

# **An In-Depth Analysis of the Returns to National Vocational Qualifications Obtained at Level 2**

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**December 2004**

Published by  
Centre for the Economics of Education  
London School of Economics  
Houghton Street  
London WC2A 2AE

© Lorraine Dearden, Leslie McGranahan and Barbara Sianesi, submitted October 2004

ISBN 07530 1740 46

Individual copy price: £5

The Centre for the Economics of Education is an independent research centre funded by the Department for Education and Skills. The views expressed in this work are those of the author and do not reflect the views of the DfES. All errors and omissions remain the authors.

## Executive Summary

Recent government policy has focused on helping low-skilled individuals obtain a Level 2 qualification. Previous work using the Labour Force Survey has however found that controlling for other qualifications achieved, individuals holding low-level National Vocational Qualifications (NVQs) have statistically significantly *lower* wage levels than otherwise similar individuals who lack NVQs, the estimates for NVQs at level 1 and 2 falling between –5 and –20 percent lower wages.

In this paper, we offer an in-dept investigation of NVQ qualifications, trying to shed some light as to why a seemingly beneficial certification of skill appears to hurt labour market prospects. We principally look at NVQs obtained at level 2 given that they are the most widely held of the NVQ qualifications, but will also touch on NVQs at level 1. While we focus on wages, we also investigate whether NVQs are a stepping-stone to higher levels of qualifications or serve to boost employment probabilities. Finally, we compare the returns to NVQ2s to the returns for other level 2 vocational qualifications.

We start by exploring a number of potential sources of bias in previous work looking at returns to NVQ2. We find that while previous results were biased down due to omitted ability and family background bias, the magnitude of such bias was relatively small. In addition, estimated returns do rise somewhat when we focus on what we believe to be more appropriate and policy relevant comparison groups – the pool of individuals with low or no other qualifications. However, even when we adjust our sample to maximize comparability and control for ability and family background, we find that NVQ2 holders have equivalent or still slightly lower wages.

Although we thus conclude that overall returns for NVQs at level 2 are extremely poor and remain negative for large segments of the working population, we do find substantial positive returns for some sub-groups and sectors of the labour force. In particular, we find that individuals with no other qualifications have higher returns to NVQ2 than those who already have a Level 1 qualification. Estimated benefits to NVQ2 receipt also seem to be larger for low-status and low-ability individuals than for their more advanced counterparts. These findings are potentially quite interesting, given that the less advantaged make up the more policy-relevant target group. In addition, returns are found to be positive for women in public administration, education and health and for male plant and machine operatives – among the largest groups of NVQ2 holders. We also find that returns are positive for those who procure their NVQ2 at their place of employment. This is in sharp contrast to NVQ2 holders who received government training who experience large negative returns.

Finally, NVQ2s appear to represent stepping-stones to higher levels of attainment, with individuals receiving NVQ2s being more likely than similar individuals without NVQ2s to move on and obtain level 3 qualifications.

Nevertheless, the great majority of our findings suggest that NVQ2s offer no benefit to most recipients. These results are in stark contrast to the large benefits we uncovered from most other Level 2 vocational qualifications including City and Guild Craft certifications, Business and Technology Education Council (BTEC) and Royal Society of Arts (RSA) First Diplomas, and apprenticeships.

It is hard however to believe that earning an NVQ at level 1 or 2 should actively reduce earn-

ings. This is even more so because these qualifications are often obtained while employed and at an individual's place of work, so that the opportunity cost to individuals in terms of lost beneficial work experience is particularly low.

One potential explanation for our inability to find positive returns is that selection into the NVQ2 program is more complicated than we can measure in our data; individuals who need to go on a course to learn a job skill may for instance be less naturally gifted at their job than those who can do their job without training. Another related issue concerns the level of NVQ that would be received by employed individuals without NVQs had they sought to certify their skills. Given that most employed workers must have some job specific competency, if these individuals are actually working at a level equivalent to an NVQ3, we would expect a negative return when we compare NVQ2 holders to them.

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1. Introduction	1
2. NVQs	2
3. Returns in the BCS70	3
– Ability bias	4
– Comparison groups	4
– Returns by ability and family background	7
– Industry and occupation	8
4. Returns in the LFS	8
– Industry	10
– Occupation	11
– Where taken	11
5. Stepping stone	13
6. Employment probabilities	15
7. Returns to other Level 2 vocational qualifications	16
8. Conclusion	18
References	20
Tables	21
Appendix A: Categorization of qualifications in the BCS70 and LFS	54
Appendix B: Statistics on NVQ2s among the workforce	61

## **Acknowledgements**

The authors would like to thank Bob Butcher, Mutsa Chironga, John Elliot, Mark Franks, Karen Hancock and Paul Johnson for comments on earlier versions of this work.

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## **1. Introduction**

Recent government policy has focused on helping low skilled individuals obtain a level 2 qualification under the assumption that a level 2 qualification is the necessary minimum for a successful labour market experience. The most widely held level 2 qualification obtained after leaving school is the level 2 National Vocational Qualification (NVQ). NVQs at all levels are relatively new qualifications. The first NVQ was awarded in 1988 (DFES 2003). NVQs are employer focused qualifications and indicate that a recipient has a given level of competence in a specific job area. Many NVQs are obtained while an individual is employed and through employer provided training. They can be either an indication of newly obtained skills or a certification of existing skills.

Previous work looking at the returns to vocational qualifications using the quarterly Labour Force Survey (LFS) has found that controlling for other qualifications held NVQs held at levels 1 and 2 are “not observed to have a positive effect on earnings.” (McIntosh 2002) Not only do previous studies (Dearden et al. 2000 and McIntosh 2002) fail to find a positive return, they find that controlling for other qualifications held, individuals holding low-level NVQs have statistically significantly lower wage levels than otherwise similar individuals who lack NVQs. McIntosh finds that low-level NVQs have negative returns across survey year, cohort, sex, and sector of employment. The point estimates for the returns for NVQs at level 2 (NVQ2s) are negative for all but 10 of the 172 regressions reported in the paper with most in the range between  $-5$  percent and  $-20$  percent. For NVQs at level 1 (NVQ1s), the returns are negative for all but 15 of 170 regressions and also mostly fall between  $-5$  percent and  $-20$  percent.

In this paper, we investigate why a seemingly beneficial certification of skill appears to hurt labour market prospects. We will principally look at NVQs obtained at level 2 because they are the most widely held of the NVQ qualifications, but will also touch on NVQs at level 1. While we focus on wages, we also look at other measures of attainment including employment status and subsequent qualification receipt. We use two data sets for this analysis: the 1970 British Cohort Study (BCS70) and the Labour Force Survey (LFS). The BCS70 has followed all individuals born between 5 April and 11 April 1970 since birth and contains information on ability, family background, education, and employment history. The quarterly LFS collects education and labour force information for a representative sample of the population. We begin by looking at returns in the BCS70, but then turn to returns in the LFS. Our estimates based on the BCS70 suggest that ability and family background are not major determinants of returns to NVQs so we are not introducing large amounts of ability and family background bias by turning to the larger sample sizes available in the LFS.

We conclude that overall returns for NVQs at level 2 are extremely poor and remain negative for large segments of the working population. However, we do find substantial positive returns for some sectors of employment. In particular, women in health and social work experience high returns to NVQs. We also find that NVQ2s are stepping-stones to higher levels of attainment and assist individuals in obtaining level 3 qualifications. We find the poor overall returns to the NVQ2 to be a sharp contrast to the large benefits from most other level 2 vocational qualifications including City and Guild Craft certifications, Business and Technol-

ogy Education Council (BTEC) and Royal Society of Arts (RSA) First Diplomas, and apprenticeships.<sup>1</sup>

The paper continues as follows. We first provide a more substantial introduction to NVQs. We then look at returns to NVQs in the BCS70 and the LFS for various comparison groups. Next we investigate whether NVQs are a stepping-stone to higher levels of qualification or serve to boost to employment probabilities. Subsequently we compare the returns to NVQ2s to the returns for other level 2 vocational qualifications. We then conclude.

## 2. NVQs

After their advent in 1988, the number of NVQs issued each year increased rapidly. Recently, the number of NVQs has levelled out at around 400,000 per year. By March 2003, over four million NVQs had been awarded. (QCA 2003) Tabulations from the LFS suggest that NVQs are held by about 10% of the working population. As mentioned above NVQs seek to certify that employees are able to perform job tasks up to a given level of competence. In Table 1, we present the competencies underlying the different levels of NVQs and have bolded the most important concepts in each category. The table shows that level 1 involves routine and predictable tasks while level 2 includes autonomy and collaboration. There are no particular entry requirements and timing to completion varies.

Fifty-nine percent of NVQs that were issued prior to September 2001, were at level 2, 18% were level 1, and 20% level 3. Very few NVQs have been issued at levels 4 and 5. (QCA 2002). NVQs are concentrated within certain sectors of the economy. Table 2 presents total certificates issued in each framework area through September 2001, and Table 3 compares the number of NVQs in each sector to the number of workforce jobs in that sector. These tables show that most NVQs are issued in the providing business services and providing goods and service framework areas. However, finance and business services represent a higher proportion of work force jobs than NVQs issued. By contrast, public administration and health, and manufacturing represent a higher proportion of NVQs issued than workforce jobs. For other industries the number of workforce jobs and NVQs received are similar.

If we look at NVQ holding in the BCS70, as of 2000, we find that 275 cohort members report having obtained an NVQ1, 445 an NVQ2, and 377 and NVQ at a higher level. This represents 2.4, 4.0 and 3.3% of the sample of 11261 cohort members, respectively. There is some overlap with 47 cohort members holding NVQs at levels 1 and 2, and 49 with NVQs at levels 2 and 3.

NVQs are usually held along with other qualifications. Those with NVQ1s have an average of 2.6 other qualifications. Only 14% of this sample has no other qualifications. 60% have some GCSEs and 15% 5 good GCSEs. Also, 35% have a City and Guild award and 50% have a City and Guild, RSA, BTEC or Pitmans qualification. Those with NVQ2s have an average of 2.6 other qualifications also. Among this sample 15% has no other qualifications. 66% has some GCSEs and 17% have 5 good GCSEs. Also, 31% have a City and Guild award and 51% have a City and Guild, RSA, BTEC or Pitmans qualification. The fact that most NVQ holders have other qualifications is not particularly surprising because one

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<sup>1</sup> In 1998, the RSA merged with Oxford and Cambridge Universities. These certificates are now part of the Oxford, Cambridge, Royal Society of Arts Examination (OCR).



goal of the NVQ system is to certify existing skill. These skills may well have been obtained through a more traditional vocational course. In addition, some courses lead to the attainment of both NVQs and more traditional vocational qualifications concurrently.

From these tabulations, we cannot tell the order in which other qualifications are obtained relative to NVQs. However, we can gain insight into the ordering by looking at the qualifications already held by those in the BCS70 who were studying towards an NVQ at any level when the 2000 BCS survey was given. Among those who are studying towards an NVQ in 2000, only 13% have no qualifications when they take the course. 43% already have a City and Guild, RSA, BTEC or Pitmans. This indicates that at least for this sample, an NVQ is not the first qualification obtained. We can also look at the qualifications being studied for at the time of the survey by those already holding an NVQ at any level. Among NVQ holders, 78% are not studying for any qualifications, 5% are studying for another (presumably higher level) NVQ, and 3% for a City and Guild, RSA, BTEC or Pitmans.

NVQs were designed to be employer focused qualifications and have no specific course requirements. As a result, they are more likely than other qualifications to be obtained by individuals at their place of work. In Table 4, we display the percent of individuals who received their highest qualification at their place of work, through college, through government training, and through other means or a combination, for vocational qualifications in the LFS sample. We can see from the table that NVQs are far more likely to be obtained through the employer than other qualifications in general, and than other level 2 qualifications in particular. For instance, while 42% of NVQ2s were obtained at the employer, only 12% of City and Guild Craft certificates were obtained at the employer. A higher percentage of NVQ2s are obtained exclusively through the employer than trade apprenticeships. A second thing to note from the table is that NVQs, especially at level 1 and 2, are also relatively more likely to be obtained through government training. Although only 7% of NVQ2s are obtained through government training, this is nearly triple the percentage from government training of the next highest level 2 qualification.

### **3. Returns in the BCS70**

We now turn to estimating the returns to NVQs at level 2 (NVQ2s) in the BCS sample. We begin by replicating the framework used by Dearden et al. (2000) and McIntosh (2002). In particular, we simultaneously estimate the returns to all qualifications held in one regression for the BCS70 sample separately for men and women. It is important to reiterate that these regressions include indications of all the qualifications held by an individual, not just the highest. In keeping with this previous work, we include controls for ethnicity, region, employer size, and employer type (public or private sector). Our dependent variable is the logarithm of the real hourly gross wage in January 2001 prices. These results are presented in Table 5, Column 1 for men, and Table 6, Column 1 for women. Our results are similar to those found in previous work. In particular, we find that controlling for all other qualifications held, men with NVQ2s earn 10% less per hour and women earn 9% less. The remainder of the results are also broadly consistent with the findings of earlier research. We find substantial returns for degrees and for Academic Levels 2 and 3, defined as having at least 5 good GCSEs and 2 or more A Levels, respectively.<sup>2</sup> We also find solid returns for most vocational

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<sup>2</sup> There are some important differences between our qualification categorization and that used in earlier work. First, while the previous papers break pre-HE academic qualifications into CSE, O-Level, and A-Level, we follow the National Learning Targeting categories and distinguish between those with any GCSEs (level 1), 5 Good

qualifications with City and Guilds more beneficial for men than for women and RSAs more beneficial for women than for men.

## Ability Bias

Both Dearden et al. (2000) and McIntosh (2002) are surprised by the negative returns to NVQs they find in the LFS and hypothesize that the negative returns arise from ability bias. In other words, people who have NVQs are more likely to be of low ability and hence have lower wages than people who do not. By failing to control for ability, the coefficient on the NVQs is confounding the affects of ability and qualifications. This hypothesis cannot be tested in the LFS because of the lack of ability measures. One of the benefits of using the BCS70 is that it contains the results of batteries of ability tests taken at ages 5 and 10. If we look at the raw data, presented in Figure 1, we do see that individuals who hold NVQs are more likely to be of low ability as measured by these tests, and less likely to be of high ability. In Column 2 of tables 5 and 6, we present results from the same regression as in Column 1, but include measures of ability in terms of quintiles of performance on three ability tests – copying designs at age 5, and math ability and British Ability Scales score at age 10. We also include measures of family background. The omission of family background measures in the earlier regressions could potentially be a similar source of bias. For this purpose we include mother’s and father’s years of schooling, and dummies for categories of father’s social class at age 10 and for categories of gross family income at 10.

The returns to NVQs controlling for ability and family background are higher for both men and women than they were previously, but still negative and significant. So, the bias was in the direction predicted. However, the changes in the magnitude of the estimates are quite small. We now find that male NVQ2 holders have 9% lower wages and women have 7% lower wages controlling for the cocktail of other qualifications held. In keeping with the findings in the literature, the inclusion of the ability and family background measures has a more pronounced effect on the estimates of the returns for the more prestigious academic qualifications. P-values presented at the bottom of the tables show that both family background and ability have an independent effect on wages.

These results indicate that the negative returns found in previous work and presented in Column 1 of Tables 5 and 6 do not simply arise from ability bias. On some level this is not surprising because other vocational qualifications also should suffer from the same ability bias. Less able individuals should not only be more likely to take NVQs, but also more likely to take the vast array of other lower level vocational qualifications and yet the coefficients on most of these other qualifications are not consistently negative in our estimates or in previous work.

## Comparison Groups

One potential problem with the two sets of estimates presented in Tables 5 and 6 is that the group we are comparing to NVQ holders is inappropriate. By including all individuals in the labour market in these regressions, we are comparing individuals with NVQs to those with-

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GCSEs (level 2), and 2 or more A Levels (level 3). Second, we include Pitmans qualifications in our estimation because information on these is also available in the BCS70. Third, we define academic levels 1 and 2 as mutually exclusive and place individuals in the level 2 group, but not the level 1 group if they had 5 good GCSEs and a poor GCSE as well. More detail on the composition of the categories is available in the appendix.

out, independently of the other qualifications held. However, government policy is not primarily concerned with the returns to an NVQ2 among those with first degrees, but with the returns to those with low-level or no qualifications. In fact, we would expect individuals who have degrees and then obtain an NVQ to have lower wages than those without an NVQ, because they are likely either to have chosen a profession for which their degree is not needed, or have experienced a negative shock.

This difference could potentially be important because, as described earlier, NVQ2s are rarely held in isolation. Therefore the estimate of the returns in the previous tables is a combination of the returns to those with no other qualifications and those with the vast variety of other qualifications that NVQ holders have obtained prior to their 2000 interview.

To investigate this further, we need to define a more appropriate and policy relevant comparison group to those with NVQ2s than the entire labour force. We choose to look at the returns to an NVQ2 among those with either no other qualifications at all or with other qualifications at level 1 or below. We refer to the first sample as “No Qualifications or NVQ2 Only”, and to the second sample as “No Qualifications, Level 1 Qualifications, or NVQ2 Only Level 2”. In neither case do individuals in the sample have qualifications at level 3 or above. The only individuals with qualifications at level 2 who are included are those whose only level 2 qualification is an NVQ2. We think that only people with no other level 2 or higher level qualifications ought to benefit from obtaining an NVQ2. In addition, we think that encouraging NVQ receipt among these less qualified groups is more likely to be the focus of policies pertaining to level 2 qualifications.

Table 7 Column 1 shows the returns to holding an NVQ2 for men who have no other qualifications controlling for ethnicity, region, employer size and type, ability, and family background. This will be the set of controls used in all regressions using the BCS70 going forward unless mentioned otherwise. The Table displays the estimated returns to an NVQ2 for this sample in the first row, but does not present the coefficients on any of the other regressors. The results of F-Tests of the joint significance of all the ability variables, and of the joint significance of all the family background variables are presented in the bottom of the Table. Column 1 in Table 8 shows analogous results for women. We find an insignificant positive return to holding an NVQ2 for men and an insignificant negative return for women compared to individuals with no qualifications. For both sexes, the returns have increased relative to the finding for the full sample, but the standard errors have grown substantially. The growth in the standard errors is largely a result of a significant reduction in the sample – e.g. only 393 men in the sample have either no qualifications or only an NVQ2. Because of the standard errors, our predictions are very tentative. However, it appears that men with NVQ2s earn about the same or slightly more than men with no qualifications and that women with NVQ2s earn about the same or slightly less.

In Column 2 of Tables 7 and 8 we expand the sample to include individuals who have level 1 vocational or academic qualifications, but no qualifications other than an NVQ2 at level 2 or above and control for having an academic or vocational level 1 qualification. Here we aggregate all level 1 vocational qualifications into one group. The qualifications that make up each category are detailed in Appendix Table 1. We present the returns to NVQ2s, and academic and vocational level 1 qualifications in the Table. There is a large drop in the estimated returns to NVQ2s for males; the estimate is close to the level presented in Table 5. The estimated return for females remains essentially unchanged from the regression presented

in the first column. However, for both men and women the estimates are statistically insignificant, an unsurprising result given the small sample sizes.

Column 3 of Tables 7 and 8 report returns to NVQ2s and other vocational qualifications for individuals with no academic qualifications and Column 4 reports results for individuals with no academic qualifications above level 1. Among the sample with no academic qualifications above level 1, we find negative and significant returns to an NVQ2 controlling for all other vocational qualifications held for both men and women. The magnitudes of the returns to NVQ2s for those with no academic qualifications above level 1 are similar to those found when we looked at the entire sample, but lower than those found when we compare NVQ2 holders to those with no other qualifications. This suggests that there is a difference in returns when we use the entire labour market as a control group as compared to when we only use those with low levels of other qualifications and that this disparity principally arises because returns to NVQ2s are substantially lower for those who already hold either level 1 academic qualifications or other vocational qualifications at level 2 or higher.<sup>3</sup> This is consistent with the idea that individuals who take an NVQ, but hold higher qualifications are more likely to have experienced a negative shock.

We can get a better sense of potential comparison groups by using propensity scores and investigating how similar alternate comparison groups are to the group obtaining NVQs at level 2. To do this, we use a probit model to predict the probability of obtaining an NVQ2 controlling for ability, family background, region, employer type, sex and ethnicity among various subsamples of the population. We combine both genders in one regression to maximize sample sizes. The results for this analysis are presented in Table 9. The table reports P-values for tests of the joint significance of the ability measures and then for the family background measures. The first column contains estimates based on the entire sample, which is narrowed in the following column to those who only have qualifications at level 2 or below, then in Column 3 to level 1 or below or an NVQ2, and then in Column 4 to those no qualifications or an NVQ2.

The first column of the table shows that among the full sample, those with an NVQ2 are different from those without an NVQ2. The regression as a whole is significant in that the likelihood ratio test rejects the hypothesis that the control variables do not predict the treatment of receiving an NVQ2. We also find that ability is a significant predictor of obtaining an NVQ2. The point estimates (not presented) show that those with an NVQ2 are of lower ability than those without it within this sample.

The results for the comparison group with other qualifications up to level 2 are similar. The regression as a whole is significant and ability continues to be a (borderline) significant predictor of NVQ attainment.<sup>4</sup> However, for the groups consisting of those with other qualifications up to level 1, and no other qualifications, Columns 3 and 4, neither ability nor family background significantly predict NVQ2 receipt. The entire set of regressors is insignificant for the no qualifications regression.

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<sup>3</sup> We also reestimated the regressions in Tables 7 and 8 including a variable measuring the age at which an individual left full-time education. Including this consistently increased the coefficient estimates on the returns to an NVQ2, but only by a very small amount. Because all of the comparison groups achieved less than level 2, there is very little variation in the age they left education with the great majority leaving at 16.

<sup>4</sup> If we allow level 2 vocational qualifications, but only up to level 1 academic, we get nearly identical results to those presented in Column 2. This indicates that those with other level 2 vocational qualifications are different from those with NVQ2. This will be discussed in more detail later.

We had originally planned on using matching to look at the returns to level 2 qualifications. These propensity score estimates suggest that if we believe a priori that the best comparison groups for those with an NVQ2 are those individuals who either possess no other qualifications or only possess other qualifications at level 1 or below, there is no benefit to using matching. The similarity in observables between cohort members with no qualifications or without any qualifications above level 1 and cohort members with an NVQ2 only or no other qualifications at level 2 or above suggests that we can continue to use OLS.

On the other hand, the results in Column 1 or Table 9 indicate if we believe that the best comparison group for those with level 2 NVQs is the entire labour force, there may be some benefit to matching. These two groups differ in levels of ability. If ability has a linear effect on wages then the OLS results controlling for ability should accurately estimate the returns to NVQs. However, if the relationship between ability and wages is more complicated or involves interaction effects, the OLS estimates may be biased. If we reestimate the returns to all qualifications held using matching (not presented), we find the returns to an NVQ2 for men of  $-8\%$  and returns for women of  $-11\%$ . These results are similar to those found when we use OLS and indicate that non-linearities were not the root of the negative returns found for the full-sample earlier.<sup>5</sup>

Going forward, we will base our analysis on OLS comparisons between NVQ2 holders and individuals without any other qualifications at level 2 or above, and individuals with no other qualifications. As mentioned earlier, we think that these are the most policy relevant comparison groups.

## Returns By Ability and Family Background

Having discussed what we believe to be the most relevant comparison groups for NVQ2 holders, we turn to looking at returns for various segments of the NVQ holding population within these comparison groups. One thing that the rich ability data in the BCS70 allows us to do is look at the breakdown of returns to NVQ2s by ability. Among individuals with no other qualifications, or no other qualifications above level 1, do those who are less able experience a higher or lower return to obtaining an NVQ2? For this analysis we define individuals as low ability if they score in the bottom two quintiles on any of the three ability tests. According to this metric, 57% of the sample is defined as low ability.

Table 10 shows returns to an NVQ2 among those without any qualifications other than an NVQ2, and without any qualifications above level 1, by ability group. Because of the small sample sizes, we combine the genders.<sup>6</sup> Each column in the Table represents a separate regression where the sample is defined by ability group and by other qualifications held. We find that among those of high ability, returns are large, negative and statistically significant. Among those of low ability returns are insignificant and point estimates are much larger. The point estimate is positive for those with no qualifications. This indicates that the negative returns to NVQ2s are concentrated among those of high ability who gain the qualification. We note that these results are based on very small sample sizes.

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<sup>5</sup> These results are based on nearest neighbour matching. If we use Mahalanobis matching on our entire variable list, we get returns close to zero. The Mahalanobis method picks a comparison group that is less educated than the nearest neighbour method and is closer to the group with qualifications at level 1 or below.

<sup>6</sup> Separate estimates by gender give similar results.

Next we perform a similar analysis by family status where a cohort member is defined as being from a low status family if gross family income at age 10 was below £100 per week or the father was unskilled or partly skilled.<sup>7</sup> Thirty-seven percent of the sample is defined as being from a low status family. The results for this breakdown are presented in Table 11. As above, each column presents a separate regression where the sample is defined by family background and other qualifications held. As with the breakdowns by ability, we find the returns to be lower for the more advantaged. Point estimates for low status individuals with no other qualifications suggest large positive returns for this group although large standard errors mean that we cannot reject that there are no returns. Although sample sizes mean that we lack the precision to make any definitive conclusion, for both ability and family background, we see returns that appear to be higher for individuals who are worse off.

## Industry and Occupation

As mentioned earlier, NVQs are particularly prevalent in certain industrial sectors, especially public administration, education and health. If we dig deeper we see that many NVQs are received in very small segments of the labour market such as administration, retailing, and hair-dressing. If individuals in these same industries also experience lower wages then the coefficient on NVQ receipt may be confounding the influence of sector choice and qualification. In order to address this, we add sector controls to our regressions (not presented). As was the case with regression adding ability measures, we find that industry does help explain wages. However, the inclusion of industry controls does not have a significant effect on the coefficient on the NVQ qualifications. Ideally, we would like to look at the returns to NVQ within industrial sector, by estimating separate regressions for each sector, but the sample sizes in the BCS70 are too small to do this with any degree of precision.

## 4. Returns in the LFS

The advantage of the BCS70 data is that it allows us to investigate the role of ability and family background in influencing returns. However, the sample sizes in the BCS70 are too small to provide results with any degree of precision, especially once we have limited the sample to only include those with low-level qualifications. As a result, we turn our analysis to data from the LFS. The large sample sizes available in the LFS should give us more precise estimates and will allow us to look at returns disaggregated by sector and occupation and for a wider population than one cohort.

Our earlier results showed that the inclusion of ability and family background did not have a dramatic effect on estimates of the returns to NVQ2s. In addition, our results investigating the correct comparison group for NVQ2s showed that ability and family background do not play a large role in predicting NVQ2 receipt among those with low-level qualifications. Both of these indicate that estimates based on the LFS should give us relatively unbiased results especially if we limit the sample to those with low-level other qualifications. As further justification for a move to the LFS, we present in Table 12, for men, and Table 13, for women, returns to NVQ2s for our two comparison groups including and excluding ability and family background measures. For men with no other qualifications, excluding ability and background measures slightly increases the point estimates of the return to an NVQ2. For

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<sup>7</sup> We exclude from the analysis all those for whom we have no information on both father's social class and family income.

women, with no other qualifications, excluding ability and background measures increases the point estimates quite a bit (from -5% to 1%). This indicates that for these groups excluding ability actually biases the results up -- to a greater degree for women than for men. Returns for this group estimated in the LFS will be slightly higher than they would be if we were able to include ability. This bias probably results from the fact that among the sample with no other qualifications, those who get NVQs are more able than those who do not. Among those with qualifications up to level 1, there is no difference in the estimates of returns to NVQ2s for women and slightly higher returns for men when we exclude ability and family background. Because of the larger bias in the results for individuals with no other qualifications, we will focus our discussion on returns among the population with other qualifications up to level 1. However, we will highlight the returns to those with no other qualifications when they differ from the returns for those with qualifications up to level 1.

For our analysis we pool quarterly data from the LFS from the spring 1996 through the spring 2002. We only include individuals in survey waves where respondents are asked about wages. The survey only asks respondents about wages in the first and fifth waves of the survey.<sup>8</sup> The LFS education variables differ from those available in the BCS70 in an important way. While the BCS70 is geared towards measuring all qualifications held by an individual, the LFS is more concerned with determining the highest qualification held within certain categories. For instance, while the BCS70 reports all NVQs held by an individual, the LFS only reports the highest NVQ obtained. In the BCS70, an individual with an NVQ level 1 and an NVQ level 2, would be placed in both categories, while in the LFS the same individual would only be in the NVQ2 category.<sup>9</sup> Similarly, the LFS also only asks about the highest degree obtained rather than about all degrees held. Following McIntosh, we assign a first degree to all people who report a higher degree, but do not adjust for these discrepancies in any other manner.<sup>10</sup> More detail on the composition of the qualification categories in the BCS70 and NCDS are presented in Appendix A.

In Tables 14 and 15, we report returns to an NVQ2 for men and women, respectively, for our preferred comparison groups. In these regressions, and subsequent ones using the LFS data, we also control for age, age squared, region, ethnicity, employer type and size. The coefficients on these other variables are not presented in the Tables. For men, we find zero returns for an NVQ2 for individuals with no other qualifications, and returns of -5% for individuals with qualifications up to level 1. The returns for males with qualifications up to level 1 are almost identical to the returns found in the BCS70 excluding ability and family background. However, the results are statistically significant in the LFS while they were not in the BCS. For women, we find small positive returns, of 3%, for those with an NVQ2 as their only qualification, and zero returns for those without other qualifications above level 1. These returns for women are higher than those found for the comparable sample in the BCS70. Overall, the LFS indicates that for our chosen comparison groups there are zero to positive returns for women, and zero to negative returns for men. However, our earlier results from the BCS70 indicate that these results might be biased up slightly, especially for women

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<sup>8</sup> In 1996, and prior years, wages were only asked in the fifth wave.

<sup>9</sup> According to the BCS70 data, 11% of NVQ2 holders also have an NVQ1 and 17% of NVQ1 holders also have an NVQ2. The estimated returns to NVQ2s in the LFS data also includes the returns to NVQ1s for individuals who hold both. We do not need to be concerned with individuals with NVQs above level 2 because these individuals are excluded from our comparison groups.

<sup>10</sup> We could alter our categories in the BCS to more closely parallel those reported in the LFS, but do not do so at this time. Another difference is that the LFS does not ask about scores on O-Level tests. Individuals need 5 O-Levels at grades A-C to be at academic level 2 in the BCS70, but only 5 O-Level Passes (grades A-E) to be at academic level 2 in the LFS.

with no other qualifications, because of the omission of ability and family background information.

## Industry

The principal reason we are continuing our analysis using the LFS, is that the size of the data set allows us to break the data into finer categories. We begin by looking within industrial sectors. Estimates of the return to NVQ2s for individuals with no other qualifications are presented in Table 16 for men and Table 18 for women, while the results for individuals with no other qualifications above level 1 are presented in Table 17 for men and Table 19 for women. Each column in the table represents a different regression where the sample is defined as all individuals working within that industry with who only hold other qualifications below the given maximum. The coefficients on NVQ2 can be interpreted as the return to an NVQ2 among individuals who work in that industry. The NVQ2 may also influence industry choice, something that we do not adjust for.

We start by discussing the results for women, presented in Tables 18 and 19. For women, we observe positive and significant returns to NVQ2 of 8% among workers in public administration, education and health for the group of individuals with no other qualifications, and returns of 3% among individuals with other qualifications up to level 1. (Table 18, Column 8 and Table 19, Column 8) This is the only sector with a positive and significant return for women in both tables and the sector with the largest number of NVQ2 holding women. In addition, a higher percent of women employed in this sector with low or no other qualifications have NVQ2s than in any other sector. If we look within this sector, we find that most NVQ2 holders are in the health and social work subsection, over two-thirds of the total. For those with no other qualifications, there are no other sectors where returns are significantly different from zero. For those with other qualifications up to level 1, there are also positive returns of 7% in the ‘other’ category and of -7% in banking, finance, and insurance. The positive returns in the ‘other’ category arise from returns to individuals employed in private households probably in jobs similar to those in health and social work.

For men with no other qualifications, the only sector that has a significant coefficient estimate of the returns to an NVQ2 is agriculture and fishing. The estimated return is large and negative, but the sample size is small and the standard error large. For men with other qualifications up to level 1, we find significant positive returns in the energy and water sector and significant negative returns in a number of other sectors. The largest negative returns are in Banking, Insurance and Finance, an area where we also found negative returns for women. In contrast to the results for women in public administration, education and health, men with NVQ2s and no other qualifications above level 1 have 8% lower wages than men with no qualifications above level 1. Returns for men are slightly negative and insignificant in manufacturing, the sector with the largest number of male NVQ2 holders.

Three results stand out from this analysis of returns to NVQ2s by industry. Returns to NVQ2s for men in Manufacturing are negligible (but not large and negative); returns are negative for both men and women within the Banking, Finance, and Insurance sector; women experience positive returns to NVQ2s in the large health and social work sector.



## Occupation

In Tables 20 through 23, we present returns to NVQ2s for each of the occupation groups for men and women for our two different comparison groups. We will focus our discussion on returns for those with other qualifications up to level 1 because the large sample sizes allow us to estimate the effects with a greater degree of precision. For men, we find large negative returns among the top occupations – managers and administrators, professionals, associate professionals, clerical and secretarial workers. Returns are still negative, but smaller in absolute value, among those who work in the next group of occupations – craft and related, personal and protective service, and sales. For plant and machine operatives, the least prestigious of the occupational categories, returns are positive at 5%. Most of the individuals in the plant and machine operatives category are in manufacturing. Many individuals in craft and related occupations, where estimated returns are not significantly different from zero, also work in the manufacturing sector.

For women, we also see negative returns for the most prestigious occupations -- managers and administrators, professionals, associate professionals, clerical and secretarial workers-- although the coefficients are less negative than was the case for men. Women in personal and protective service occupations experience positive returns. This is not surprising as many of these individuals work in the health and social work industry.

## Where Taken

As was shown in Table 4, individuals are more likely to receive NVQ2s through government training and through their employer than other similar qualifications. We next investigate whether the returns to NVQ2s among our chosen comparison groups differ by where the qualification was obtained. In the LFS, we only have information on the place where a survey member's highest qualification was taken. This is not a problem for our analysis because for all individuals in our comparison groups with NVQ2s, the NVQ is their only qualification at level 2 or above, and therefore is their highest qualification. In these regressions, we regress wages on a set of dummies measuring whether an individual has an NVQ2 taken exclusively at an employer, taken exclusively at a school or college, through government training, or through another means or a combination, and our usual set of controls.<sup>11</sup> The coefficient on NVQ2 at employer for the no other qualifications sample can be interpreted as the benefit of holding an NVQ2 taken at the employer relative to having no other qualifications, other things equal. These results are presented in Table 24 for men and Table 25 for women. For all four regressions in the two Tables the results are broadly similar. Returns for NVQ2s taken at the employer are the highest, followed by returns for NVQ2s at college, and returns for NVQ2s taken through government training are the lowest. Returns for qualifications taken at the employer are consistently positive. Returns for NVQs taken at college are zero for women, but large and negative for men. Returns for NVQ2s taken through government training are large and negative for women and very large and negative for men.

The finding of large negative returns to government training probably arises from negative selection into and positive selection out of government training programs rather than from harm to job prospects caused by participation in government training. Eligibility for

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<sup>11</sup> NVQs that are done jointly in college and in the workplace are included in the "other" category. In this case, employed individuals take courses at a college on day release or in the evenings and employers provide evidence on workplace skills.

government training programs is often based on the same factors that make individuals less attractive to employers, such as low skill levels, poor employment history and disability. These factors may be known to employers, but are difficult to control for. At the same time, the most able individuals in government training may be able to find jobs prior to completion of the course. This means that the individuals who stay and complete the qualification, in our case those who receive their NVQ2, are those who are the least employable.

We can get a better picture of the disadvantages of the government training sample, by looking at differences in background, ability and job history among those who completed their NVQs in different locations. To do this we return to the BCS70. Table 26 reports average characteristics of the population who took their NVQ2s at their employer's premise, at a government skill centre, and at another location (almost exclusively college), for the entire NVQ2 population, and for the population without an NVQ2. As before, individuals are defined as low ability if they score in the bottom two quintiles of any of the ability tests, as low status if their family income in 1980 was less than £100 per week or their father was partly skilled or unskilled. The table also reports the percent of time between September 1986 and October 1996 that cohort members spent in employment, education, unemployed, and in none of the above. We look at these different activities through 1996 because this mostly measures activities before the NVQ2 was taken and therefore these measures are unlikely to be heavily influenced by the effects of the NVQ2.

The level of disadvantage among the government trainees is evident from the table. Although they are not lower ability than other NVQ2 recipients, government trainees are of lower status and have spent more time out of the labour force and in unemployment. We also see from the table that the individuals who took NVQ2s through their employer had better employment histories than those who took NVQ2s at college.

We can also get a better picture of the individuals who receive NVQ2s through government training by looking at the population currently studying for a NVQ2 when they are surveyed by the LFS.<sup>12</sup> For these individuals we know whether they are on a government scheme while working towards their NVQ2 and if so which government scheme they are on. The largest proportion of individuals working towards an NVQ2 on a government scheme are in Youth Training, 40%, followed by Training for Work/Work Based Learning for Adults<sup>13</sup>, 37%, Training and Enterprise Council (TEC) or Scottish Local Enterprise Company (LEC), Schemes 11%, and Other Schemes, 20%. If we only look at the population above age twenty, 69% are in the Training for Work/Work Based Learning for Adults program. In order to be eligible for this program an individual needs to have been unemployed for at least six months. Placement priority is given to the disabled, ex-offenders and former members of HM Forces. Given these criteria, it is not surprising that individuals receiving NVQ2s through government schemes fare poorly in the labour market.

The number of individuals who participated in government training schemes in the NVQ sample can go part way to explaining the poor returns we observe among the NVQ population. However, we also see negative (for men) or zero (for women) returns for those who take an NVQ2 at college. The benefits to NVQ2 are concentrated among those who take

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<sup>12</sup> Because these individuals are asked what they are currently studying for and we use data starting from 1996, some of the programs they mention have been long discontinued.

<sup>13</sup> In England and Wales, Work-based Learning for Adults replaced Training for Work in 1998. Training for Work continued in Scotland. After 1998, the Questionnaire lumps the two programs together.

their NVQ2 exclusively through their employer. This is an important finding because the NVQ was designed as an employer centred qualification.

The results of our investigation into the returns to NVQ2s are decidedly mixed. We look at numerous possible sources of bias in previous work looking at returns to the NVQ2. We find that while previous results were biased down due to ability bias and family background bias, the magnitude of the bias was relatively small. In addition, estimated returns climb somewhat when we define what we believe to be a more accurate control group. However, even when compared with individuals with low qualifications, NVQ2 holders have equivalent or slightly lower wages.

When we break the sample into low and high status individuals and low and high ability individuals, we seem to see higher returns for the less advantaged. These low-status and low-ability individuals are potentially a more relevant group for policy makers.

In addition, when we are able to disaggregate the sample into smaller groups using the LFS, we find significant returns for some sectors of the labour force. In particular, returns are positive for women in health and social work and for male plant and machine operatives. These are among the largest groups of NVQ2 holders. We also find that returns are positive for those who procure their NVQ2 at their place of employment. This is in sharp contrast to NVQ2 holders who received government training who experience large negative returns.

Thus far, our analysis has focussed on the role of NVQ2 in raising wages. However, the NVQ2 may have other positive attributes. The NVQ2 may serve as a stepping-stone to other level 2 qualifications or to higher qualifications. It may also enhance non-wage aspects of labour market experience by increasing employment probabilities, hours of work, or fringe benefits. We next will investigate the role of the NVQ2 as a stepping-stone and then will look at whether it enhances employment probabilities.

## **5. Stepping Stone**

One problem with the method of analysis that we have used thus far is that we are only looking at individuals whose highest qualification is an NVQ2. However, if an NVQ2 is a stepping-stone to higher qualifications, we are underestimating the benefits of this qualification. Individuals who get an NVQ2 and then move on to achieve higher qualifications, possibly with substantial labour market payoffs, are omitted from our analysis. These individuals may be the most motivated of the NVQ recipients and those that have gained the most. In order to look at this potentially important issue, we look at whether individuals who receive NVQ2s are more likely than otherwise similar individuals to go on to achieve additional qualifications. Fortunately, the BCS70 contains information on the timing of receipt for nearly all qualifications allowing us to perform this analysis.

We look at whether receiving an NVQ2 in 1996 or earlier affects the probability of receiving qualifications in 1997 or later.<sup>14</sup> It should be noted that few individuals in the sample

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<sup>14</sup> Timing information is not asked for degree level qualifications, access courses, “other” vocational qualifications, and modern apprenticeships. Data on the timing of nursing and teaching qualifications is missing for most of the sample. We delete from the analysis individuals for whom we are missing timing information for their

achieve qualifications after age 27, with just eight percent of the sample earning a vocational or academic qualification at level 2 or above in 1997 or after. Table 27 shows marginal effects from a series of probit regressions estimating the effect of receiving an NVQ2 through 1996 on the probability of receiving different groups of qualifications after 1996 controlling for sex, ethnicity, ability, family background, other qualifications gained prior to 1997 and the percent of time between September 1986 and December 1996 spent in education and training, employment, unemployment, and in none of the above. It also shows the percent of the sample receiving the given qualification group after 1996. We include measures of the percent of time spent in different states in order to control for selection into the NVQ2.

We find that NVQ2s are important stepping-stones to higher levels of achievement. Other things equal, individuals with NVQ2s are four percentage points more likely to obtain an academic or vocational qualification at level 2 or above after 1996. In other words, NVQ2 receipt increases the probability of receiving a qualification at level 2 or above after 1996 from eight percent to twelve percent, other things equal. This increase breaks down into no increase in the probability of getting another level 2 qualification and a 4 percentage point increase in getting another qualification at level 3 or above. Column 3 shows that most of this arises from individuals going on to receive level 3 qualifications after 1996. If we investigate this further, we find that most of this arises from individuals moving on to vocational qualifications at level 3 (not presented). We cannot explain this result exclusively as a function of individuals going on from NVQ2 to NVQ3 as the estimated effects (not presented) remain positive and borderline significant if we exclude higher levels of NVQ from our definition of subsequent achievement.<sup>15</sup> This 4 percentage point increase is quite substantial when taken in the context of late in life achievement as only 8% of the entire sample achieves any qualification at level 2 or above after 1996.

We can also investigate who in the sample goes on, by breaking those with NVQ2s prior to 1996 into those who had no other qualifications, and those whose highest other qualification was at level 1, level 2, or levels 3 through 5. We look at the effect of being in these categories and having an NVQ2 in 1996 or earlier on the probability of going on to achieve any level 2-5 qualification after 1996. Marginal effects from probit estimates based on this breakdown are presented in Table 28. We can interpret the first row of the table as saying that individuals who have an NVQ2 and no other qualifications in 1996, are (an insignificant) 3.8% less likely to achieve a qualification at level 2 or above after 1996 than those with no qualifications in 1996. Although our sample sizes are such that we cannot estimate these effects with much precision, the point estimates suggest that individuals who already have another level 2 qualification are the most likely to continue on after receiving an NVQ2, and those also with level 1 and levels 3-5 are also more likely to move on. However, the gaining of an NVQ2 does not help those with no other qualifications move on to higher levels of attainment. This indicates that the accuracy of our estimates of returns to NVQ2s among those with no qualifications (Table 7, Column 1, and Table 8, Column 1) is not adversely affected by restricting the sample to those who do not continue on. However, our estimates of the returns to NVQ2s among those with other qualifications up to level 1 may be somewhat affected by the omission of those who continue on.

One issue with these conclusions is that this relationship may not be causal, but may arise from an increased taste for late in life qualifications. Those who are more inclined to get

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only qualification within any category. Our conclusions are not sensitive to different treatment of this missing information.

<sup>15</sup> The point estimate is almost unchanged, but the standard errors increase probably due to sample size issues.

additional qualifications after leaving school would be more likely to have achieved an NVQ2 before 1997 (but after leaving school), and also more likely to achieve an additional subsequent qualification. In other words, the NVQ2 did not help the individual move on. We cannot distinguish between this and a causal relationship.

Another way to look at the benefits to attaining an NVQ and then another higher qualification is to ask whether those who receive an NVQ2 and then continue on to receive another qualification fare better in the labour market than those who do not continue on after they receive an NVQ2. Our first set of regressions (presented in Table 5) indicated that there are positive returns to nearly all other qualifications at level 2 or above measured in the BCS70. As a result, if NVQ2 holders are similar to the average recipient of these other qualifications, we would expect that individuals who go on to achieve other qualifications after their NVQ2 would have higher wages than those who do not. We estimate the returns to qualifications obtained after 1996 among the sample that achieved an NVQ2 prior to 1997 controlling for other qualifications obtained before 1997. Results are presented in Table 29. We find large point estimates of the returns to receiving a Level 2-5 academic or vocational qualification after 1996 among those who obtained an NVQ2 before 1997, but enormous standard errors. Given that we only have wage data on 150 individuals in the sample who achieved an NVQ2 before 1997, it is not surprising that the standard errors are so large. Like others who achieve other qualifications at level 2 or above, individuals who go on to achieve other qualifications after their NVQ2 probably also receive positive returns.

We can incorporate the benefits to using the NVQ2 as a stepping-stone into our analysis of the returns to an NVQ2. To do this, we estimate returns to NVQ2s received before 1997 on wages in 2000, controlling for ability and family background, percent of time spent in different states before 1997, and other qualifications received prior to 1997, but not controlling for qualifications obtained after 1996. The return to NVQ2 in this regression captures the returns to qualifications obtained by NVQ2 recipients after 1996 if the attainment of these other qualifications was influenced by NVQ2 receipt. The return to an NVQ2 received prior to 1996 on 2000 wages is -8% for the whole sample. This is quite similar to the returns to NVQ2 receipt reported (separately for men and women) in Tables 5 and 6, Column 2. Estimates of the returns to NVQ2s received prior to 1997 for those with no qualifications and those with other qualifications up to level 1 as of 1996 are also very similar to the estimates to the returns to NVQ2s among those with low levels of qualifications as of 2000. This indicates that omitting individuals who continued on after their NVQ is not heavily influencing our estimates of returns. This is not surprising because such a small proportion of the population continued on after their NVQ. However, our earlier estimates indicate that the small number of individuals who move on after receiving an NVQ2 seem to benefit from the qualifications they obtain after their NVQ2s.

## **6. Employment Probabilities**

We can use a similar framework to that used in the previous section to ask whether achieving an NVQ2 increases the employment or unemployment probabilities of recipients. We investigate whether obtaining an NVQ2 prior to 1996 affects the probability of being employed or unemployed in 2000. We control for gender, the other qualifications held by an individual as well as the percent of time between 1986 and 1996 spent in employment, unemployment, education, and out of the labour force. We control for the time spent in each of these states in order to control for selection in to the NVQ2 program.

It is notoriously difficult to estimate employment effects for post-school qualifications because individuals who are unemployed often take courses in order to improve their employment prospects. As a result, negative effects of on employment may also be indications of negative selection into courses. This tends to bias results away from finding positive employment effects. However, because NVQs are often taken through employers, employed individuals are more likely to take them. This suggests that we might spuriously find a positive effect of the NVQ on employment if being employed leads someone to take an NVQ rather than the other way around. We minimize the effects of these two biases by looking at the effects of the NVQ on employment a number of years after it was taken. However, our results need to be taken in light of these caveats.

Marginal effects from estimates of effect of NVQ2 receipt prior to 1997 on the probability of being in employment and in ILO unemployment in 2000 are presented in Table 30. Although the point estimates suggest that having an NVQ2 prior to 1997 has a small negative effect on employment in 2000, the standard error is so enormous that we cannot put any weight on the coefficient. The coefficient on the effect of having an NVQ on unemployment is zero, but also has a huge standard error. This indicates that it is not possible to adequately access this question using the available data. Unfortunately, we do not have data on timing of the receipt of qualifications in the LFS and investigation of the effect of achieving an NVQ2 at any time on current employment is too fraught with bias to provide any insight.

## **7. Returns to Other Level 2 Vocational Qualifications**

Next we compare the returns to NVQ2s to the returns to other level 2 vocational qualifications – apprenticeships, City and Guild craft certificates, BTEC First Diplomas, RSA First Diplomas, and Intermediate General National Vocational Qualifications (GNVQs). Because most of these qualifications are not very widely held we use the LFS for this analysis. We are interested in discovering whether the low level of returns found earlier is specific to NVQ2s or common to all level 2 vocational qualifications.

To do this, we look at the returns to all level 2 vocational qualifications among those with no other qualifications and among those with other qualifications up to level 1, separately by sex. We continue to control for our usual set of LFS covariates.

We combine the results for all level 2 qualifications in one regression so the results can be interpreted as holding constant other qualifications including other level 2 vocational qualifications held. If we do the same analysis separately for each vocational level 2 qualification we get a similar set of results.

The results for these regressions are presented in Table 31 Columns 1 (for men) and 2 (for women) relative to those with no qualifications and Columns 3 (for men) and 4 (for women) for those with qualifications up to level 1. Sample sizes for each level 2 vocational qualification are presented at the bottom of each column. We can see from the table that for both men and women, there are substantial returns to nearly all other level 2 vocational qualifications. For example, men with City and Guild craft qualifications and no other qualifications, receive wages 19% higher than those with no qualifications and 13% higher if we include individuals with qualifications up to level 1 in the sample. The returns to City and Guild qualifications are lower for women, but women receive substantial returns from RSA

first diplomas and BTEC first diplomas.<sup>16</sup> The only other vocational level 2 qualification with consistently poor returns is the intermediate GNVQ.

The substantial returns to most other level 2 vocational qualifications are in stark contrast to the low or negative returns to NVQs at level 2. This disparity in returns between NVQs and other level 2 vocational qualifications could arise from two separate sources. Either there is negative selection into NVQs at level 2 relative to other level 2 qualifications or there is something inherent in the NVQ2 qualification that means it provides recipients with a lower set of skills. We look at these alternative hypotheses in turn.

In order to investigate selection into NVQ2s, we look at the probability of receiving an NVQ2 among the sample in the BCS70 who have obtained any level 2 vocational qualification. We do this in order to ask whether NVQ2 recipients are more disadvantaged. We use the BCS70 for this analysis because it allows us to investigate the role of ability and family background in selection. The results, presented in Table 32, demonstrate that individuals receiving NVQ2s are less able than the recipients of other level 2 vocational qualifications although they are from similar family backgrounds. Individuals in the bottom two quintiles of math ability are significantly more likely than those in the top ability quintile to obtain an NVQ2 rather than another level 2 vocational qualification.<sup>17</sup> This could in part explain the relatively poor returns to NVQ2s in the LFS data because we are unable to control for ability in this data source.

An additional explanation for the low returns to the NVQ2 is that the course adds less value to participants than other level 2 vocational qualifications. To explore this possibility, we use matching and estimate the returns that individuals who took other level 2 qualifications would have gotten had they gotten NVQ2s instead. To do this we use individuals who received City and Guild craft certificates as a comparison group for those who received NVQ2s. We choose City and Guild craft because it is the most popular of the level 2 vocational qualifications. The results are presented in Table 33. We find that individuals who complete NVQ2s receive wages 6% lower than they would have received had they received a City and Guild Craft instead, and that individuals who received a City and Guild Craft would have received wages 5% lower had they taken an NVQ2 instead. The similarity between these two numbers indicates that the difference in observable attributes of the NVQ2 and City and Guild recipients is not responsible for the lower returns to NVQ2 recipients. Instead, taking a NVQ2 course adds 5-6% less value than taking a City and Guild craft course.

One possible explanation for the relatively low value added by the NVQ2 is that individuals actually learn less through an NVQ2 course than through other level 2 training. If the NVQ2 is less costly to complete because it takes less time or is less demanding than other qualifications, we would expect wage effects to be lower.<sup>18</sup> The Qualifications and Curriculum Authority (QCA) has been working on a point score system based on course size and difficulty to make all qualifications comparable. If we compare the point scores given to the different level 2 vocational qualifications by the QCA, presented in Table 34, we find that NVQs are on average more demanding and difficult to complete than the other level 2 qualifications including City and Guild craft certificates. Therefore, course requirements do not

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<sup>16</sup> The finding that City and Guild qualifications are more beneficial to men and RSAs more beneficial to women is consistent with other finding in the literature including in Dearden et al and McIntosh.

<sup>17</sup> We only include math ability in these regressions in order to make the coefficients easier to interpret. Including all measures of ability yields the same conclusion.

<sup>18</sup> A calculation of net returns would require inclusion of these costs.

seem to explain the low NVQ returns. We should keep in mind that the NVQ qualifications provided a challenge to the QCA because the employer focus meant that it was difficult to determine the size of the course.

A second issue that may be affecting the returns to the NVQ2 arises from the fact that NVQ2s are more likely to be obtained through employers and the government than other qualifications in general and other level 2 vocational qualifications in particular. If employer provided and government training are less beneficial, this could explain the relatively poor performance of the NVQ2. Our earlier results on the returns to NVQ2 based on where taken do not give a clear prediction because while receipt of the NVQ2 through government training has the lowest benefit, receipt through the employer has the highest benefit.

In order to look at this issue more closely, we look at returns to a City and Guild craft qualifications by where taken. These results are presented in Table 34 for men and Table 35 for women. Although the government training samples are small, the large negative returns found are consistent with the findings for NVQ level 2. Returns are higher to women when the qualification is taken through an employer than at school. The relative magnitude of benefits to taking a city and guild at school or employer for men depends on the sample chosen. These results, combined with the earlier analysis of where NVQ2s were taken indicate that the prevalence of qualifications taken at the employer is not the source of the low relative returns for NVQ2. However, there is little question that the number of individuals obtaining NVQ2 through government training does go part way towards explaining the poor overall returns to NVQ2s.

## **8. Conclusion**

In comparison to most other qualifications that have positive labour market returns, the returns to NVQs taken at level 2 are low or negative. We have sought to explain this as a result of different potential sources of bias. We find that a couple sources of bias do influence our results. We control for ability and family background to adjust for bias resulting from the omission of these variables. We also compare NVQ2 holders to those with low or no other qualifications in order to define a more appropriate and policy relevant control group than has been used previously. However, even when we adjust our sample to maximize comparability, and control for ability and family background, we find returns that are poor or negative.

We do find benefits to NVQ2s in some samples of the population. In particular, we find returns of 8% among women who work in public administration, education and health and positive returns among individuals who receive their NVQ2s through their employer. We also find that individuals who receive NVQ2s are more likely than similar individuals without NVQ2s to move on and obtain higher qualifications. In addition, estimated benefits to NVQ2 receipt are larger among the less advantaged than the more advantaged. Similarly, based on data from the LFS, we find that individuals with no other qualifications have higher returns to NVQs than those who already have a Level 1 qualification.<sup>19</sup> However, the great majority of our findings suggest that NVQ2s offer no benefit to most recipients. These findings are in

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<sup>19</sup> As mentioned above, this may partly arise, particularly for women, from greater ability and family background bias among the sample with no other qualifications. In the BCS, we also found that returns to NVQ2s were higher for men with no qualifications than men qualified to level 1. However, sample sizes are small in the BCS.



stark contrast to our positive and significant estimates of the returns to most other level 2 vocational qualifications.

We don't really think that earning a NVQ should actively reduce earnings. This is even more so because these qualifications are often obtained while employed and at an individual's place of work. As a result, the opportunity cost to individuals is low – they are not losing beneficial experience while taking qualifications.

One potential explanation for our inability to find positive returns is that selection into the NVQ2 program is more complicated than we can capture in this analysis. NVQ2 recipients may be less able than their counterparts in ways that are not measured in the data. For instance, individuals who need to go on a course to learn a job skill may be less naturally gifted at their job than those who can do their job without training. For example, a hairdresser who needs to go on a course to learn hairdressing might have less manual dexterity or fashion sense than one who can cut hair without learning. Alternatively, a salon may only require course work of their less able hairdressers. Another related question is the level of NVQ that would be received by employed individuals who do not have NVQs had they sought to certify their skills. The vast majority of employed individuals must have some job specific competency. If these individuals are actually working at the level equivalent to an NVQ3, we would expect a negative return when we compared NVQ2 holders to them. The only way to capture all of these complicated selection effects would be to use experimental design and randomly assign individuals onto an NVQ course.

Another avenue for future research would be an investigation into the main area of positive returns in our data – women working in the health and social work subsector of the public administration, education and health sector. Many employees in this sector work in homes for older people and children. There are long standing government regulations that require that staff in these homes be adequately trained. One newer regulation, the Care Standards Act of 2000, mandates that 50% of care staff in homes for older people be trained to NVQ level 2 by 2005. (Gospel and Thompson, 2003) Given these regulations, employers have an incentive to train many of their employees to NVQ2. Relatedly, employees gain job security by receiving an NVQ2. In a recent study of skill deficiencies in the social care sector, Gospel and Thompson (2003) found that employers in the sector have been paying for training of their employees, and that employees “believe that training will create better career prospects.” Their survey also found that although training is partly certifying existing skills, new skills were also being learned.

This sector may differ from others in two major ways. First, training in this sector may be more beneficial than in other sectors in that individuals may need to learn more in their courses. Given that the government is concerned about adequate training, the courses may be more heavily monitored. Second, selection into training may be different from that in other sectors. It is unlikely that there will be negative selection into training because even the most able employees will need to be trained to progress in their jobs. We may learn from the successes in the health and social work sector. Whether these successes could be replicated in unregulated sectors depends on the nature of the findings.

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## Tables

Table 1: Definition of NVQ Levels

Levels	Definitions
Level 1	Competence which involves the application of knowledge in the performance of a range of varied work activities, most of which may be <b>routine and predictable</b> .
Level 2	Competence which involves the application of knowledge in a significant range of varied work activities, performed in a variety of contexts. <b>Some of these activities are complex or non-routine and there is some individual responsibility or autonomy</b> . <b>Collaboration</b> with others, perhaps through membership of a work group or team, may often be a requirement.
Level 3	Competences which involves the application of knowledge in a broad range of varied work activities performed in a wide variety of contexts, <b>most of which are complex and non-routine</b> . <b>There is considerable responsibility and autonomy</b> and control or guidance of others is often required.
Level 4	Competence which involves the application of knowledge in a broad range of <b>complex, technical or professional work activities</b> performed in a variety of contexts and with a <b>substantial degree of personal responsibility</b> and autonomy. <b>Responsibility for the work of others</b> and the allocation of resources is often present.
Level 5	Competence which involves the application of a range of fundamental principles across a wide and often unpredictable variety of contexts. <b>Very substantial personal autonomy and often significant responsibility for the work of others</b> and for the allocation of substantial resources features strongly, as do personal accountabilities for analysis, diagnosis, design, planning, execution and evaluation.

Source: Department for Education and Skills, “NVQ: What are NVQ’s?” Available on the Internet at <http://www.dfes.gov.uk/nvq/what.shtml>.

Table 2: Total Certificates by Framework area by 30 September 2001

	Number	%
Tending Animals, Plants and Land	91206	2.6%
Extracting and Providing Natural Resources	14259	0.4%
Construction	265404	7.6%
Engineering	362216	10.4%
Manufacturing	142404	4.1%
Transporting	62411	1.8%
Providing Goods and Services	954790	27.4%
Providing Health, Social and Protective Services	334961	9.6%
Providing Business Services	1225275	35.1%
Communicating	4599	0.1%
Developing and Extending Knowledge and Skill	31262	0.9%

Source: QCA 2002.

Table 3: NVQ2s by Industry as Compared to Workforce Jobs

	Percent of Jobs	Percent of NVQ2s
Agriculture and Fishing	2%	1%
Energy and Water	1%	1%
Manufacturing	14%	17%
Construction	6%	5%
Distribution, Hotels, and Restaurants	23%	23%
Transportation and Communication	6%	5%
Finance and Business Services	19%	10%
Public Administration, Education, and Health	23%	31%
Other Services	6%	7%

Source: Workforce jobs from National Statistics, "Workforce Jobs by Industry: 1959-2003"  
Available on the Internet at

<http://www.statistics.gov.uk/StatBase/tsdataset.asp?vlnk=495&More=N&All=Y>.

NVQs from authors' tabulations from LFS.

Table 4  
 Percent Obtaining Highest Vocational Qualification In Different Locations, 1996-2001

	College	Employer	Government	Combination/Other
<u>Qualification (Level)</u>				
NVQ Level 5 (5)	56.11	33.21	2.29	8.40
NVQ Level 4 (4)	48.13	37.07	2.38	12.41
HNC/HND (4)	86.58	3.62	0.10	9.70
RSA Higher Diploma (4)	94.85	1.47	0.37	3.31
NVQ Level 3 (3)	45.95	44.19	3.45	6.41
GNVQ Advanced (3)	95.58	2.91	0.43	1.08
RSA Advanced Diploma (3)	94.27	1.70	1.06	2.97
ONC/OND (3)	86.05	4.70	0.40	8.85
City and Guilds Advanced (3)	68.31	11.88	0.91	18.90
Trade Apprenticeship (2)	61.23	25.58	0.89	12.30
<b>NVQ Level 2 (2)</b>	<b>45.13</b>	<b>42.30</b>	<b>7.39</b>	<b>5.17</b>
GNVQ Intermediate (2)	92.01	6.57	0.71	0.71
RSA Diploma (2)	91.49	2.98	1.70	3.83
City and Guilds Craft (2)	74.99	11.82	2.82	10.37
BTEC, SCOTVEC First Diploma (2)	94.02	1.67	0.56	3.76
<b>NVQ Level 1 (1)</b>	<b>46.59</b>	<b>38.38</b>	<b>10.42</b>	<b>4.61</b>
GNVQ Foundation (1)	77.33	17.33	4.00	1.33
BTEC, SCOTVEC First Certificate (1)	80.95	12.24	1.36	5.44
SCOTVEC Modules (1)	78.17	11.64	4.37	5.82
RSA Other (1)	92.99	2.43	1.17	3.40
City and Guilds Other (1)	67.58	16.90	4.91	10.61
<b>YT, YTP Certificate</b>	<b>35.85</b>	<b>41.24</b>	<b>16.71</b>	<b>6.20</b>

Source: Authors' Tabulations from LFS

Table 5: Returns for All Qualifications for Men, With and Without Ability

	(1) Males	(2) Adding Ability and Family Background
Academic Level 1	0.029 (0.015)	0.011 (0.015)
Academic Level 2	0.162 (0.019)**	0.105 (0.019)**
Academic Level 3	0.102 (0.022)**	0.062 (0.022)**
Higher Education Diploma	0.063 (0.025)*	0.054 (0.025)*
Degree	0.167 (0.024)**	0.137 (0.025)**
Higher Degree	-0.002 (0.038)	-0.017 (0.038)
NVQ Level 1	-0.131 (0.039)**	-0.131 (0.039)**
NVQ Level 2	-0.098 (0.035)**	-0.085 (0.035)*
NVQ Level 3 or Above	0.025 (0.033)	0.008 (0.033)
GNVQ, Any Level	-0.116 (0.052)*	-0.111 (0.049)*
RSA Certificate	-0.004 (0.037)	-0.021 (0.036)
RSA Diploma	-0.131 (0.065)*	-0.138 (0.065)*
Low Level City and Guild	-0.019 (0.019)	-0.011 (0.019)
City and Guild Craft	0.038 (0.020)	0.026 (0.020)
City and Guild Advanced Craft or Above	0.076 (0.022)**	0.068 (0.022)**
BTEC First Cert. Or Diploma	0.012 (0.027)	0.010 (0.026)
BTEC or Other ONC/OND	0.095 (0.021)**	0.071 (0.020)**
BTEC or Other HNC/HND	0.075 (0.024)**	0.068 (0.023)**
Pitmans Level 1	0.075 (0.077)	0.080 (0.077)
Pitmans Level 2 or 3	0.079 (0.112)	0.048 (0.114)
Nursing or Paramedical	0.011 (0.057)	0.031 (0.057)
Teaching Qualification including PGCE	-0.197 (0.041)**	-0.196 (0.041)**
Degree Level Professional Qualification	0.140 (0.027)**	0.117 (0.026)**

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Apprenticeship, but no other Vocational	0.112 (0.041)**	0.101 (0.039)*
Only Vocational is Other	0.040 (0.024)	0.031 (0.023)
Vocational, but Level is Unknown	-0.018 (0.044)	-0.026 (0.044)
Observations	3928	3928
R-squared	0.22	0.26
F test: Ability		7.37
Prob>F: Ability		0.00
F test: Family Background		3.46
Prob>F: Family Background		0.00
Robust standard errors in parentheses		
* significant at 5%; ** significant at 1%		

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Table 6: Returns for All Qualifications for Women, With and Without Ability

	(1) Females	(2) Adding Ability and Family Background
Academic Level 1	-0.000 (0.018)	-0.011 (0.018)
Academic Level 2	0.146 (0.020)**	0.096 (0.021)**
Academic Level 3	0.119 (0.020)**	0.094 (0.020)**
Higher Education Diploma	0.082 (0.026)**	0.079 (0.026)**
Degree	0.132 (0.023)**	0.091 (0.023)**
Higher Degree	0.055 (0.034)	0.039 (0.033)
NVQ Level 1	-0.048 (0.043)	-0.042 (0.044)
NVQ Level 2	-0.087 (0.026)**	-0.074 (0.027)**
NVQ Level 3 or Above	0.036 (0.029)	0.029 (0.029)
GNVQ, Any Level	-0.038 (0.065)	-0.065 (0.054)
RSA Certificate	0.037 (0.018)*	0.027 (0.018)
RSA Diploma	0.067 (0.026)*	0.057 (0.026)*
Low Level City and Guild	-0.050 (0.026)	-0.053 (0.025)*
City and Guild Craft	-0.069 (0.029)*	-0.069 (0.029)*
City and Guild Advanced Craft or Above	0.020 (0.036)	0.029 (0.038)
BTEC First Cert. Or Diploma	0.032 (0.025)	0.030 (0.025)
BTEC or Other ONC/OND	0.108 (0.026)**	0.089 (0.026)**
BTEC or Other HNC/HND	0.051 (0.028)	0.050 (0.027)
Pitmans Level 1	0.058 (0.027)*	0.045 (0.027)
Pitmans Level 2 or 3	0.083 (0.032)**	0.091 (0.032)**
Nursing or Paramedical	0.215 (0.026)**	0.201 (0.027)**
Teaching Qualification including PGCE	-0.005 (0.028)	-0.007 (0.028)
Degree Level Professional Qualification	0.210 (0.024)**	0.186 (0.024)**



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Apprenticeship, but no other Vocational	-0.062	-0.080
	(0.136)	(0.132)
Only Vocational is Other	0.046	0.034
	(0.027)	(0.026)
Vocational, but Level is Unknown	0.021	0.025
	(0.047)	(0.046)
Observations	3687	3687
R-squared	0.25	0.28
F test: Ability		6.88
Prob>F: Ability		0.00
F test: Family Background		2.99
Prob>F: Family Background		0.00
Robust standard errors in parentheses		
* significant at 5%; ** significant at 1%		

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Table 7: Returns to NVQ2 for Men, Selected Comparison Groups

	(1) No Quali- fications or NVQ2 Only	(2) No Qualifica- tions, Level 1 Qualifications, or NVQ2 only level 2 Qualifi- cation	(3) No Academic Qualifications	(4) No Aca- demic Qualifica- tions above Level 1	(5) Full Sample
NVQ Level 2	0.030 (0.076)	-0.063 (0.045)	-0.066 (0.056)	-0.091 (0.035)**	-0.114 (0.035)**
Any Aca- demic Level 1		0.016 (0.022)		0.009 (0.016)	0.015 (0.015)
Any Voca- tional Level 1		-0.004 (0.021)	-0.002 (0.025)	-0.016 (0.016)	-0.006 (0.014)
Any Voca- tional Level 2			0.040 (0.028)	0.044 (0.018)*	0.026 (0.017)
Any Voca- tional Level 3			0.110 (0.031)**	0.104 (0.020)**	0.068 (0.016)**
Any Voca- tional Level 4			0.085 (0.043)	0.105 (0.030)**	0.028 (0.020)
Any Voca- tional Level 5			0.150 (0.072)*	0.133 (0.064)*	0.068 (0.025)**
Any Aca- demic Level 2					0.115 (0.019)**
Any Aca- demic Level 3					0.056 (0.022)*
Any Aca- demic Level 4					0.127 (0.021)**
Any Aca- demic Level					-0.000

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					(0.037)
Observations	393	1327	1037	2215	3928
R-squared	0.26	0.16	0.18	0.17	0.24
F test: Ability	1.84	3.28	3.71	4.96	7.53
Prob>F:	0.03	0.00	0.00	0.00	0.00
Ability					
F test: Family Background	3.05	2.81	3.01	3.04	3.50
Prob>F:	0.00	0.00	0.00	0.00	0.00
Family Background					
Number with NVQ2	23	65	46	109	143

Robust standard errors in parentheses

\* significant at 5%; \*\* significant at 1%

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Table 8: Returns to NVQ2 for Women, Selected Comparison Groups

	(1) No Quali- fications or NVQ2 Only	(2) No Qualifications, Level 1 Qualifica- tions, or NVQ2 only level 2 Quali- fication	(3) No Aca- demic Qualifica- tions	(4) No Academic Qualifications above Level 1	(5) Full Sam- ple
NVQ Level 2	-0.046 (0.065)	-0.044 (0.038)	-0.080 (0.049)	-0.077 (0.030)*	-0.095 (0.026)**
Any Academic Level 1		-0.006 (0.024)		-0.006 (0.019)	-0.008 (0.018)
Any Voca- tional Level 1		0.036 (0.023)	0.020 (0.028)	0.047 (0.018)*	0.019 (0.014)
Any Voca- tional Level 2			-0.023 (0.039)	0.010 (0.024)	0.003 (0.018)
Any Voca- tional Level 3			0.096 (0.050)	0.096 (0.027)**	0.060 (0.018)**
Any Voca- tional Level 4			0.163 (0.055)**	0.177 (0.031)**	0.118 (0.017)**
Any Voca- tional Level 5			0.215 (0.106)*	0.165 (0.071)*	0.106 (0.022)**
Any Academic Level 2					0.107 (0.021)**
Any Academic Level 3					0.084 (0.020)**
Any Academic Level 4					0.103 (0.019)**
Any Academic Level 5					0.038 (0.033)
Observations	380	1330	795	1878	3687
R-squared	0.25	0.15	0.21	0.17	0.27
F test: Ability	3.34	3.71	2.83	4.72	7.45
Prob>F: Abil- ity	0.00	0.00	0.00	0.00	0.00
F test: Family Background	1.39	2.11	1.77	1.74	3.05
Prob>F: Fam- ily Back- ground	0.13	0.00	0.03	0.03	0.00

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Number with NVQ2	26	72	45	111	158
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Robust standard errors in parentheses  
\* significant at 5%; \*\* significant at 1%

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Table 9: The Probability of Receiving an NVQ2

	(1) Full Sample: Probability of Receiving NVQ2	(2) Up to Level 2: Probability of Receiving NVQ2	(3) Up to Level 1, or NVQ2: Probabil- ity of Receiving NVQ2	(4) No Qualifications or NVQ2: Prob- ability of Receiving NVQ2
Observations	10610	5537	3990	1285
Chi2 test: Ability	38.21	21.88	17.61	18.56
Prob>Chi2: Ability	0.00	0.11	0.28	0.23
Chi2 test: Family Background	20.19	14.09	17.17	9.79
Prob>Chi2: Family Background	0.32	0.72	0.44	0.83
Likelihood Ratio	143.60	88.75	77.49	53.71
Prob>Chi2: LR	0.00	0.00	0.01	0.23
Number with NVQ2	413	256	194	70

p values in parentheses  
\* significant at 5%; \*\* significant at 1%  
Other Controls: Region, gender, ethnicity

Table 10: Returns by Ability Level

	(1) Low Ability, No Qualifica- tions or NVQ2 only	(2) High Ability, No Qualifications or NVQ2 only	(3) Low Ability, No Qualifications, Level 1 Qualifica- tions, or NVQ2 only level 2 Quali- fication	(4) High Ability, No Qualifications, Level 1 Qualifica- tions, or NVQ2 only level 2 Quali- fication
NVQ Level 2	0.055 (0.055)	-0.300 (0.112)**	-0.029 (0.032)	-0.135 (0.060)*
Any Academic Level 1			0.021 (0.018)	-0.036 (0.033)
Any Voca- tional Level 1			0.036 (0.018)*	-0.010 (0.031)
Observations	613	160	1979	678
R-squared	0.20	0.48	0.14	0.21
Number with NVQ2	40	9	104	33
Robust standard errors in parentheses				
* significant at 5%; ** significant at 1%				
Low ability is defined as being in bottom 2 quintiles on any ability test				

Table 11: Returns by Family Background

	(1) Low Status Family, No Qualifications or NVQ2 only	(2) High Status Family, No Qualifications or NVQ2 only	(3) Low Status Family, No Qualifications, Level 1 Qualifications, or NVQ2 only level 2 Qualification	(4) High Status Family, No Qualifications, Level 1 Qualifications, or NVQ2 only level 2 Qualification
NVQ Level 2	0.078 (0.080)	-0.077 (0.080)	-0.004 (0.048)	-0.105 (0.043)*
Any Academic Level 1			0.022 (0.025)	0.018 (0.025)
Any Vocational Level 1			0.043 (0.024)	-0.014 (0.024)
Observations	371	311	1129	1227
R-squared	0.27	0.21	0.13	0.11
Number with NVQ2	16	26	60	59

Robust standard errors in parentheses  
\* significant at 5%; \*\* significant at 1%  
Low status family is defined as father unskilled or partly skilled or income below £100/week at 10



Table 12: Returns for Men for Selected Comparison Groups with and without Ability and Family Background Measures – Justifying move to LFS

	(1) Males: No Qualifications or NVQ2 Only, Including Ability & Family	(2) Males: No Qualifications or NVQ2 Only, Excluding Ability & Family	(3) Males: No Qualifications, Level 1, or NVQ2 Only, Including Ability & Family	(4) Males: No Qualifications, Level 1, or NVQ2 Only, Excluding Ability & Family
NVQ Level 2	0.030 (0.076)	0.040 (0.080)	-0.063 (0.045)	-0.052 (0.045)
Any Academic Level 1			0.016 (0.022)	0.043 (0.021)*
Any Vocational Level 1			-0.004 (0.021)	-0.000 (0.021)
Observations	393	393	1327	1327
R-squared	0.26	0.13	0.16	0.09
Robust standard errors in parentheses * significant at 5%; ** significant at 1%				

Table 13: Returns for Women for Selected Comparison Groups with and without Ability and Family Background Measures – Justifying move to LFS

	(1) Females: No Qualifications or NVQ2 Only, Including Ability & Family	(2) Females: No Qualifications or NVQ2 Only, Excluding Ability & Family	(3) Females: No Qualifications, Level 1, or NVQ2 Only, Including Ability & Family	(4) Females: No Qualifications, Level 1, or NVQ2 Only, Excluding Ability & Family
NVQ Level 2	-0.046 (0.065)	0.008 (0.066)	-0.044 (0.038)	-0.045 (0.037)
Any Academic Level 1			-0.006 (0.024)	0.007 (0.024)
Any Vocational Level 1			0.036 (0.023)	0.065 (0.024)**
Observations	380	380	1330	1330
R-squared	0.25	0.16	0.15	0.09
Robust standard errors in parentheses * significant at 5%; ** significant at 1%				

Table 14: Returns to NVQ2 for Men in the LFS, Selected Comparison Groups

	(1) No Qualifications or NVQ2 Only	(2) No Qualifications, Level 1 Qualifica- tions, or NVQ2 only level 2 Qualification
NVQ Level 2	-0.002 (0.016)	-0.054 (0.009)**
Academic Level 1		0.134 (0.005)**
Vocational Level 1		0.069 (0.004)**
Observations	19526	61380
R-squared	0.10	0.15
Number with NVQ2	814	2370
Robust standard errors in parentheses		
* significant at 5%; ** significant at 1%		

Table 15: Returns to NVQ2 for Women in the LFS, Selected Comparison Groups

	(1) No Qualifications or NVQ2 Only	(2) No Qualifications, Level 1 Qualifica- tions, or NVQ2 only level 2 Qualification
NVQ Level 2	0.033 (0.011)**	-0.008 (0.007)
Academic Level 1		0.103 (0.004)**
Vocational Level 1		0.089 (0.003)**
Observations	26998	80587
R-squared	0.08	0.12
Number with NVQ2	1336	4082
Robust standard errors in parentheses		
* significant at 5%; ** significant at 1%		

Table 16: Returns for Men with No Other Qualifications (No Qualifications or NVQ2 Only), By Industry

	(1) Agriculture and fishing	(2) Energy and water	(3) Manufacturing	(4) Construction	(5) Distribution, ho- tels and restau- rants	(6) Transportation and Communication	(7) Banking, Finance and Insurance	(8) Public administra- tion, education and health	(9) Other ser- vices
NVQ Level 2	-0.263 (0.106)*	0.072 (0.062)	0.023 (0.023)	-0.012 (0.056)	-0.030 (0.041)	0.044 (0.037)	-0.066 (0.075)	0.060 (0.045)	-0.057 (0.109)
Observations	492	305	7213	1807	3548	2106	1433	1649	959
R-squared	0.14	0.15	0.10	0.16	0.10	0.12	0.12	0.09	0.11
Number with NVQ2	14	21	284	69	136	73	58	122	36

Robust standard errors in parentheses  
\* significant at 5%; \*\* significant at 1%

Table 17: Returns for Men with Qualifications up to Level 1 (No Qualifications, Level 1 Qualifications, or NVQ2 only Level 2), By Industry

	(1) Agriculture and fishing	(2) Energy and water	(3) Manufactur- ing	(4) Construction	(5) Distribution, ho- tels and restau- rants	(6) Transportation and Communi- cation	(7) Banking, Fi- nance and Insurance	(8) Public admini- stration, edu- cation and health	(9) Other services
NVQ Level 2	-0.064 (0.072)	0.123 (0.049)*	-0.019 (0.015)	-0.040 (0.031)	-0.046 (0.020)*	-0.038 (0.023)	-0.143 (0.040)**	-0.083 (0.029)**	-0.072 (0.051)
Academic Level 1	0.092 (0.032)**	0.012 (0.039)	0.131 (0.008)**	0.091 (0.015)**	0.151 (0.011)**	0.112 (0.012)**	0.155 (0.020)**	0.193 (0.015)**	0.080 (0.025)**
Vocational Level 1	0.094 (0.030)**	0.047 (0.034)	0.041 (0.007)**	0.077 (0.013)**	0.057 (0.010)**	0.047 (0.011)**	0.172 (0.018)**	0.139 (0.014)**	0.078 (0.021)**
Observations	1275	998	19505	5110	11335	8804	5296	6211	2801
R-squared	0.16	0.13	0.14	0.19	0.17	0.12	0.20	0.20	0.14
Number with NVQ2	42	43	749	217	501	202	172	321	121

Robust standard errors in parentheses  
\* significant at 5%; \*\*significant at 1%

Table 18: Returns for Women with No Other Qualifications (No Qualifications or NVQ2 Only), By Industry

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Agriculture and fishing	Energy and water	Manufacturing	Construction	Distribution, hotels and restaurants	Transportation and Communication	Banking, Finance and Insurance	Public administration, education and health	Other services
NVQ Level 2	-0.043 (0.143)	0.000 (0.000)	0.024 (0.048)	0.163 (0.117)	0.025 (0.017)	-0.100 (0.055)	0.093 (0.050)	0.075 (0.016)**	0.060 (0.052)
Observations	206	56	4925	299	8384	842	2489	8169	1625
R-squared	0.15	0.35	0.06	0.16	0.08	0.18	0.14	0.10	0.13
Number with NVQ2	2	0	135	7	350	31	60	685	66

Robust standard errors in parentheses  
\* significant at 5%; \*\* significant at 1%

Table 19: Returns for Women with Qualifications up to Level 1 (No Qualifications, Level 1 Qualifications, or NVQ2 only Level 2), By Industry

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Agriculture and fishing	Energy and water	Manufacturing	Construction	Distribution, hotels and restaurants	Transportation and Communication	Banking, Finance and Insurance	Public administration, education and health	Other services
NVQ Level 2	0.043 (0.103)	-0.118 (0.086)	-0.004 (0.022)	-0.029 (0.055)	0.013 (0.011)	-0.067 (0.038)	-0.066 (0.025)**	0.031 (0.010)**	0.066 (0.027)*
Academic Level 1	0.034 (0.061)	0.114 (0.051)*	0.104 (0.010)**	0.036 (0.037)	0.058 (0.006)**	0.103 (0.018)**	0.118 (0.011)**	0.085 (0.006)**	0.133 (0.017)**
Vocational Level 1	0.186 (0.048)**	0.084 (0.043)	0.106 (0.008)**	0.048 (0.035)	0.051 (0.006)**	0.073 (0.017)**	0.126 (0.010)**	0.091 (0.005)**	0.057 (0.015)**
Observations	506	340	11714	1190	22700	3143	10129	26400	4438
R-squared	0.17	0.28	0.11	0.10	0.09	0.15	0.19	0.13	0.21
Number with NVQ2	15	13	445	47	1095	142	348	1730	247

Robust standard errors in parentheses  
\*significant at 5%;\*\*significant at 1%

Table 20: Returns for Men with No Other Qualifications (No Qualifications or NVQ2 Only), By Occupation

	(1) Managers and administrators	(2) Professional	(3) Associate professional	(4) Clerical and secretarial	(5) Craft and related	(6) Personal and protective service	(7) Sales	(8) Plant and machine operatives	(9) Other
NVQ Level 2	-0.192 (0.082)*	-0.293 (0.170)	-0.051 (0.091)	-0.022 (0.056)	-0.020 (0.039)	0.018 (0.037)	-0.192 (0.070)**	0.065 (0.027)*	0.040 (0.038)
Observations	1716	143	456	1411	3720	1465	832	5514	4261
R-squared	0.18	0.35	0.11	0.14	0.15	0.21	0.12	0.08	0.10
Number with NVQ2	43	12	25	67	181	102	30	231	122

Robust standard errors in parentheses  
\* significant at 5%; \*\* significant at 1%

Table 21: Returns for Men with Qualifications up to Level 1 (No Qualifications, Level 1 Qualifications, or NVQ2 only Level 2), By Occupation

	(1) Managers and administrators	(2) Professional	(3) Associate professional	(4) Clerical and secretarial	(5) Craft and related	(6) Personal and protective service	(7) Sales	(8) Plant and machine operatives	(9) Other
NVQ Level 2	-0.177 (0.037)**	-0.223 (0.082)**	-0.159 (0.042)**	-0.097 (0.027)**	-0.027 (0.020)	-0.062 (0.024)**	-0.083 (0.036)*	0.050 (0.018)**	-0.021 (0.024)
Academic Level 1	0.031 (0.014)*	-0.104 (0.034)**	0.014 (0.023)	0.100 (0.013)**	0.109 (0.010)**	0.158 (0.015)**	0.129 (0.022)**	0.088 (0.008)**	0.086 (0.011)**
Vocational Level 1	0.039 (0.013)**	0.112 (0.041)**	0.048 (0.021)*	0.027 (0.012)*	0.055 (0.009)**	0.087 (0.013)**	0.071 (0.020)**	0.029 (0.007)**	0.027 (0.009)**
Observations	7302	1116	2752	5295	10202	4903	2845	17388	9558
R-squared	0.19	0.21	0.13	0.17	0.19	0.32	0.15	0.08	0.11
Number with NVQ2	145	33	93	253	536	273	145	539	351

Robust standard errors in parentheses  
\*significant at 5%;\*\*significant at 1%

Table 22: Returns for Women with No Other Qualifications (No Qualifications or NVQ2 only), By Occupation

	(1) Managers and administrators	(2) Professional	(3) Associate pro- fessional	(4) Clerical and secretarial	(5) Craft and related	(6) Personal and protective ser- vice	(7) Sales	(8) Plant and ma- chine opera- tives	(9) Other
NVQ Level 2	-0.033 (0.049)	-0.010 (0.150)	-0.143 (0.047)**	-0.002 (0.035)	-0.034 (0.081)	0.049 (0.017)**	0.055 (0.022)*	-0.035 (0.050)	-0.011 (0.035)
Observations	1230	110	532	4171	1348	5330	4614	3021	6637
R-squared	0.12	0.28	0.14	0.09	0.11	0.15	0.10	0.07	0.08
Number with NVQ2	51	16	61	153	40	586	224	97	108

Robust standard errors in parentheses  
\* significant at 5%; \*\* significant at 1%

Table 23: Returns for Women with Qualifications up to Level 1 (No Qualifications, Level 1 Qualifications, or NVQ2 only Level 2), By Occupation

	(1) Managers and administrators	(2) Professional	(3) Associate pro- fessional	(4) Clerical and secretarial	(5) Craft and re- lated	(6) Personal and protective service	(7) Sales	(8) Plant and ma- chine opera- tives	(9) Other
NVQ Level 2	-0.065 (0.029)*	-0.049 (0.081)	-0.119 (0.028)**	-0.089 (0.013)**	-0.041 (0.049)	0.043 (0.011)**	0.010 (0.013)	-0.012 (0.028)	0.012 (0.022)
Academic Level 1	0.042 (0.017)*	-0.082 (0.043)	-0.011 (0.020)	0.056 (0.006)**	0.063 (0.022)**	0.053 (0.008)**	0.054 (0.008)**	0.068 (0.012)**	0.033 (0.008)**
Vocational Level 1	0.050 (0.015)**	0.158 (0.054)**	0.059 (0.019)**	0.039 (0.006)**	0.045 (0.019)*	0.037 (0.007)**	0.041 (0.007)**	0.019 (0.010)	0.008 (0.007)
Observations	5373	896	3032	21636	2663	15934	12072	5908	13061
R-squared	0.14	0.17	0.17	0.11	0.10	0.15	0.10	0.07	0.07
Number with NVQ2	205	35	194	984	103	1387	687	208	279

Robust standard errors in parentheses  
\* significant at 5%; \*\* significant at 1%

Table 24: Returns for Men, by Where NVQ2 Taken

	(1) Determinants of Wages for Men with No Qualifica- tions or NVQ2 Only	(2) Determinants of Wages for Men with No Quali- fications, Level 1 Quali- fications, or NVQ2 only level 2 Qualification
NVQ2 Obtained at College	-0.081 (0.036)*	-0.116 (0.020)**
NVQ2 Obtained at Employer	0.069 (0.022)**	0.018 (0.016)
NVQ2 Obtained thru Government Training	-0.252 (0.065)**	-0.225 (0.035)**
NVQ2 Obtained Other Way or Don't Know	-0.070 (0.058)	-0.085 (0.026)**
Academic Level 1		0.135 (0.005)**
Vocational Level 1		0.069 (0.004)**
Observations	19309	60698
R-squared	0.10	0.15
Number NVQ2 School Only	143	512
Number NVQ2 Employer	312	698
Number NVQ2 Government Train- ing	57	150
Number NVQ2 Other or Unknown	85	328
Robust standard errors in parentheses		
* significant at 5%; ** significant at 1%		



Table 25: Returns for Women, by Where NVQ2 Taken

	(1) Determinants of Wages for Women with No Qualifica- tions or NVQ2 Only	(2) Determinants of Wages for Women with No Qualifications, Level 1 Qualifications, or NVQ2 only level 2 Qualification
NVQ2 Obtained at College	0.002 (0.022)	-0.009 (0.011)
NVQ2 Obtained at Employer	0.058 (0.017)**	0.017 (0.011)
NVQ2 Obtained thru Government Training	-0.125 (0.143)	-0.166 (0.046)**
NVQ2 Obtained Other Way or Don't Know	0.054 (0.028)	-0.019 (0.016)
Academic Level 1		0.103 (0.004)**
Vocational Level 1		0.090 (0.003)**
Observations	26703	79732
R-squared	0.08	0.12
Number NVQ2 School Only	243	1145
Number NVQ2 Employer	576	1323
Number NVQ2 Government Training	19	121
Number NVQ2 Other or Unknown	203	638
Robust standard errors in parentheses		
* significant at 5%; ** significant at 1%		

Table 26: Characteristics of the NVQ2 Population Based on Where NVQ2 Taken

	Employer	Gov Training	School	Any NVQ2	No NVQ2
Low Ability	66.5%	68.0%	71.0%	68.8%	59.3%
Low Status Family	47.2%	56.5%	45.6%	46.5%	39.1%
Female	55.1%	31.0%	54.9%	53.7%	51.3%
% of Months Unemployed 1986-96	1.8%	12.5%	6.4%	4.9%	3.2%
% of Months in Education, 1986-96	8.4%	19.2%	16.4%	13.3%	18.2%
% of Months in Employment, 1986-96	86.2%	52.2%	67.5%	74.2%	71.3%
% of Months None of Above, 1986-96	3.5%	16.1%	9.8%	7.6%	7.3%

Table 27: The Probability of Receiving Qualifications (Academic or Vocational) after 1996

	(1) Probability of receiving level 2-5 after 1996	(2) Probability of receiving level 2 after 1996	(3) Probability of receiving level 3 after 1996	(4) Probability of receiving level 4-5 after 1996
NVQ2 1996 or Earlier	0.043 (0.025)*	0.001 (0.853)	0.030 (0.006)**	0.009 (0.454)
Acad Lev 1 1996 or Earlier	-0.013 (0.071)	-0.004 (0.206)	0.003 (0.495)	-0.015 (0.001)**
Acad Lev 2 1996 or Earlier	0.033 (0.000)**	0.025 (0.000)**	0.005 (0.312)	0.004 (0.405)
Acad Lev 3 1996 or Earlier	-0.004 (0.671)	-0.005 (0.161)	-0.013 (0.006)**	0.010 (0.080)
Acad Lev 4 1996 or Earlier	0.012 (0.187)	0.000 (0.937)	0.007 (0.265)	0.003 (0.532)
Acad Lev 5 1996 or Earlier	-0.002 (0.912)	-0.006 (0.511)	0.016 (0.238)	-0.008 (0.346)
Vocat Lev 1 1996 or Earlier	-0.001 (0.927)	0.001 (0.843)	-0.001 (0.686)	0.004 (0.329)
Vocat Lev 2 1996 or Earlier	0.009 (0.248)	0.002 (0.556)	0.006 (0.191)	0.004 (0.440)
Vocat Lev 3 1996 or Earlier	0.018 (0.025)*	0.002 (0.470)	0.002 (0.650)	0.014 (0.007)**
Vocat Lev 4 1996 or Earlier	0.027 (0.011)*	-0.010 (0.011)*	0.001 (0.864)	0.029 (0.000)**
Vocat Lev 5 1996 or Earlier	-0.035 (0.037)*	0.005 (0.636)	0.004 (0.779)	-0.024 (0.002)**
Observations	8612	8612	8612	8612
Percent Obtaining Qualifi- cation after 1996	8.1	1.9	2.7	4.2

p values in parentheses

\* significant at 5%; \*\* significant at 1%

Table 28: The Probability of Receiving Qualifications after 1996, By Qualifications Before 1996

	Probability of receiving Acad or Vocat 2-5 after 1996
NVQ2 and No Other Qualifications, 1996 or Earlier	-0.038 (0.379)
NVQ2 and Level 1 Highest Other, 1996 or Earlier	0.050 (0.152)
NVQ2 and Level 2 Highest Other, 1996 or Earlier	0.070 (0.109)
NVQ2 and Level 3-5, 1996 or Earlier	0.061 (0.071)
Academic Level 1 1996 or Earlier	-0.014 (0.049)*
Academic Level 2 1996 or Earlier	0.032 (0.000)**
Academic Level 3 1996 or Earlier	-0.004 (0.670)
Academic Level 4 1996 or Earlier	0.012 (0.190)
Academic Level 5 1996 or Earlier	-0.002 (0.914)
Vocational Level 1 1996 or Earlier	-0.001 (0.858)
Vocational Level 2 1996 or Earlier	0.008 (0.294)
Vocational Level 3 1996 or Earlier	0.017 (0.031)*
Vocational Level 4 1996 or Earlier	0.027 (0.011)*
Vocational Level 5 1996 or Earlier	-0.035 (0.037)*
Observations	8612
Number NVQ2 Only	39
Number NVQ2 and Level 1 Highest Other	73
Number NVQ2 and Level 2 Highest Other	42
Number NVQ2 and Level 3-5	60
p values in parentheses	
* significant at 5%; ** significant at 1%	

Table 29: Returns to Subsequent Qualifications Among the NVQ2 Sample

	Returns for Those with NVQ2 Before 1996
Academic Level 1 After 1996	-0.004 (0.218)
Vocational Level 1 After 1996	-0.134 (0.184)
Academic or Vocational 2-5 After 1996	0.097 (0.134)
Academic Level 1 1996 or Earlier	-0.006 (0.070)
Academic Level 2 1996 or Earlier	0.134 (0.136)
Academic 3-5 1996 or Earlier	0.077 (0.267)
Vocational Level 1 1996 or Earlier	-0.014 (0.085)
Vocational Level 2 1996 or Earlier	0.167 (0.094)
Vocational Level 3-5 1996 or Earlier	0.007 (0.085)
Observations	150
R-squared	0.50
F test: Ability	1.18
Prob>F: Ability	0.30
F test: Family Background	1.05
Prob>F: Family Background	0.42
Robust standard errors in parentheses	
* significant at 5%; ** significant at 1%	

Table 30: The Effect of NVQ2 Pre-1996 Receipt on Employment Status in 2000

	(1) Probability of Being Employed in 2000	(2) Probability of Being Unemployed in 2000
NVQ2 1996 or Earlier	-0.033 (0.213)	0.001 (0.900)
Academic Level 1 1996 or Earlier	0.029 (0.002)**	-0.005 (0.085)
Academic Level 2 1996 or Earlier	0.037 (0.002)**	-0.009 (0.031)*
Academic Level 3 1996 or Earlier	0.018 (0.256)	-0.009 (0.085)
Academic Level 4 1996 or Earlier	0.044 (0.004)**	-0.006 (0.280)
Academic Level 5 1996 or Earlier	0.012 (0.727)	0.009 (0.462)
Vocational Level 1 1996 or Earlier	0.004 (0.613)	-0.000 (0.882)
Vocational Level 2 1996 or Earlier	0.025 (0.033)*	-0.001 (0.783)
Vocational Level 3 1996 or Earlier	0.034 (0.005)**	-0.011 (0.008)**
Vocational Level 4 1996 or Earlier	0.026 (0.132)	0.004 (0.527)
Vocational Level 5 1996 or Earlier	0.026 (0.434)	0.002 (0.900)
Observations	8612	8612

Robust p values in parentheses  
\* significant at 5%; \*\* significant at 1%

Table 31: Returns for All Vocational Level 2 Qualifications

	(1) Males: Nothing or Level 2 Vocational Only	(2) Females: Nothing or Level 2 Vocational Only	(3) Males: Nothing Level 1, or Vocation Level 2	(4) Females: Nothing, Level 1, or Vocational Level 2
NVQ Level 2	-0.029 (0.016)	0.028 (0.011)*	-0.060 (0.009)**	-0.011 (0.006)
BTEC First Diploma	0.204 (0.066)**	0.128 (0.080)	0.074 (0.024)**	0.062 (0.020)**
City and Guild Craft	0.186 (0.008)**	0.053 (0.017)**	0.129 (0.006)**	0.029 (0.011)**
RSA First Diploma	0.088 (0.070)	0.196 (0.031)**	-0.017 (0.068)	0.162 (0.020)**
Apprenticeship Only	0.142 (0.007)**	0.050 (0.011)**	0.109 (0.005)**	0.014 (0.008)
Intermediate GNVQ	0.027 (0.082)	-0.123 (0.066)	-0.034 (0.022)	-0.088 (0.021)**
Academic Level 1			0.123 (0.004)**	0.102 (0.004)**
Vocational Level 1			0.062 (0.004)**	0.085 (0.003)**
Observations	30870	29583	83967	86618
R-squared	0.12	0.09	0.15	0.12
Number with NVQ2	955	1414	2818	4434
Number with BTEC Diploma	38	50	380	520
Number with C&G Craft	3603	566	8132	1817
Number with RSA First Diploma	30	167	88	480
Number with Apprenticeship Only	7669	1777	13714	2854
Number with Intermediate GNVQ	31	34	389	411

Robust standard errors in parentheses  
\* significant at 5%; \*\* significant at 1%

Table 32: Comparison between NVQ2 Holders and Others With Vocational Level 2

	Sample with Vocational 2: Probability of Receiving NVQ2
Math Ability at 10 Bottom Quintile	0.124 (0.008)**
Math Ability at 10 Second Quintile	0.121 (0.006)**
Math Ability at 10 Middle Quintile	0.045 (0.299)
Math Ability at 10 Fourth Quintile	0.044 (0.323)
Math Ability at 10 Missing	0.046 (0.276)
Observations	1793
Chi2 test: Math Ability	14.21
Prob>Chi2: Math Ability	0.01
Chi2 test: Family Background	16.63
Prob>Chi2: Family Background	0.55
Number with NVQ2	413
p values in parentheses	
* significant at 5%; ** significant at 1%	
Other Controls: Region and Ethnicity	

Table 33: Returns to NVQ2s Compared to City and Guild Craft

	Coefficient	Std. Error
Returns to NVQ2 Among NVQ2 Recipients (Average Treatment on the Treated)	-0.060	(0.042)
Returns to NVQ2 Among City and Guild Craft Recipients (Average Treatment on the Untreated)	-0.052	(0.055)

(Standard Errors are Bootstrapped)

Table 34: QCA Tentative Point Scores for Different Qualifications

		Point Score
NVQ2	Group A (e.g. Administration)	196
NVQ2	Group B (e.g. Hairdressing)	245
NVQ2	Group C (e.g. Care)	294
	Average	266
BTEC First Diploma	Distinction	220
	Merit	196
	Pass	160
City and Guild Level 2	Range	10-368
	Average	134
RSA First Diploma (Now OCR)	Certificate in Administration	138
	Certificate in Teaching Exercise and Fitness	46
	Diploma in Administration	184
Intermediate GNVQ	Distinction	220
	Merit	184
	Pass	160



Table 35: Returns for Men, by Where City and Guild Craft Taken

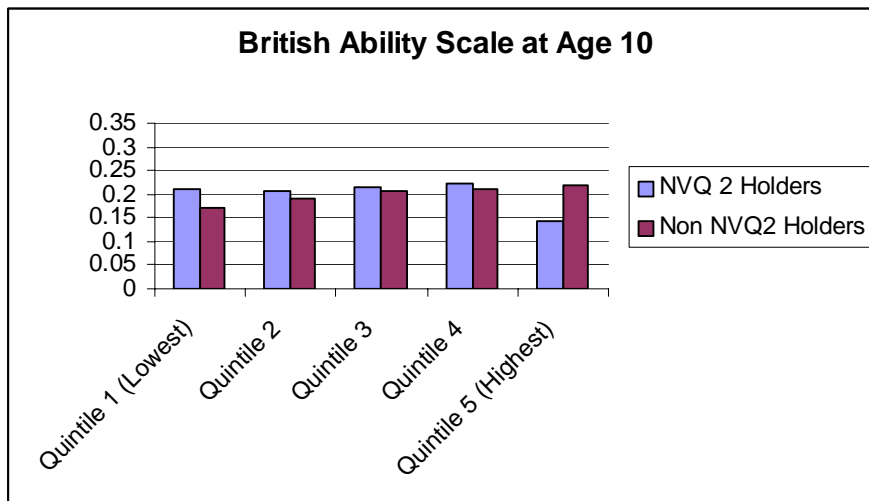
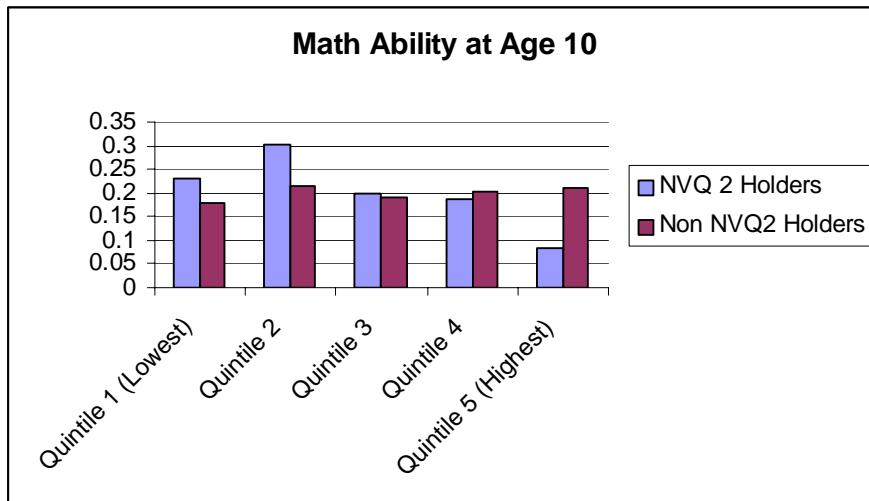
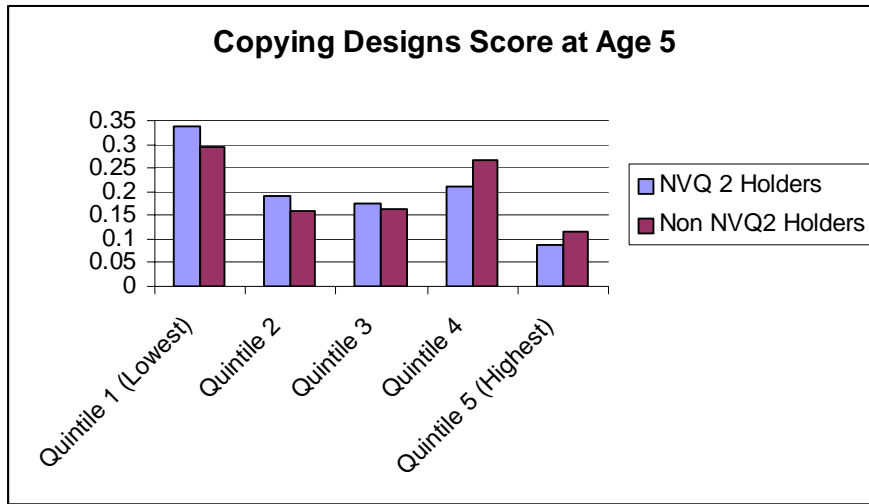
	(1) No Qualifications or City and Guild Craft Only	(2) No Qualifications, Level 1 Qualifications, or City and Guild Craft only level 2 Qualification
City and Guild Craft Ob- tained at School	0.113 (0.026)**	0.037 (0.014)**
City and Guild Craft Ob- tained at Employer	0.065 (0.039)	0.075 (0.029)**
City and Guild Craft Ob- tained thru Government Training	-0.062 (0.088)	-0.043 (0.053)
City and Guild Craft Ob- tained Other Way or Don't Know	0.092 (0.035)**	0.040 (0.022)
Academic Level 1		0.136 (0.005)**
Vocational Level 1		0.069 (0.004)**
Observations	19364	60827
R-squared	0.10	0.15
Number City and Guild School Only	308	1037
Number City and Guild Employer	106	202
Number City and Guild Government Training	22	48
Number City and Guild Other or Unknown	216	530
Robust standard errors in parentheses		
* significant at 5%; ** significant at 1%		

Table 36: Returns for Women, by Where City and Guild Craft Taken

	(1) No Qualifications or City and Guild Craft Only	(2) No Qualifications, Level 1 Qualifications, or City and Guild Craft only level 2 Qualification
City and Guild Craft Ob- tained at School	0.066 (0.028)*	0.017 (0.016)
City and Guild Craft Ob- tained at Employer	0.241 (0.123)*	0.146 (0.061)*
City and Guild Craft Ob- tained through Govern- ment Training	-0.086 (0.014)**	-0.233 (0.165)
City and Guild Craft Ob- tained Other Way or Don't Know	0.103 (0.057)	0.093 (0.029)**
Academic Level 1		0.104 (0.004)**
Vocational Level 1		0.092 (0.003)**
Observations	25888	77401
R-squared	0.08	0.12
Number City and Guild School Only	154	673
Number City and Guild Employer	20	55
Number City and Guild Government Training	1	16
Number City and Guild Other or Unknown	51	152

Robust standard errors in parentheses  
\* significant at 5%; \*\* significant at 1%

Figure 1:



## Appendix A

Table 1: Categorization of Qualifications in the BCS70

Qualification Variable	Qualifications Included	Level Academic(a) or Vocational (v)
Level 1 Academic	Any CSEs below grade 1	1a
	Less than 5 CSEs at grade 1	1a
	Any GCSEs below grade C	1a
	Less than 5 GCSEs above grade C	1a
	SCE ordinary grades D-E, standard grades 4-5	1a
	O Levels D-E	1a
	Other Scottish School Qualification	1a
	Less than 5 O Levels at A-C	1a
	1 AS Level	1a
	GCSEs/O Levels/CSEs but don't know how many	1a
Level 2 Academic	5 or more GCSEs at A-C	2a
	5 or more O Levels at A-C	2a
	5 or more CSEs at Grade 1	2a
	Sum of Good GCSEs, Os and CSEs 5 or more	2a
	2 or 3 AS Levels	2a
	1 A Level	2a
	Any SCE standard grades 1-3, or ordinary A-C (number not available)	2a
	SUPE low or Ordinary	2a
Level 3 Academic	4 or More AS Levels	3a
	More than 1 A Level	3a

	Scottish Highers (number not available)	3a
	Scottish Certificate of 6 <sup>th</sup> Year Studies	3a
	Access Course	3a
First Degree	Obtained a Degree	4a
	Obtained a Higher Degree (consistent with LFS)	4a
Diploma of Higher Ed.	Diploma of Higher Education	4a
Higher Degree	Obtained a Higher Degree	5a
Other Vocational	Other BTEC	1v
	Other City and Guild	1v
	Other RSA	1v
	Other Pitmans	1v
	Trusts towards NVQ	1v
	Other NVQ	1v
	HGV	1v
	Other Vocational	1v
Vocational Other Only	Other Vocational and No NVQ, Nursing, Teaching, Pitmans, RSA, City & Guild, BTEC, Apprenticeship	1v
Level Unknown	Don't Know BTEC Level	1v
	Don't Know City and Guild Level	1v
	Don't Know RSA Level	1v
	Don't Know Pitmans Level	1v
	Don't Know NVQ Level	1v
Any GNVQ	Foundation Level	1v

	Intermediate Level	2v
	Advanced Level	3v
	Don't Know Level	1v
BTEC First	BTEC First/General Certificate	1v
	BTEC First/General Diploma	2v
ONC	BTEC National Certificate Diploma	3v
	ONC/OND	3v
HNC	BTEC Higher Certificate Diploma	4v
	HNC/HND	4v
City and Guild Low	City and Guilds Part 1	1v
City and Guild Craft	City and Guilds Part 2/Craft/Intermediate	2v
City and Guild Advanced	City and Guild Part 3/Final/Advanced Craft	3v
	City and Guild Part 4/Career Extension/Full Technological	4v
RSA Certificate	RSA Certificate	1v
RSA Diploma	RSA First Diploma	2v
	RSA Advanced Diploma or Certificate	3v
	RSA Higher Diploma	4v
Pitmans Level 1	Pitmans Level 1	1v
Pitmans Level 2-3	Pitmans Level 2	2v
	Pitmans Level 3	3v

NVQ 1	NVQ Level 1	1v
NVQ 2	NVQ Level 2	2v
NVQ 3-5	NVQ Level 3	3v
	NVQ Level 4	4v
	NVQ Level 5	5v
	NVQ Level 6 (doesn't exist, but allowed as response)	5v
Apprentice	Trade Apprenticeship/Modern Apprenticeship	2v
Apprenticeship Only	Apprentice, but no NVQ, Nursing, Teaching, Pitmans, RSA, City & Guild, BTEC	2v
Teaching Qualification	Other Teaching Qualification	4v
	PGCE	5v
Nursing	Nursing or Paramedical Qualification	4v
Degree Level Qualification	Another Degree Level Qualification	5v

Appendix A Table 2: Categorization of Qualifications in the LFS

Qualification Variable	Qualifications Included	Level Academic(a) or Vocational (v)
Level 1 Academic (lev1aca)	CSEs, but none at Grade 1, or don't know if any/how many at grade 1	1a
	More than one, but less than 5 CSEs at Grade 1	1a
	GCSEs, but none above grade c, or don't know if any/how many above c	1a
	More than one, but less than 5 GCSEs at C or above	1a
	O Levels, but Less than 5 Passes, don't know how many passes	1a
	SCE Ordinary, but Less than 5 Passes, don't know how many passes	1a
	O-Level, but Less than 5 Passes, don't know how many passes	1a
	1 AS Level or Don't Know AS Level & Low Level Highest Qualification	1a
	SCE but don't know level	1a
	SCE standard or Ordinary Level, but Less than 5 Passes, don't know how many passes	1a
Any GCSEs below C, CSEs below 1, O Grades below C	1a	
Level 2 Academic (lev2aca)	5 or more CSEs at Grade 1	2a
	5 or more GCSEs at A-C	2a
	5 or more SCE Ordinary Passes	2a
	5 or more O Level Passes	2a
	2 or 3 AS Levels or Don't know, but A Level Highest Qualification	2a
	SCE standard or Ordinary, more than 5 passes	2a
	One A Level, or don't know number doesn't go to HE	2a
Level 3 Academic (lev3aca)	Certificate of 6 <sup>th</sup> Year Studies	3a
	4 or More AS Levels or don't know how many but goes to HE	3a
	Scottish Highers	3a
	More than 1 A Level, or don't know number but goes to HE	3a
First Degree (Deg)	First Degree	4a
	Higher Degree (assume also have first)	4a
	Degree but don't know type	4a



Other Higher Education Qualification(oh)	Other Higher Education Qualification	4a
Diploma of Higher Education (dhe)	Diploma of Higher Education	4a
Higher Degree (phd)	Masters/Doctorate/Other Post Grad/Don't Know Higher Degree Type	5a
Other Vocational Qualification (voco)	National Qualifications Scotland (from Autumn 2000)	1v
	Any other professional/vocational qualification/foreign qualifications	1v
	YT certificate	1v
City and Guild Advanced (cg_adv)	City & Guilds Advanced Craft/part 3	3v
City and Guild Craft (cg_craft)	City & Guilds Craft/part 2	2v
City and Guild Low (cg_low)	City & Guilds Foundation/part 1/Other (97-)	1v
	Some Other City and Guilds Qualification (96)	1v
RSA Low (rsa_low)	Some Other RSA Qualification (including Stage I,II,III)	1v
RSA High (rsa_high)	RSA Diploma	2v
	RSA Advanced Diploma or Advanced Certificate	3v
	RSA Higher Diploma	4v
AnyGNVQ	Advanced Level	3v
	Intermediate Level	2v
	Foundation Level	1v
	Don't Know	1v
NVQ Level 1	Highest Level of Full NVQ is 1	1v
NVQ Level 2	Highest Level of Full NVQ is 2	2v

NVQ Level 3-5	Highest Level of Full NVQ is 3	3v
	Highest Level of Full NVQ is 4	4v
	Highest Level of Full NVQ is 5	5v
Level Unknown	Highest Level of Full NVQ Unknown	1v
	Highest Scotvec/Btec is Unknown	1v
	RSA Don't Know Highest Level	1v
	City and Guild Don't Know Highest Level (seems to change 1996/7)	1v
Btec First	Highest Scotvec is Modules towards Scotvec	1v
	Highest Scotvec/Btec is First Certificate or General Certificate	1v
	Highest Scotvec/Btec is First Diploma or General Diploma	2v
ONC	Highest Scotvec Qualification is Full National Certificate	3v
	ONC/OND	3v
HNC	Highest Scotvec Qualification is Higher Level (1996 only)	4v
	HNC/HND	4v
Nursing	Nursing or Other Medical Qualification	4v
Teaching	Teaching Qualification (excluding PGCE)	4v
	PGCE – Higher Degree	5v
Degree Level	Other (e.g. graduate member of professional institute)	5v

## **Appendix B: Statistics on NVQ2s among the Workforce**

Table B1a: Percent of the Workforce Holding an NVQ2, By Age and Gender, 1996-2002

Age Group	All	Males	Females
19-25	8.3	7.2	9.7
26-30	3.6	3.1	4.3
31-35	2.4	2.0	3.0
36-40	2.2	1.7	2.9
41-45	2.1	1.5	2.8
46-50	1.8	1.2	2.5
51-55	1.5	1.0	2.1
>55	1.0	0.7	1.7
Total	3.1	2.5	3.9

Note: Authors' tabulations from the Spring 1996-Spring 2002 LFS. The workforce is defined broadly and includes employees, the self-employed, individuals in government employment and training programmes, unpaid family workers and the ILO Un-employed. Survey respondents are weighted based on LFS weights.

Table B1b: Percent of the Workforce Holding an NVQ2, By Age and Gender, 2002

Age Group	All	Males	Females
19-25	10.7	9.5	12.2
26-30	6.5	5.9	7.3
31-35	3.4	2.6	4.5
36-40	3.2	2.0	4.6
41-45	2.8	1.9	3.8
46-50	3.0	2.1	4.0
51-55	2.2	1.2	3.4
>55	1.7	1.1	3.1
Total	4.4	3.4	5.6

Note: Authors' tabulations from Jan-May 2002 LFS (last 2 months of Winter 2001 LFS and Spring 2002 LFS). Weights and workforce definitions as above.

Table B2a: Percent of Workforce with NVQ2 as Highest Qualification, By Age and Gender, 1996-2002

Age Group	All	Males	Females
19-25	6.7	5.7	7.9
26-30	2.7	2.2	3.3
31-35	1.9	1.5	2.4
36-40	1.7	1.2	2.3
41-45	1.7	1.1	2.3
46-50	1.4	0.9	2.1
51-55	1.2	0.7	1.7
>55	0.8	0.5	1.5
Total	2.4	1.9	3.2

Note: Authors' tabulations from the Spring 1996-Spring 2002 LFS. Weights and workforce definitions as above. Those with NVQ2s as their highest qualification may or may not hold other level 2 academic or vocational qualifications.

Table B2b: Percent of Workforce with NVQ2 as Highest Qualification, By Age and Gender, 2002

Age Group	All	Males	Females
19-25	8.6	7.4	10.0
26-30	4.7	4.1	5.6
31-35	2.5	1.7	3.6
36-40	2.4	1.4	3.7
41-45	2.0	1.3	3.0
46-50	2.4	1.4	3.4
51-55	1.8	0.9	2.8
>55	1.4	0.9	2.4
Total	3.4	2.5	4.5

Note: Authors' tabulations from Jan-May 2002 LFS. Weights and workforce definitions as above. Those with NVQ2s as their highest qualification may or may not hold other level 2 academic or vocational qualifications.

Table B3a: Percent of Workforce with NVQ2 as Highest Qualification and No Other Level 2 Qualifications, By Age and Gender, 1996-2002

Age Group	All	Males	Females
19-25	4.3	3.7	4.9
26-30	1.8	1.5	2.2
31-35	1.3	1.1	1.7
36-40	1.3	0.9	1.7
41-45	1.3	0.8	1.8
46-50	1.2	0.7	1.7
51-55	1.0	0.6	1.5
>55	0.6	0.4	1.2
Total	1.7	1.3	2.2

Note: Authors' tabulations from the Spring 1996-Spring 2002 LFS. Weights and workforce definitions as above.

Table B3b: Percent of Workforce with NVQ2 as Highest Qualification and No Other Level 2 Qualifications, By Age and Gender, 2002

Age Group	All	Males	Females
19-25	5.4	4.8	6.0
26-30	3.1	2.6	3.7
31-35	1.7	1.2	2.4
36-40	1.8	1.1	2.6
41-45	1.5	0.9	2.3
46-50	1.8	1.1	2.7
51-55	1.4	0.5	2.4
>55	1.1	0.7	1.9
Total	2.3	1.7	3.1

Note: Authors' tabulations from Jan-May 2002 LFS. Weights and workforce definitions as above.

Table B4a: Age Distribution of the Workforce Holding an NVQ2, By Gender, 1996-2002.

Age Group	All	Males	Females
19-25	38.7	41.1	36.8
26-30	15.9	17.0	15.0
31-35	11.6	12.0	11.3
36-40	10.2	9.7	10.7
41-45	8.5	7.2	9.6
46-50	7.1	5.7	8.3
51-55	5.3	4.4	6.0
>55	2.6	2.9	2.4
Total	100.0	100.0	100.0

Note: Authors' tabulations from the Spring 1996-Spring 2002 LFS. Weights and workforce definitions as above.

Table B4b: Age Distribution of the Workforce Holding an NVQ2, By Gender, 2002.

Age Group	All	Males	Females
19-25	34.1	37.8	31.3
26-30	18.5	21.6	16.1
31-35	11.3	11.0	11.5
36-40	10.7	8.7	12.3
41-45	8.3	7.0	9.3
46-50	7.8	6.6	8.7
51-55	5.8	3.8	7.3
>55	3.6	3.6	3.5
Total	100.0	100.0	100.0

Note: Authors' tabulations from the Jan-May 2002 LFS. Weights and workforce definitions as above.

Table B5a: Age Distribution of the Workforce with NVQ2 as Highest Qualification, By Gender, 1996-2002

Age Group	All	Males	Females
19-25	39.5	42.6	37.2
26-30	15.2	16.4	14.3
31-35	11.6	12.1	11.3
36-40	10.0	9.2	10.6
41-45	8.4	7.1	9.5
46-50	7.2	5.5	8.4
51-55	5.3	4.1	6.2
>55	2.8	3.0	2.6
Total	100.0	100.0	100.0

Note: Authors' tabulations from the Spring 1996-Spring 2002 LFS. Weights and workforce definitions as above. Those with NVQ2s as their highest qualification may or may not hold other level 2 academic or vocational qualifications.

Table B5b: Age Distribution of the Workforce with NVQ2 as Highest Qualification, By Gender, 2002

Age Group	All	Males	Females
19-25	35.4	40.5	31.8
26-30	17.5	20.5	15.4
31-35	10.9	10.1	11.4
36-40	10.7	8.5	12.2
41-45	7.9	6.5	8.9
46-50	8.0	6.2	9.3
51-55	6.0	3.8	7.6
>55	3.6	3.9	3.4
Total	100.0	100.0	100.0

Note: Authors' tabulations from the Spring 1996-Spring 2002 LFS. Weights and workforce definitions as above. Those with NVQ2s as their highest qualification may or may not hold other level 2 academic or vocational qualifications.

Table B6a: Age Distribution of Workforce with NVQ2 as Highest Qualification and No Other Level 2 Qualifications, By Gender, 1996-2002

Age Group	All	Males	Females
19-25	36.3	40.6	33.0
26-30	14.6	16.0	13.4
31-35	11.8	12.5	11.3
36-40	10.5	9.6	11.1
41-45	9.3	7.7	10.5
46-50	8.2	5.9	10.0
51-55	6.2	4.6	7.5
>55	3.2	3.3	3.1
Total	100.0	100.0	100.0

Note: Authors' tabulations from the Spring 1996-Spring 2002 LFS. Weights and workforce definitions as above.

Table B6b: Age Distribution of Workforce with NVQ2 as Highest Qualification and No Other Level 2 Qualifications, By Gender, 2002

Age Group	All	Males	Females
19-25	32.4	39.1	27.9
26-30	16.8	19.6	14.8
31-35	10.7	10.1	11.0
36-40	11.4	9.6	12.7
41-45	8.7	6.9	10.0
46-50	9.1	7.0	10.5
51-55	6.7	3.1	9.2
>55	4.2	4.5	3.9
Total	100.0	100.0	100.0

Note: Authors' tabulations from the Jan-May 2002 LFS. Weights and workforce definitions as above.

Table B7a: Distribution of Other Qualifications among Workforce with NVQ2 as Highest Qualification, By Gender, 1996-2002

	Total	Males	Females
Nothing else	23.5	24.5	22.7
Level 1 only	46.2	44.5	47.4
Level 2 only	18.3	19.3	17.5
Level 1 and 2	12.1	11.7	12.4
Total	100.0	100.0	100.0

Note: Authors' tabulations from the Spring 1996-Spring 2002 LFS. Weights and workforce definitions as above. Those with NVQ2s as their highest qualification may or may not hold other level 2 academic or vocational qualifications.

Table B7b: Distribution of Other Qualifications among Workforce with NVQ2 as Highest Qualification, By Gender, 2002

	Total	Males	Females
Nothing else	22.6	23.2	22.3
Level 1 only	45.9	44.8	46.7
Level 2 only	20.1	20.0	20.2
Level 1 and 2	11.4	12.1	10.9
Total	100.0	100.0	100.0

Note: Authors' tabulations from the Jan-May 2002 LFS. Weights and workforce definitions as above. Those with NVQ2s as their highest qualification may or may not hold other level 2 academic or vocational qualifications.

Table B9a: Distribution of Highest Qualification Other than NVQ2 among Workforce Holding an NVQ2, By Gender, 1996-2002.

	Total	Males	Females
Nothing else	18.5	18.6	18.4
Highest other level 1	36.3	33.7	38.4
Highest other level 2	23.9	23.4	24.3
Highest other > level 2	21.4	24.4	19.0

Note: Authors' tabulations from the Spring 1996-Spring 2002 LFS. Weights and workforce definitions as above. Due to the nature of the LFS questionnaire, individuals who hold both NVQ2s and NVQs at higher levels are not counted as holding NVQ2s. As a result this table only includes NVQ2 holders who also hold higher level academic qualifications or higher level vocational qualifications other than NVQs.

Table B9a: Distribution of Highest Qualification Other than NVQ2 among Workforce Holding an NVQ2, By Gender, 2002.

	Total	Males	Females
Nothing else	17.4	16.8	18.0
Highest other level 1	35.4	32.5	37.7
Highest other level 2	24.3	23.3	25.1
Highest other > level 2	22.9	27.5	19.3
Total	100.0	100.0	100.0

Note: Authors' tabulations from the Jan-May 2002 LFS. Weights and workforce definitions as above. Due to the nature of the LFS questionnaire, individuals who hold both NVQ2s and NVQs at higher levels are not counted as holding NVQ2s. As a result this table only includes NVQ2 holders who also hold higher level academic qualifications or higher level vocational qualifications other than NVQs.



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