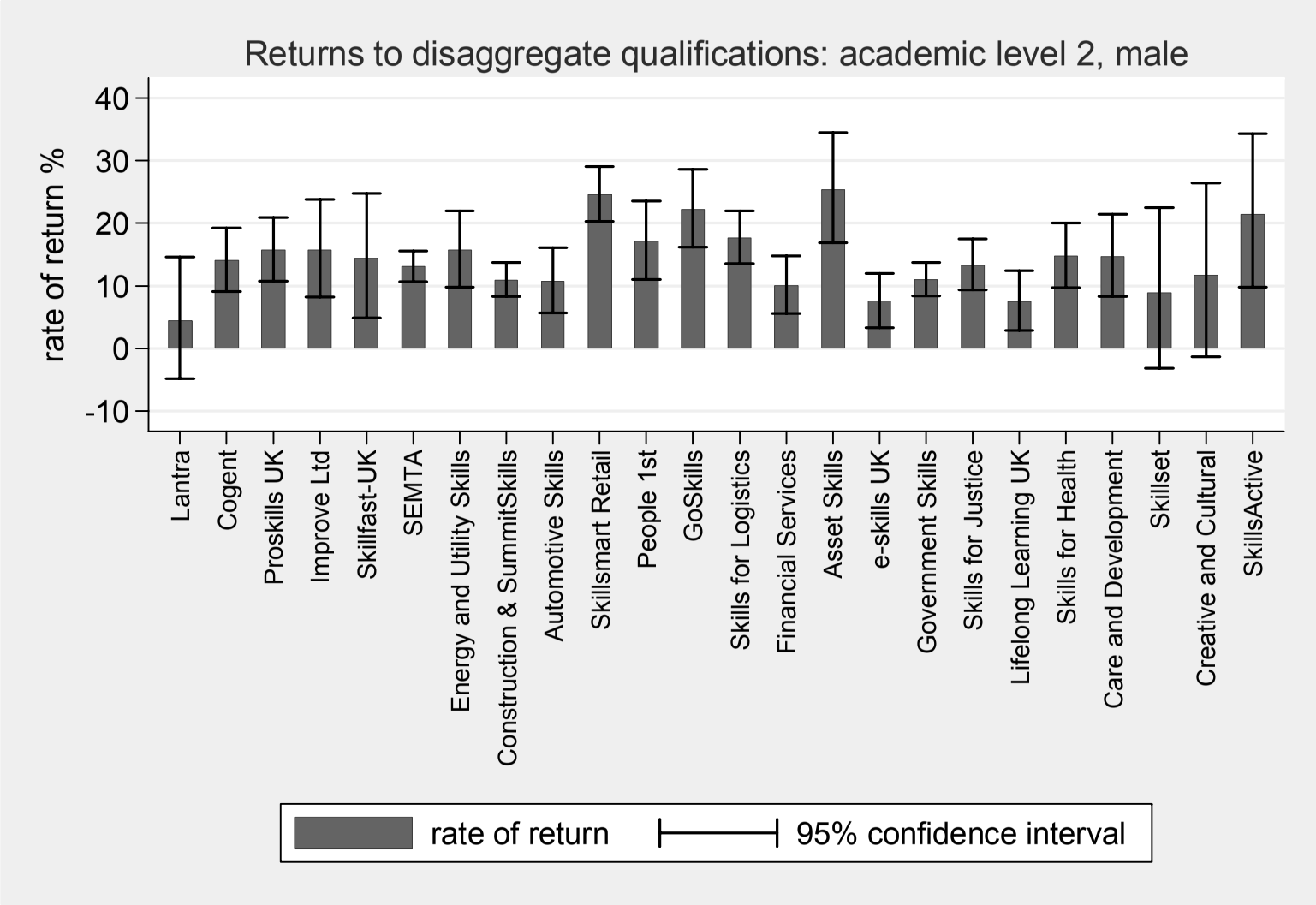
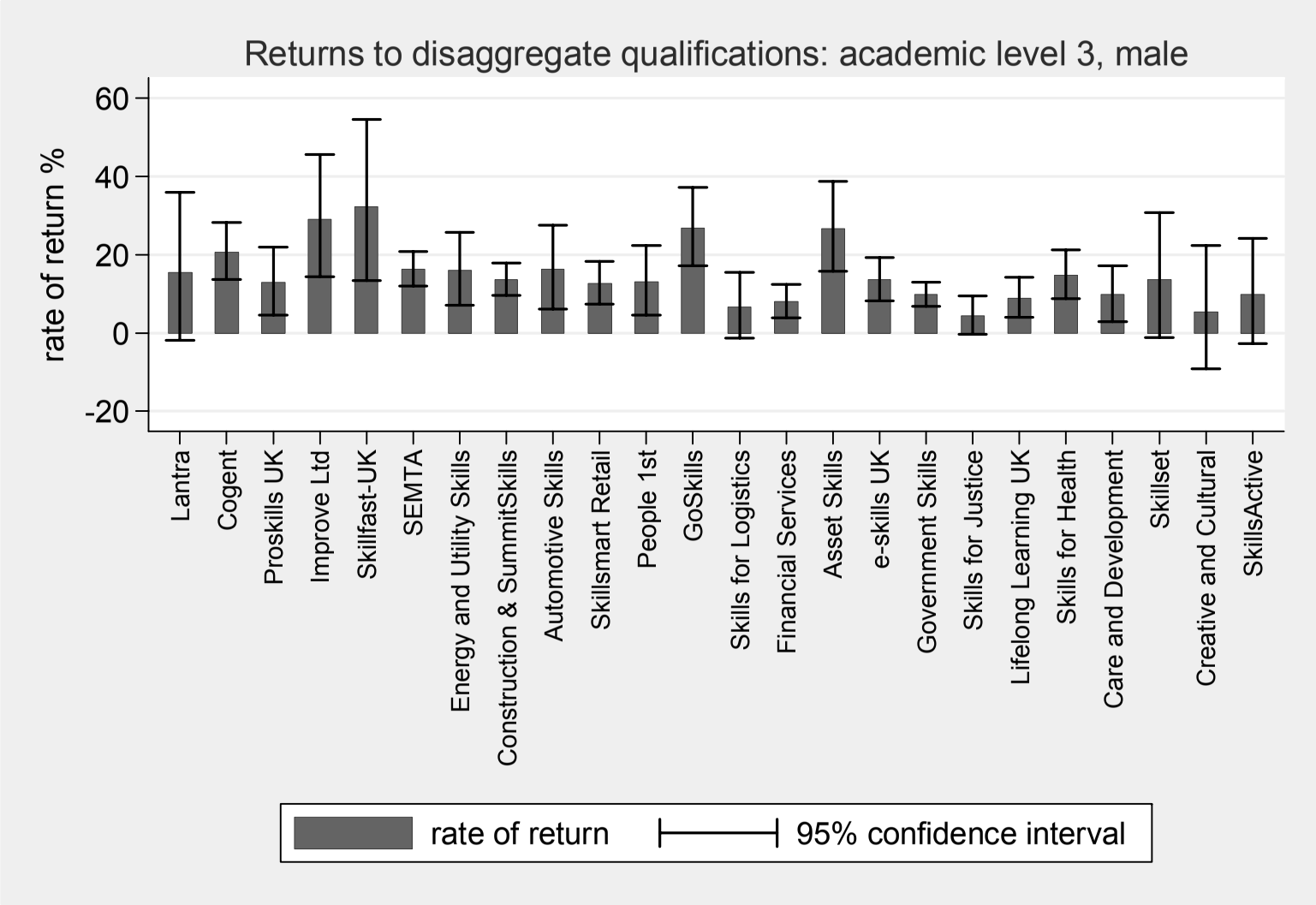
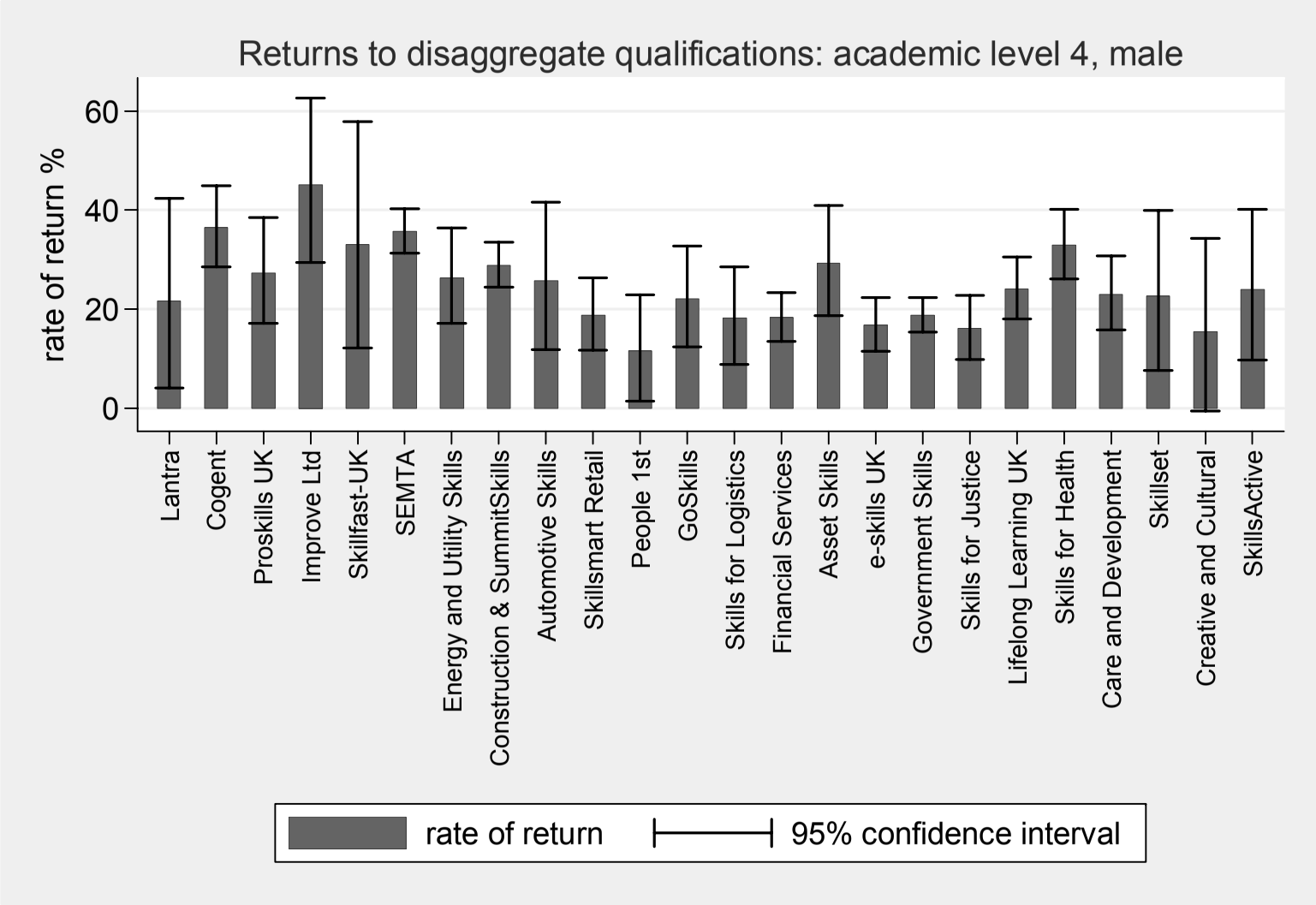

Returns to aggregate qualifications: level 5, female
rate of return %
150
100
50
0
-50
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval

Figure A2M-A: Returns to disaggregate qualification levels by NQF levels – Male Academic




Returns to disaggregate qualifications: academic level 2, male
rate of return %
40
30
20
10
0
-10
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval


Returns to disaggregate qualifications: academic level 3, male
rate of return %
60
40
20
0
-20
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval


Returns to disaggregate qualifications: academic level 4, male
rate of return %
0
20
40
60
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval

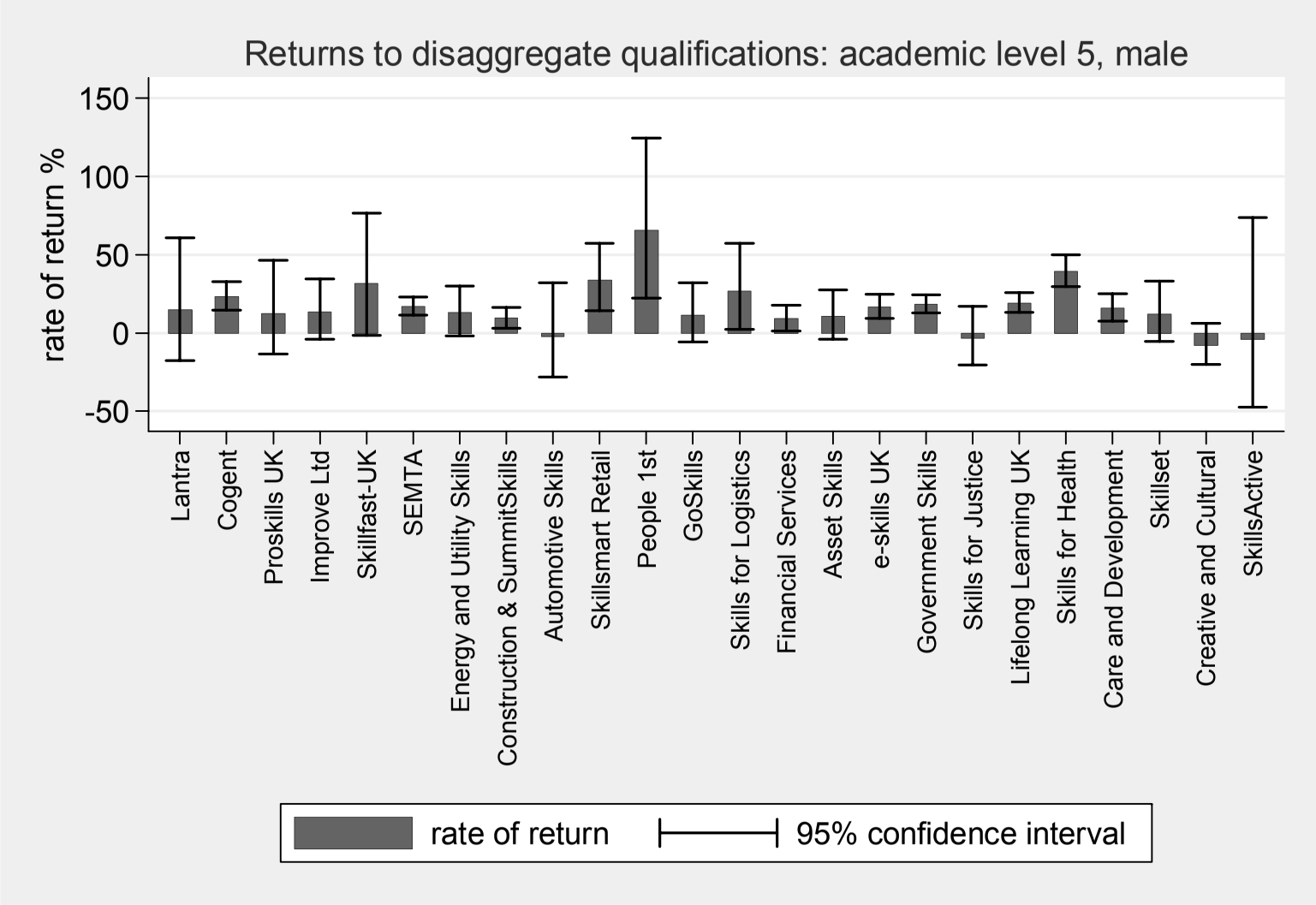
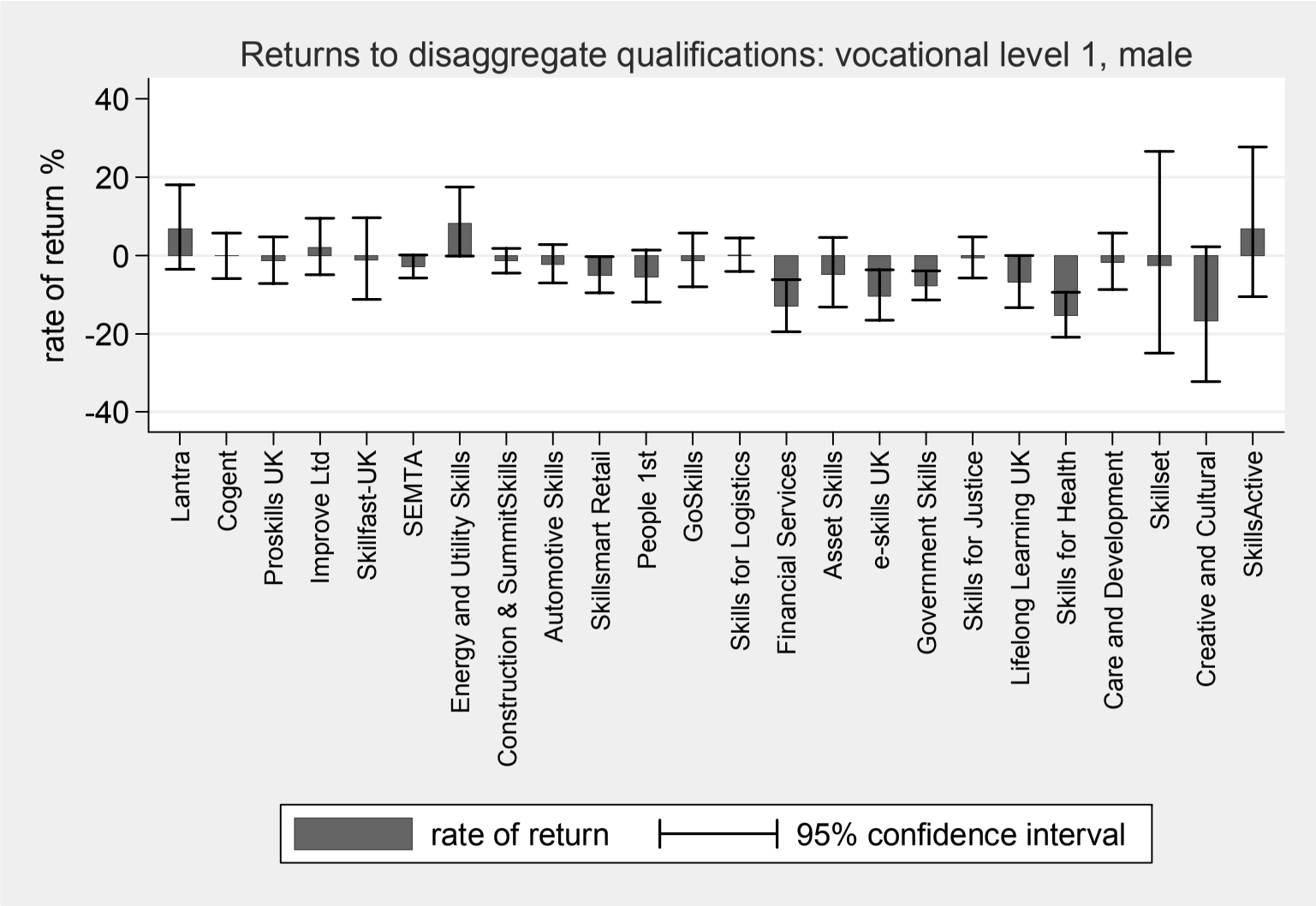
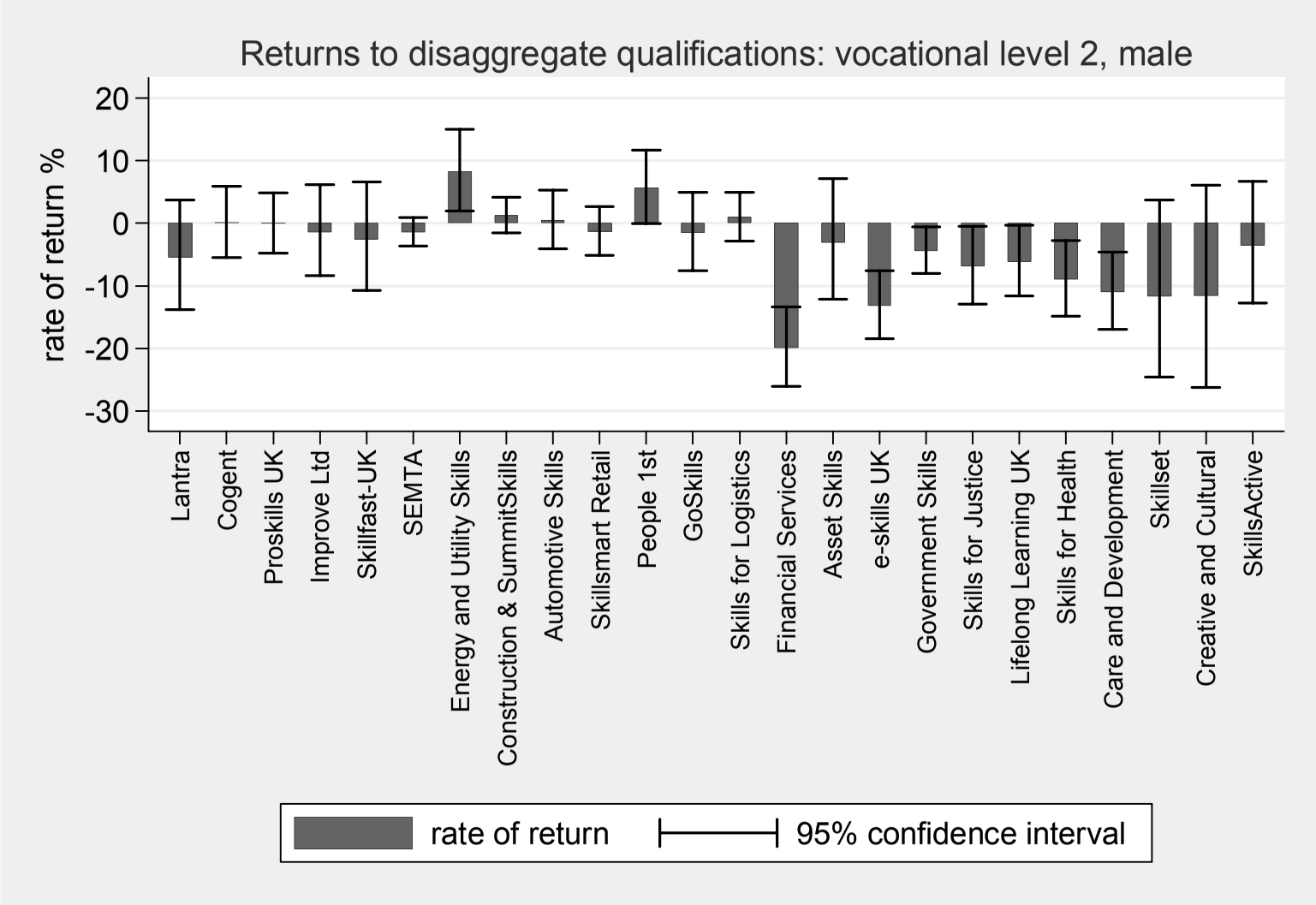
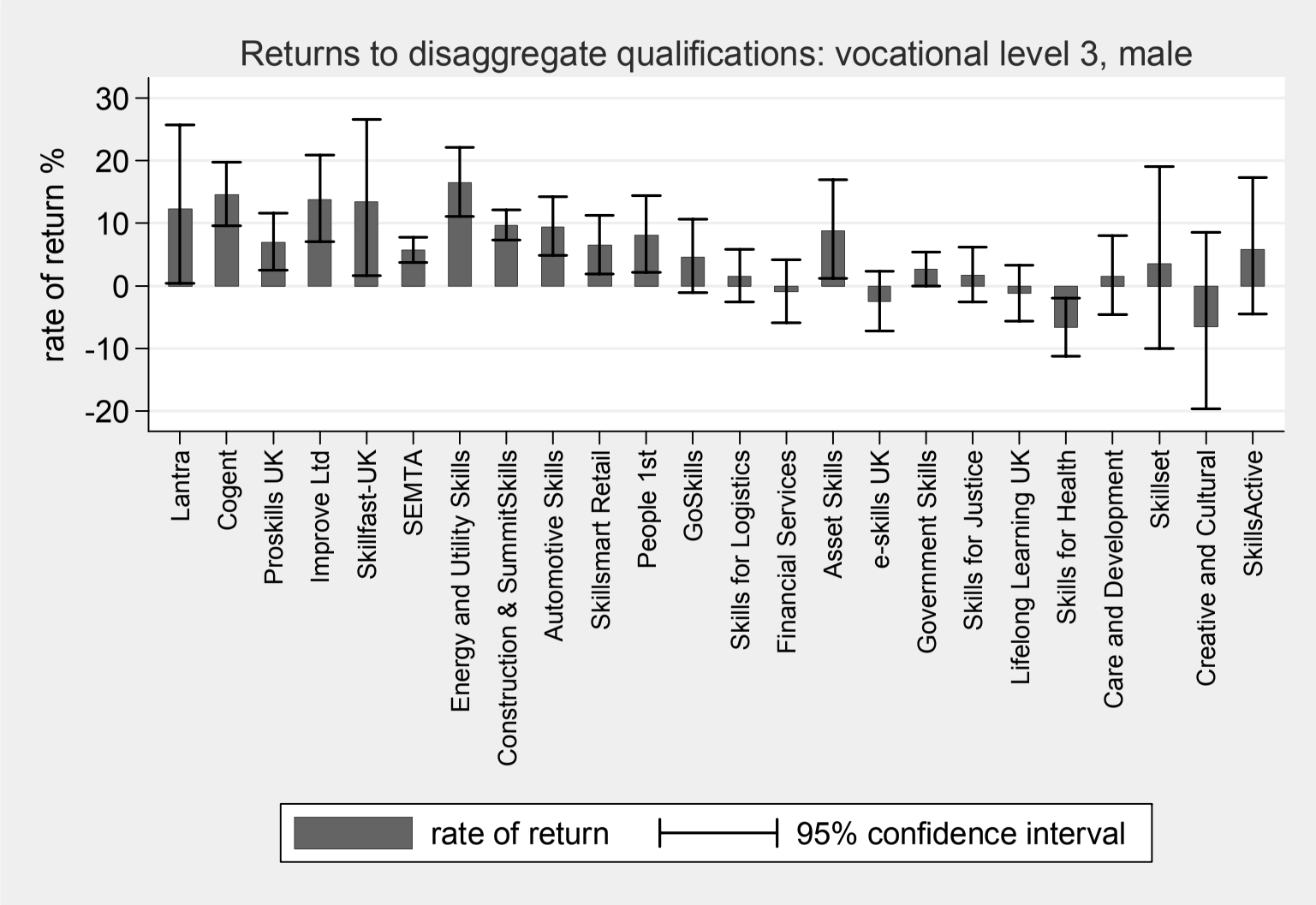
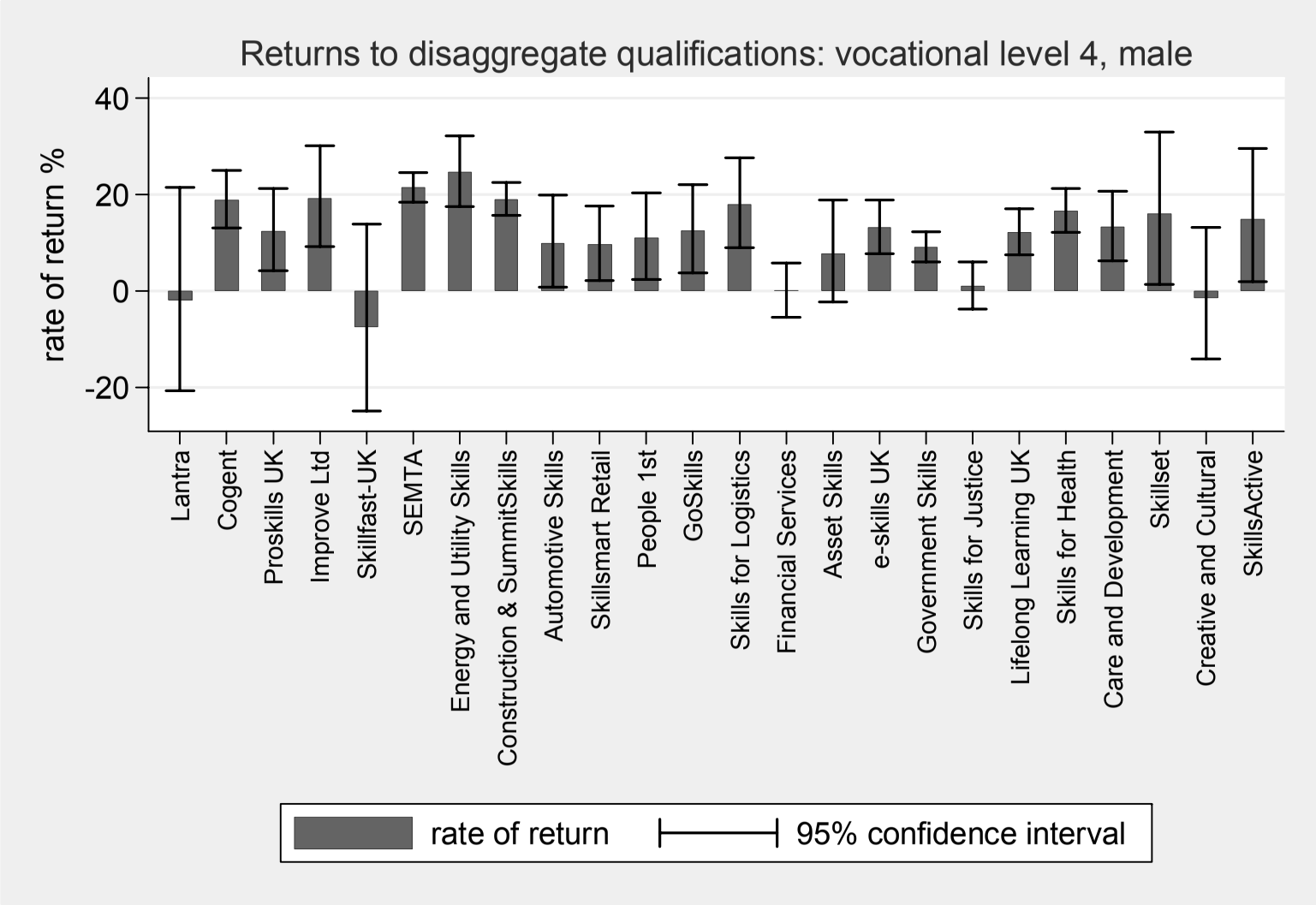

Returns to disaggregate qualifications: academic level 5, male
rate of return %
150
100
50
0
-50
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval

Figure A2M-V: Returns to disaggregate qualification levels by NQF levels – Male Vocational




Returns to disaggregate qualifications: vocational level 2, male
rate of return %
20
10
0
-10
-20
-30
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval


Returns to disaggregate qualifications: vocational level 3, male
rate of return %
30
20
10
0
-10
-20
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval


Returns to disaggregate qualifications: vocational level 4, male
rate of return %
40
20
0
-20
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval

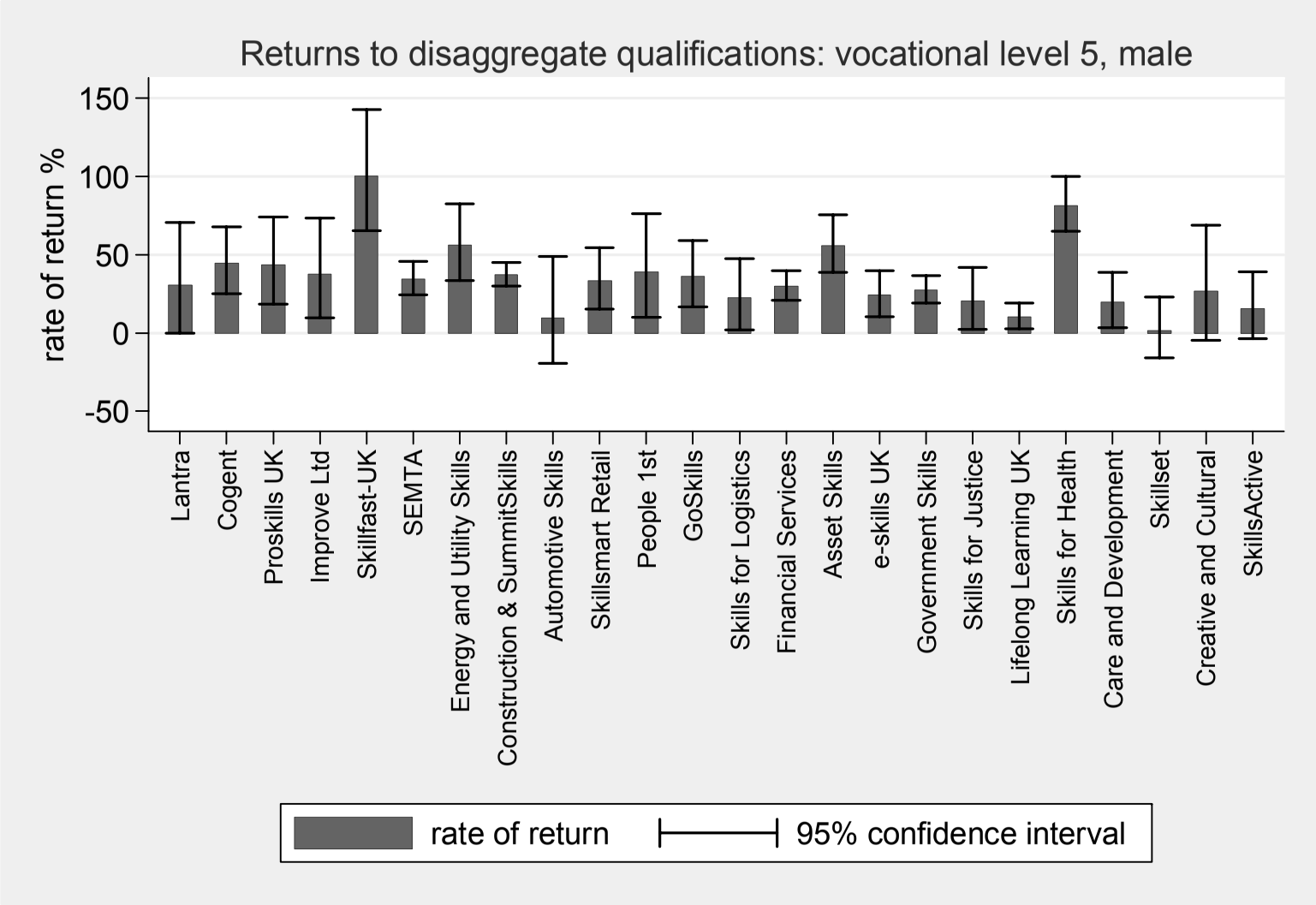
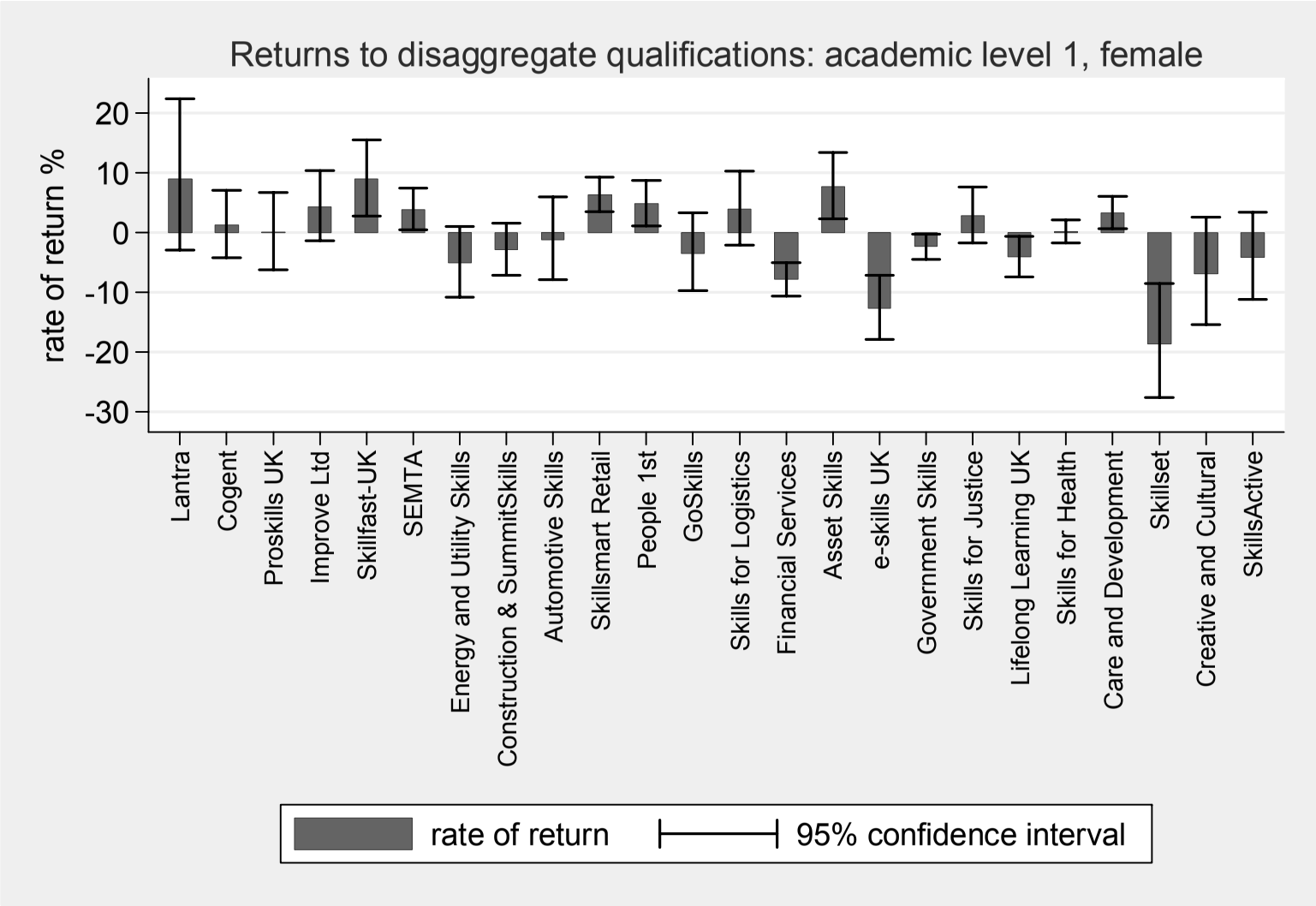
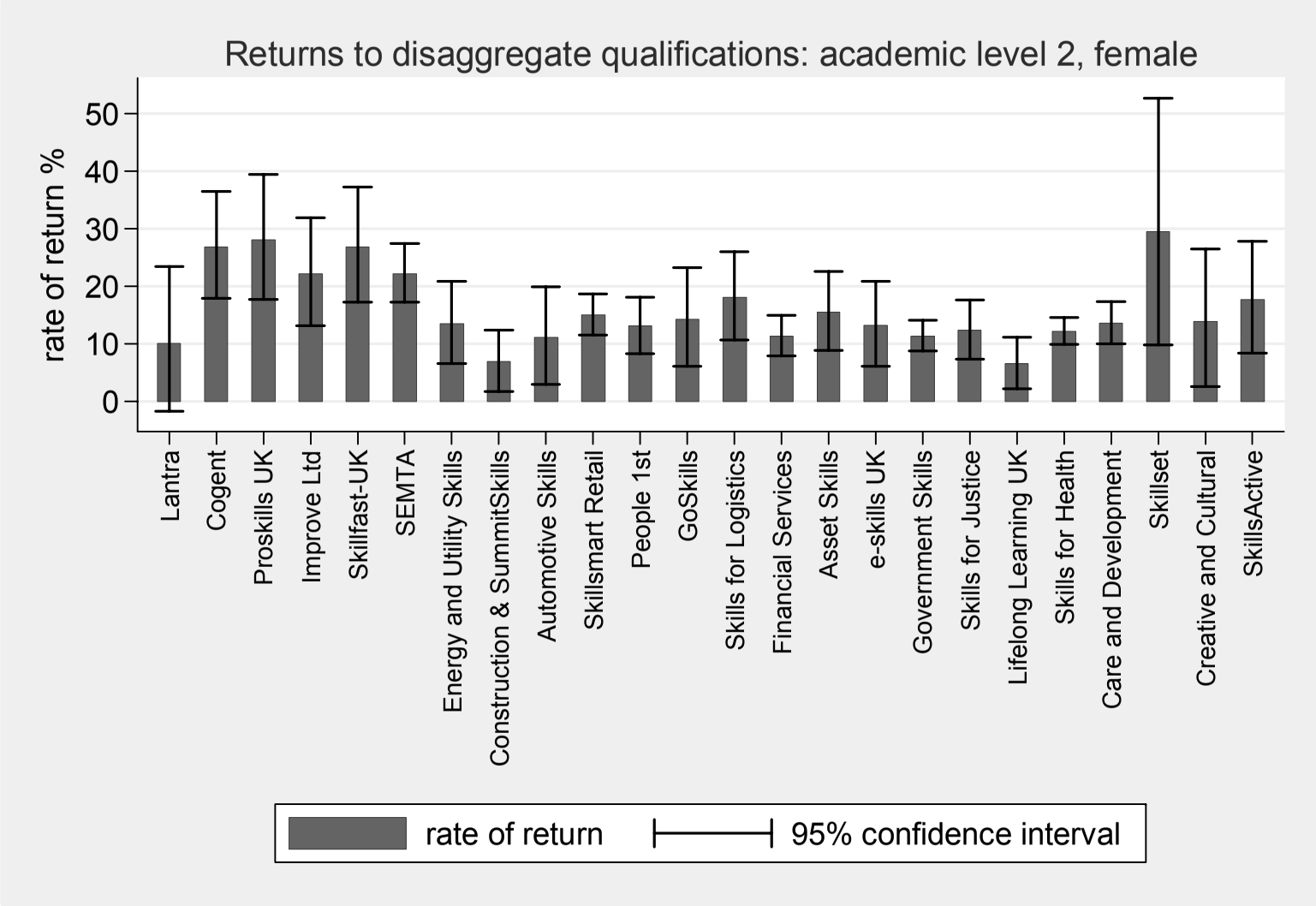
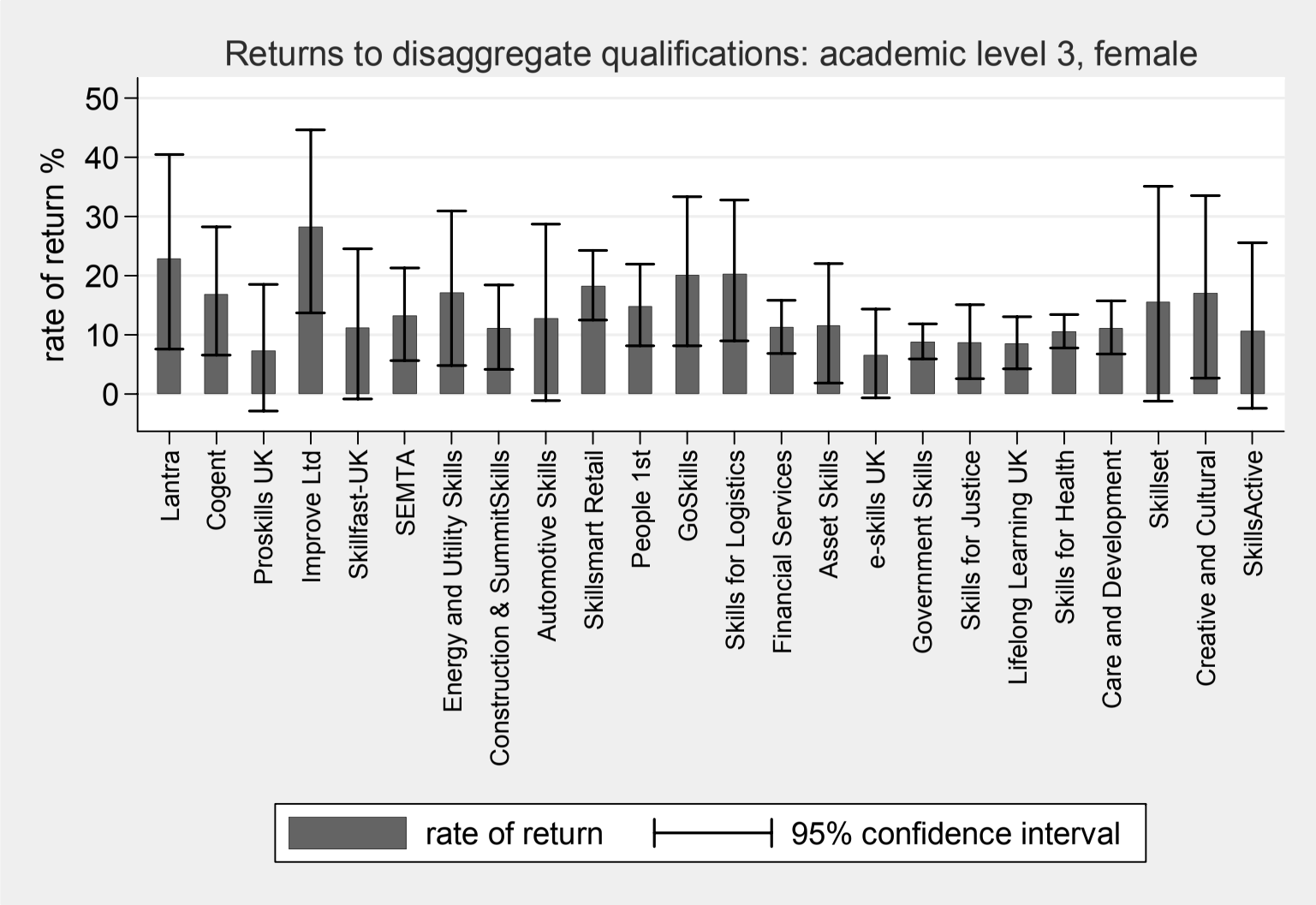
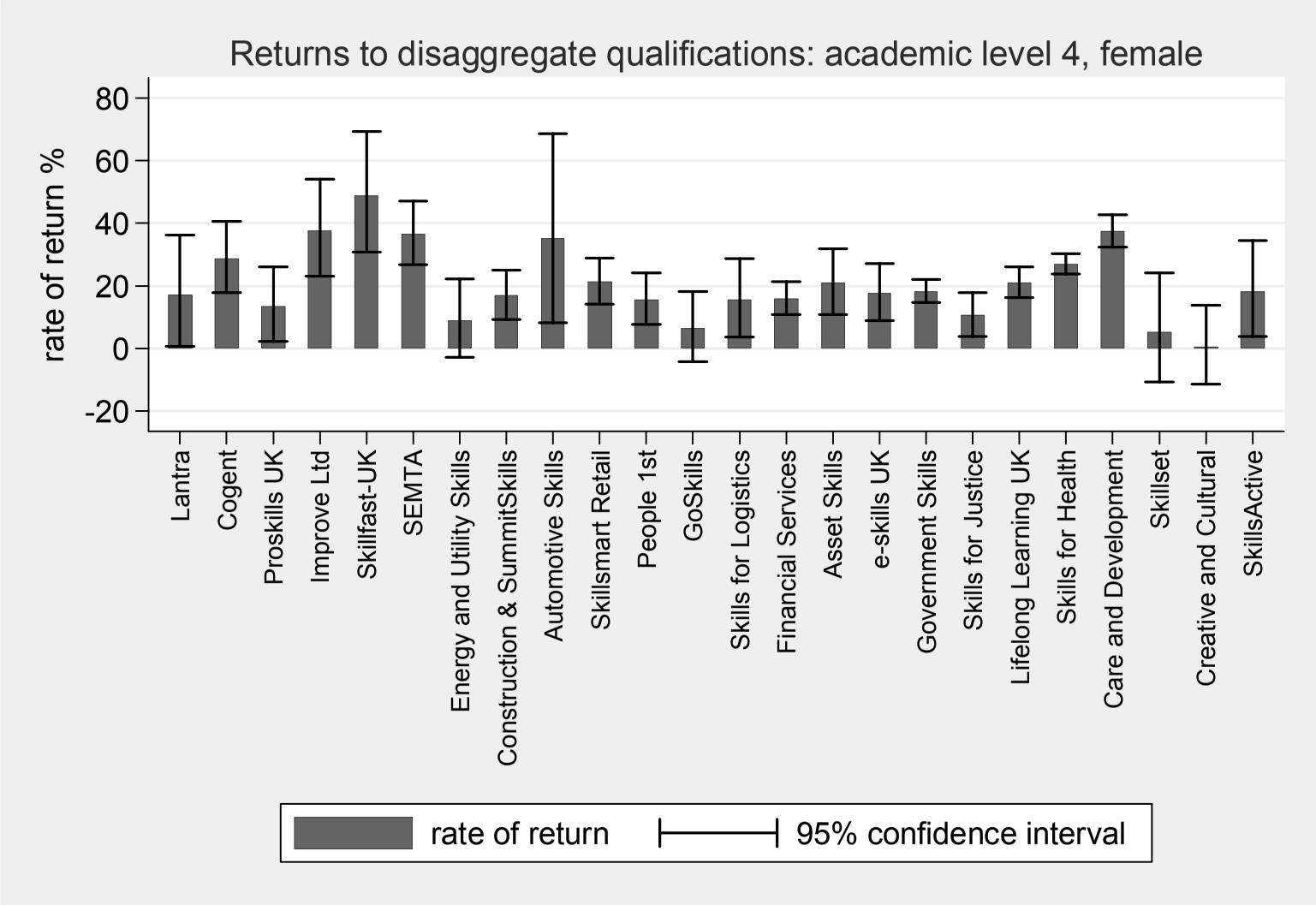

Returns to disaggregate qualifications: vocational level 5, male
rate of return %
150
100
50
0
-50
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval

Figure A2F-A: Returns to disaggregate qualification levels by NQF levels – Female Academic




Returns to disaggregate qualifications: academic level 2, female
rate of return %
0
10
20
30
40
50
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval


Returns to disaggregate qualifications: academic level 3, female
rate of return %
50
40
30
20
10
0
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval


Returns to disaggregate qualifications: academic level 4, female
rate of return %
80
60
40
20
0
-20
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval

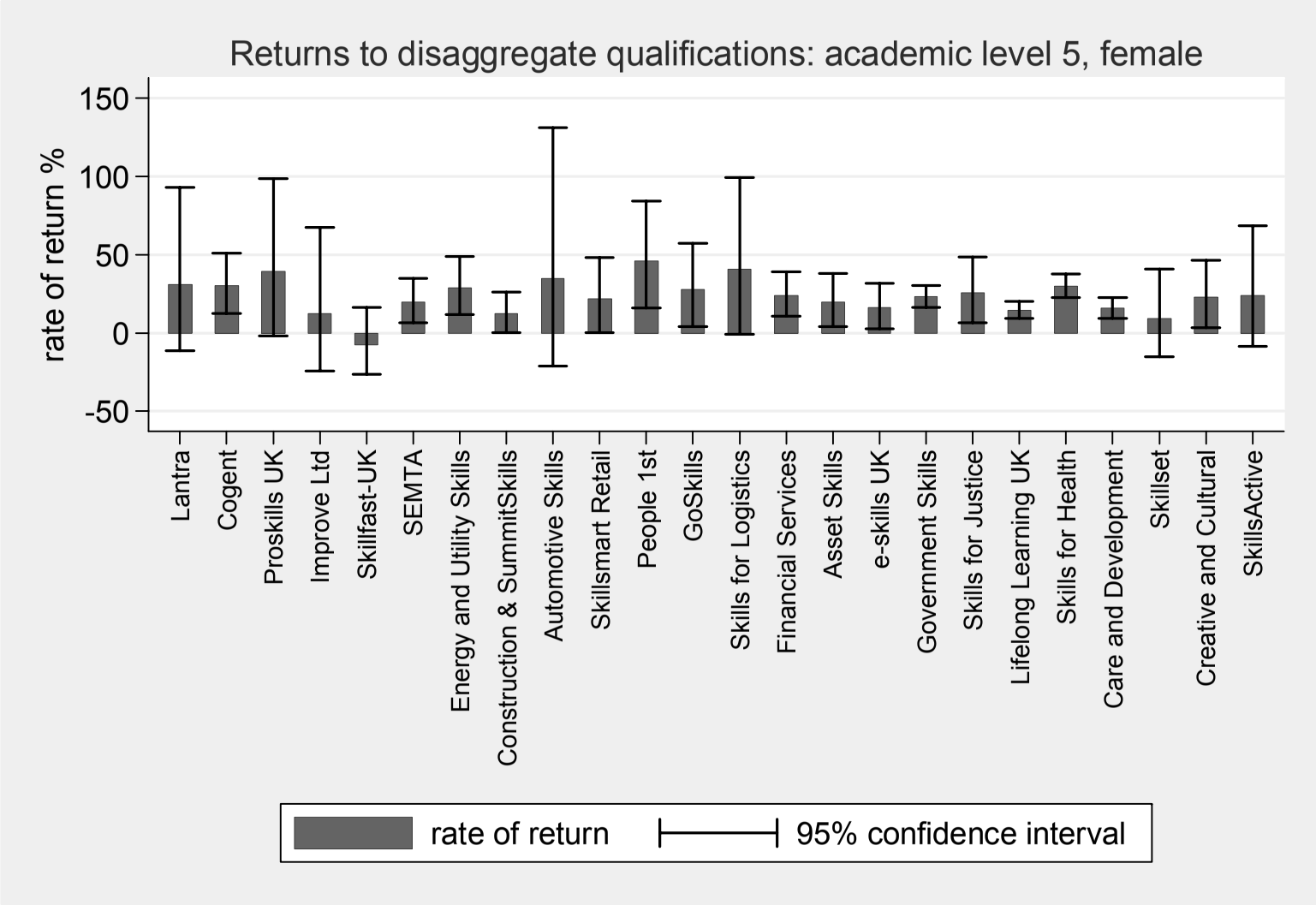
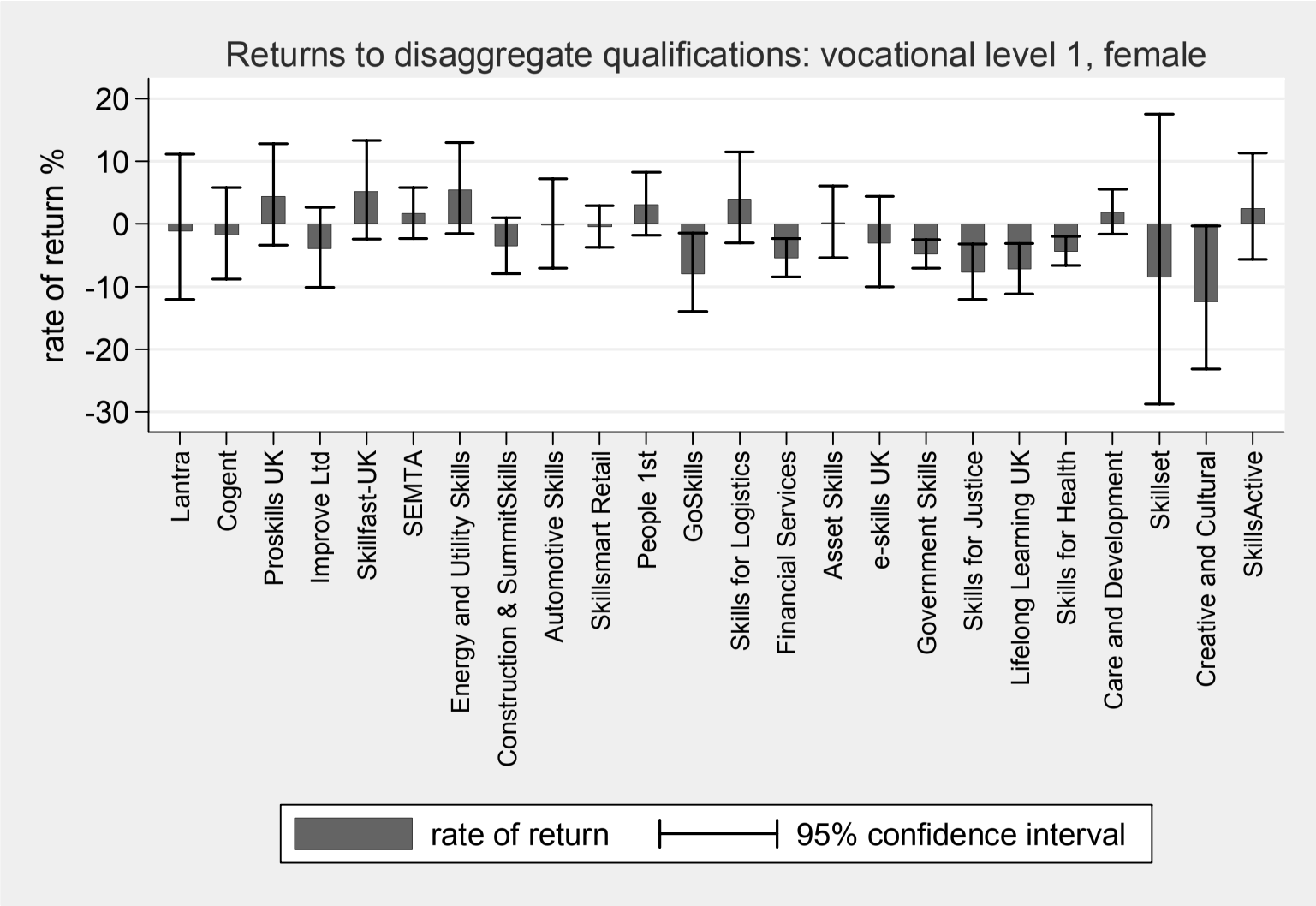
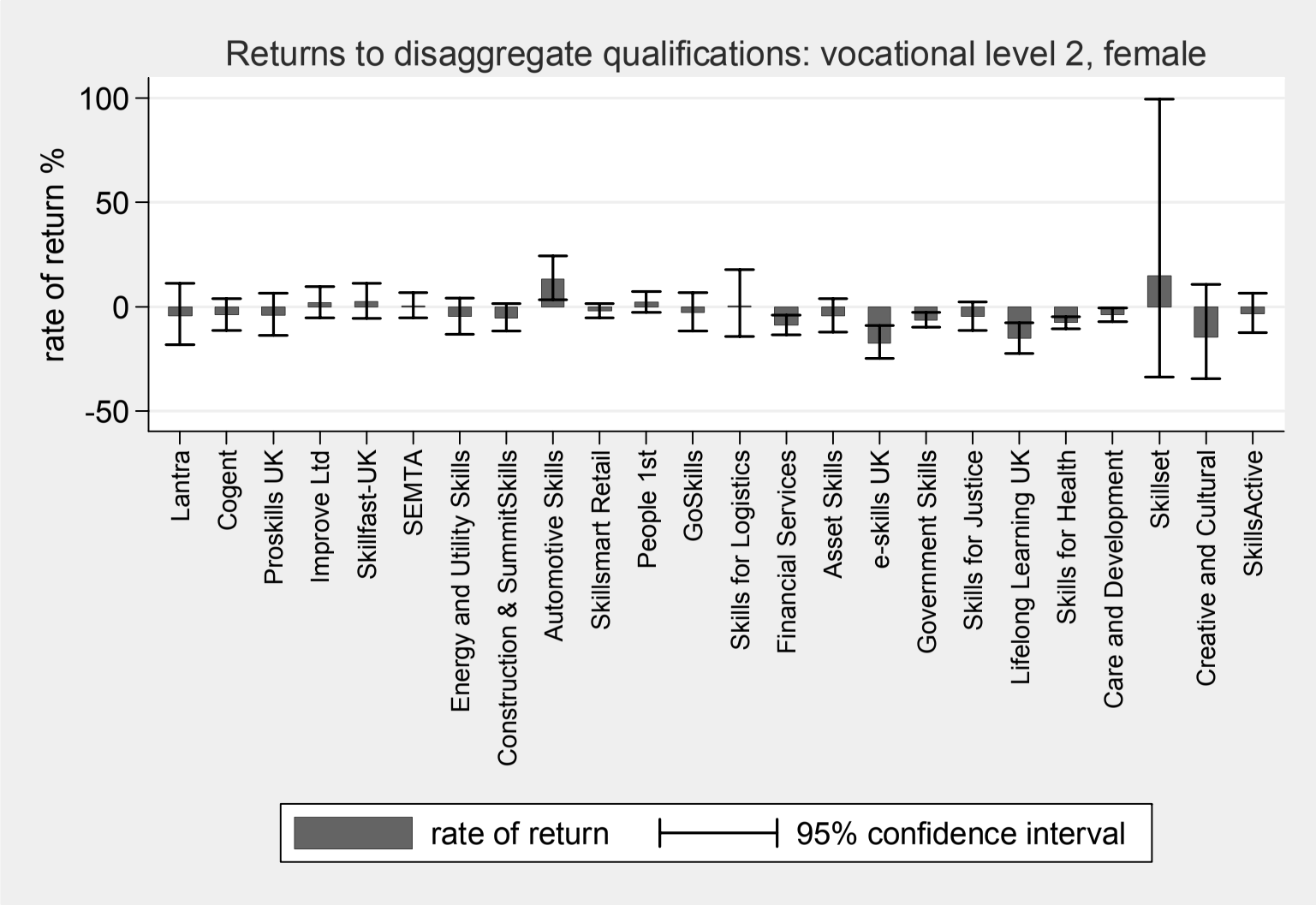
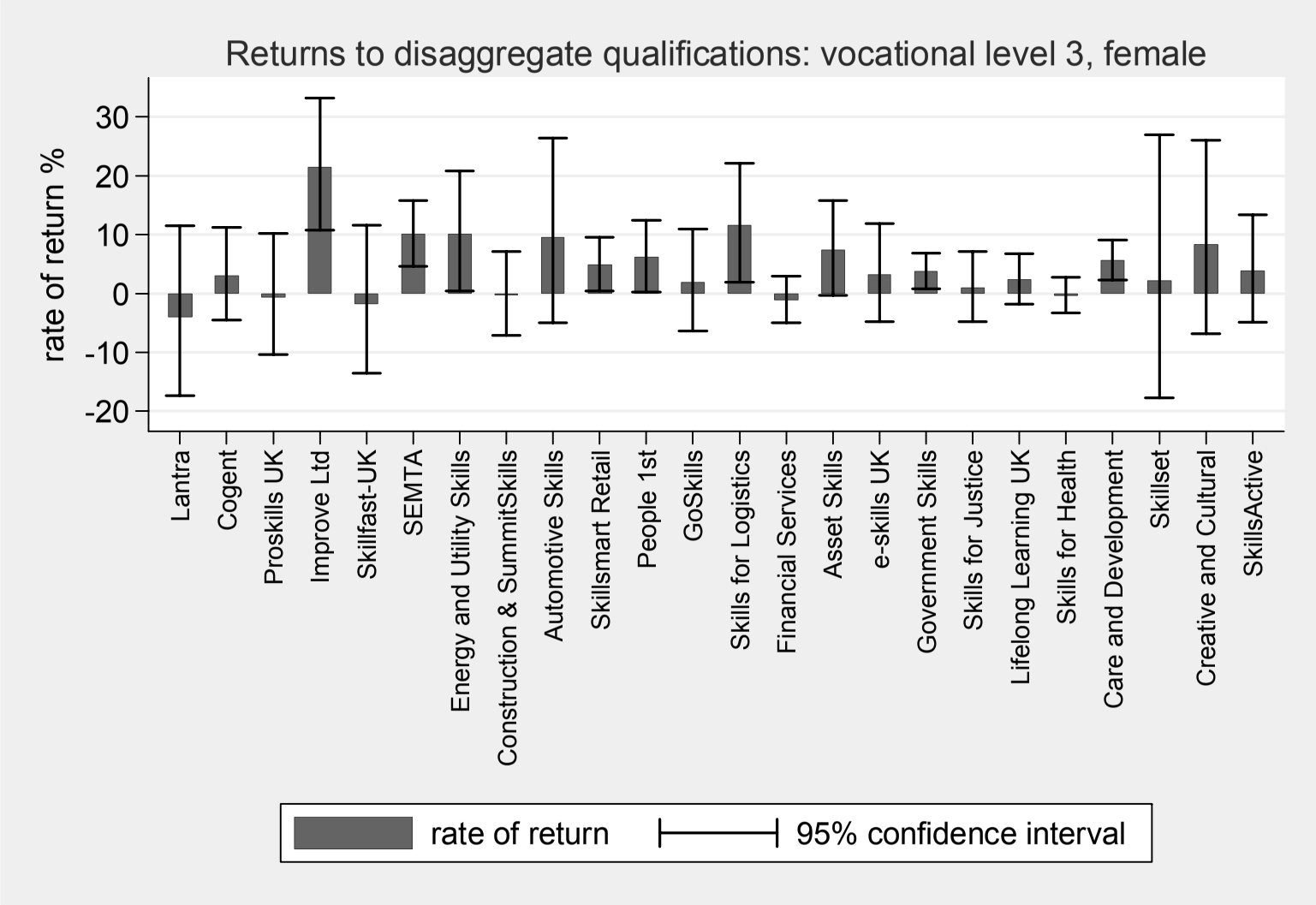
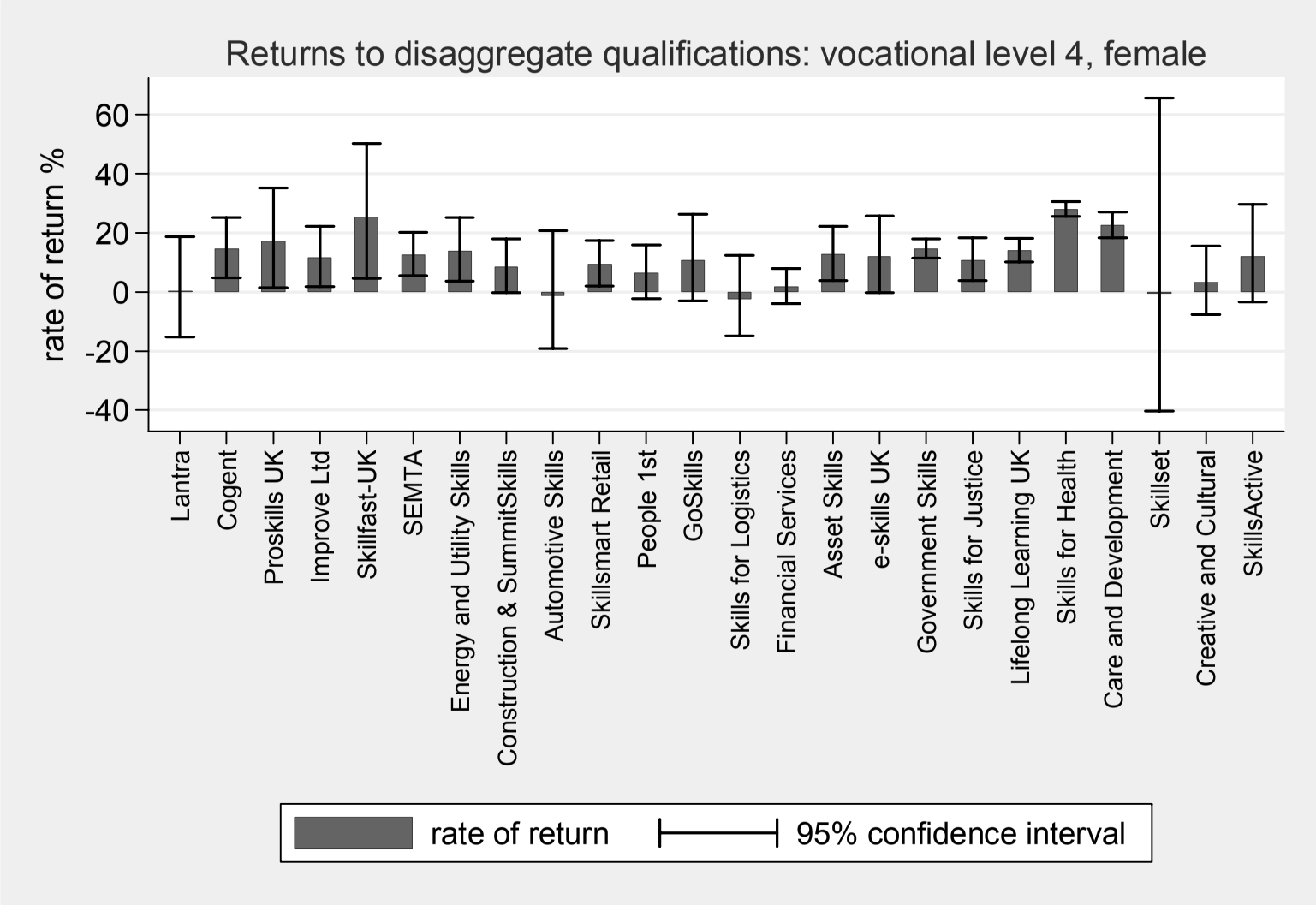

Returns to disaggregate qualifications: academic level 5, female
rate of return %
150
100
50
0
-50
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval

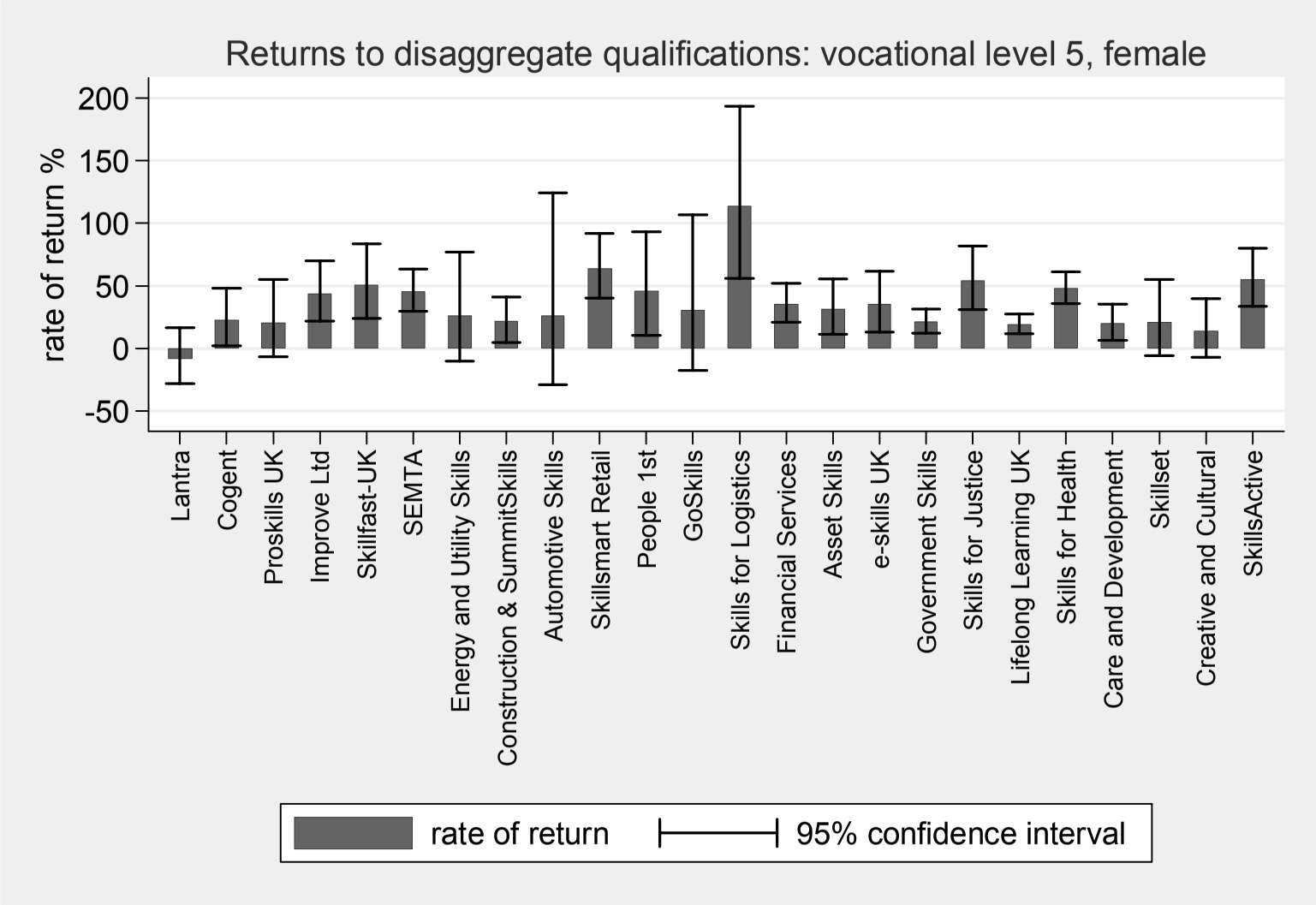
Figure A2F-V: Returns to disaggregate qualification levels by NQF levels – Female Vocational




Returns to disaggregate qualifications: vocational level 2, female
rate of return %
100
50
0
-50
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval


Returns to disaggregate qualifications: vocational level 3, female
rate of return %
30
20
10
0
-10
-20
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval


Returns to disaggregate qualifications: vocational level 4, female
rate of return %
60
40
20
0
-20
-40
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval


Returns to disaggregate qualifications: vocational level 5, female
rate of return %
200
150
100
50
0
-50
Lantra
Cogent
Proskills UK
Improve Ltd
Skillfast-UK
SEMTA
Energy and Utility Skills
Construction & SummitSkills
Automotive Skills
Skillsmart Retail
People 1st
GoSkills
Skills for Logistics
Financial Services
Asset Skills
e-skills UK
Government Skills
Skills for Justice
Lifelong Learning UK
Skills for Health
Care and Development
Skillset
Creative and Cultural
SkillsActive
rate of return
95% confidence interval

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The Sector Skills Almanac for the UK, 2007

This report is a summary of a research report carried out by Andy Dickerson and Anna Vignoles on behalf of the Sector Skills Development Agency.

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