

Earning and Learning: Educational Policy and the Growth of Part-Time Work by Full-Time Pupils

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I. INTRODUCTION

The ‘traditional’ view, in both educational and labour-market policy, of the transition from education to employment centres on the *school-leaving decision* — in other words, on a particular point in time when the individual concerned decides to leave full-time education and enter the labour market. The pattern and timing of school-leaving decisions have given cause for considerable concern amongst policymakers in the UK. Many more individuals leave full-time

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education prematurely in the UK than in other industrialised (and some industrialising) countries, and there has been considerable discussion of the role that may be played by financial factors in early school leaving (for example, Micklewright, Pearson and Smith (1988 and 1990)). In response to these concerns, educational and social security policies have sought to discourage early entry into the labour market, whilst labour-market policies directed at the 16- to 18-year-old age-group have concentrated on providing training and work experience to those who have taken the decision to leave school.

There is, however, substantial evidence to suggest that for more and more teenagers, the transition from school to employment does not centre around a single event, school leaving. For many, there is a period of overlap between education and labour-force participation, during which individuals work part-time whilst remaining within the full-time education system. Using data from the UK Family Expenditure Survey over the period 1968–91, Micklewright, Rajah and Smith (1994) show that the proportion of 16- to 18-year-olds still in full-time education who had some source of income from employment rose from 40 per cent in 1968–71 to 59 per cent in 1988–91. Ten per cent of those with wage income in 1988–91 worked more than 20 hours per week. Part-time labour supply by 16- to 18-year-olds still in full-time education is a far from trivial phenomenon, both for the individuals concerned and for the labour market as a whole; indeed, the labour supply by 16- to 18-year-olds in full-time education contributes a considerable proportion of total labour supply by this age-group (Sly, 1993).

The rising level of part-time work by teenagers in full-time education raises two key policy questions. The first concerns the consequences of part-time working for the education and employment prospects of the teenagers involved; if teenagers work whilst at school, does this damage their educational performance or career prospects, or might it, alternatively, have beneficial effects? It is possible to think of reasons for either outcome to occur. Educational performance might be harmed if teenagers with part-time jobs are able to devote less time to homework or miss school to work longer hours. On the other hand, part-time work could have positive effects on future employment prospects, by bringing the individual into contact with potential employers and by teaching skills that may be useful in employment (and, perhaps, in school too).

The second key question for policy concerns the factors that lead particular teenagers to choose to work whilst at school. How far, for example, do current financial pressures, arising perhaps from low family incomes or from the way in which income is shared amongst family members, appear to encourage teenagers to work, even where this may harm their longer-term educational and employment prospects? What factors lie behind the observed patterns of part-time work by 16- to 18-year-olds at school, and the changes over time that have taken place? Are these largely due to demand-side effects, such as regional differences in labour demand (both in aggregate and for the types of labour

supplied by this group) or the growth of an increasingly-casualised labour force? Or do supply-side factors (such as, perhaps, low household incomes) play a major role in determining which individuals work and which do not?

Answering these policy questions requires empirical evidence relating to the processes determining individual behaviour and to the outcomes and consequences of particular choices. Although a limited empirical literature on part-time work whilst in education exists for the US, the subject has received little attention in the UK. In this paper, we draw on key data and findings from our analysis of part-time work by teenagers in full-time education in the UK to shed light on some of the patterns of behaviour and effects that are relevant in assessing the consequences of this activity and the grounds for policy concern and possible intervention.

It should be clear that the empirical issues raised in assessing the determinants of part-time work and its consequences are complex. A series of potentially interrelated decisions are involved, and, at the individual level, expectations are likely to play a central role in determining the choices that individuals make. This severely complicates the business of comparing the educational and career consequences of part-time work. To the extent, for example, that some working part-time might have chosen this option because they perceive themselves as needing to compensate for poor examination prospects by gaining work experience, it may be difficult to reach conclusions about the effects of part-time work on educational outcomes. The results discussed in this paper certainly do not provide the final word on the determinants and effects of part-time work by teenagers in education, but they do begin to assemble the information necessary if we are to assess the policy issues on the basis of evidence rather than speculation.

The main analysis of the paper is in four parts. In Section II, we describe trends in part-time work by 16- to 18-year-olds in full-time education, using Family Expenditure Survey data for the period 1968–91. The remainder of the paper then looks at part-time work by a particular cohort of individuals, those covered by the National Child Development Study. This study has followed the education and career developments of a sample of individuals born during one week in 1958, and provides a rich source of information on individual and family circumstances, educational performance and career progress. Drawing on these data, we are able to model the relative contribution made by various individual and household characteristics to the observed patterns of part-time work (Section III), the role played by financial factors and financial relationships within the family (Section IV) and the impact of part-time work on educational and career outcomes (Section V). In Section VI, we evaluate the implications of our results for educational policy.

II. TRENDS IN PART-TIME WORK BY 16- TO 18-YEAR-OLDS IN FULL-TIME EDUCATION

Our analysis of data from the UK Family Expenditure Survey (FES)² provides an overview of trends in part-time work by 16- to 18-year-olds in full-time education over the past quarter of a century. The FES provides a sample of around 800 individuals aged 16 to 18 at the time of interview in Britain per year. Of these, about 55 per cent in the late 1980s were in full-time education when interviewed.

Employment opportunities for this age-group can come in many forms. At one extreme, 16- to 18-year-olds who are working whilst still in school might find themselves doing jobs that are not dissimilar to those of their counterparts who have left education. This type of work will have the characteristics of regular employment, and the teenage worker will receive a regular hourly wage. At the other extreme, one would also expect that, for this section of the labour force, many of the employment opportunities available are likely to be in the form of casual employment, for which workers receive one-off rather than regular payments. The amount and type of information provided by the FES about the work of 16- to 18- year-olds vary depending on the type of work involved. Rather more detail is given about work taking the form of regular employment than about other forms of income earning.

For employment taking the form of regular jobs, the FES records both the income earned and the hours of work; some information is also collected about the sector of activity and type of work (unskilled, semi-skilled, etc.). In addition, income from self-employment is recorded, as are incomes from odd jobs, babysitting and employment as a mail-order agent; for these activities, no detail is provided about hours of work or other characteristics.

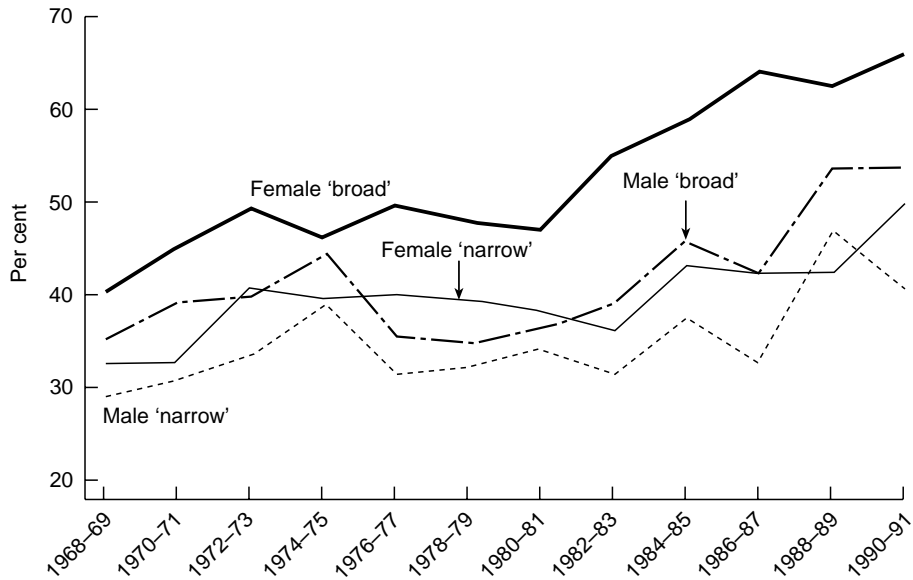
On the basis of this information, it is possible to distinguish between the two forms of participation in the labour market — regular participation where the worker is in receipt of an hourly wage, and less formal or ‘non-wage’ employment where individuals receive one-off payments. To reflect this, Micklewright, Rajah and Smith (1994) consider two definitions of the participation rate — a ‘broad’ participation rate based on positive recordings of any type of employment income (1,530 individuals during 1983–91 aged 16 to 18 and still in full-time education) and a ‘narrow’ participation rate based on positive recordings of wage income only (1,113 individuals).

Figure 1 shows participation rates on the ‘broad’ and ‘narrow’ definitions over the period 1968–91 for males and females.³ Participation on both the broad and narrow definitions has increased for both sexes, particularly for females on the broad definition. Considering the sample as a whole, participation on the

² Micklewright, Rajah and Smith, 1994.

³ Years have been paired to reduce sampling variation.

FIGURE 1
Participation Rates in Part-Time Work for 16- to 18-Year-Olds in Full-Time Education, by Sex



Note: The 'broad' participation rate corresponds to positive recordings of any employment income and the 'narrow' participation rate to positive recordings of wage income.
 Source: Micklewright, Rajah and Smith, 1994, Chart 1B.

broad definition was 40 per cent in 1968–71 but had risen to 59 per cent by 1988–91, whilst participation on the narrow definition rose from 31 per cent to 45 per cent over the same period.

Hours worked are only recorded for those jobs included in the narrow participation definition. Average hours of work were 10.8 hours per week in 1986–91. About 10 per cent of those working worked more than 20 hours per week; the bulk of these were during the summer months, probably reflecting vacation jobs.⁴ However, average hours were at least eight in all months — the equivalent of one full-time day of work.

⁴ The data do not allow us unambiguously to distinguish part-time jobs held during term-time from vacation work.

III. A REDUCED-FORM MODEL OF PART-TIME WORKING

Many factors are likely to explain why some teenagers in full-time education work part-time and others do not. These include influences both on the demand side and on the supply side of the labour market.

On the demand side, the availability of suitable jobs for teenagers in education may be affected by

- the state of the local labour market: in areas with high unemployment amongst other groups of workers, the demand for teenage labour may be low;
- the sectoral structure of local employment: part-time work tends to be concentrated, as the FES data have shown, in certain sectors such as retailing and hotels and catering, and demand for teenage labour will be higher in areas where these sectors are important, such as seaside towns;
- the substitutability of part-time teenage labour for other types of labour: the growing casualisation of the work-force and flexibility in employment patterns may have increased the opportunity for teenage labour to displace other workers.

On the supply side, individual decisions whether to seek part-time work may be governed by a perception of the benefits and costs involved. These might take the form of, on the one hand, the benefits of the current income earned from part-time work and, possibly, beneficial career experience and contact with employers, and, on the other hand, the risk that part-time work might reduce the amount of attention that can be devoted to school work and the achievement of formal qualifications. The balance of these effects may differ widely across individuals: some may have a particularly strong preference for current incomes; others may see contact with employers as an invaluable opportunity to find full-time employment; still others may attach high priority to school work and qualifications. Whilst some or all of these considerations may be weighed up in individual cases, individual decisions are unlikely always to be well informed; social, school and family pressures may also play an important role.

Where individual decisions to work part-time whilst at school reflect a desire to acquire useful work experience, and where little sacrifice is made in terms of academic performance, there is perhaps little reason for educational policy to be concerned about the scale of part-time work. Cause for concern might, however, be greater if part-time work is strongly correlated with household characteristics unrelated to academic aptitude, and, particularly, if it appears to reflect financial pressures on the household or on the individual teenagers. Since capital markets rarely provide much scope for individual borrowing against future earning capacity, individuals with a strong need for current income or a preference for current consumption may tend to make choices in which short-term income is given higher priority than longer-term education or career prospects.

Evidence from the US (Griliches, 1980), using the National Longitudinal Survey of Young Men, shows that the decision to work during high school is influenced by a considerable range of individual characteristics and socio-economic indicators, including age, ethnicity, whether the teenager comes from a broken home and a 'culture index' based on the presence of newspapers, magazines and library cards in the teenager's household. Likewise, in our earlier paper on part-time work by 16- to 18-year-olds in the UK Family Expenditure Survey (Micklewright, Rajah and Smith, 1994), we presented the results of a reduced-form⁵ logit model of part-time work, in which teenage participation was found to vary with parental variables (occupation and social class), individual characteristics (whether a teenager was male or female), family composition (the number of brothers and sisters in the household) and a variety of factors proxying local labour demand (region and whether the mother was working or not).

In this section, we report the results of a similar reduced-form modelling approach using data from the National Child Development Study (NCDS). The NCDS follows the educational and career progress of a cohort of individuals born in one week in March 1958, and provides an enormous volume of detailed information on individuals, their families, and their educational and labour-market experiences, based on data collected at birth and in a series of five subsequent 'waves' (NCDS1 to NCDS5), making observations at the ages of seven, 11, 16, 23 and 33.

Here we use data from the third wave of the NCDS,⁶ conducted when individuals were aged 16 and were still in compulsory full-time education.⁷ In NCDS3, information was obtained from four sources — the individual, their parents, schools and family doctors. In addition, schools conducted a series of standard assessment tests of ability, the results of which were added to the survey database. For the present study, this wide range of data have considerable advantages over the data that we have previously used from the Family Expenditure Survey. Data on ethnicity, type of school and ability scores are available in NCDS3 but not in the FES; the data on ability scores, in particular, are of considerable interest, since they allow us to examine socio-economic influences on part-time work whilst controlling for measured ability. A further attraction of using the NCDS is that the data relate explicitly to term-time jobs only, whilst with the FES we are unable to separate term-time and vacation jobs, which may have very different determinants and implications.⁸

⁵ The model is a reduced form in the sense that demand and supply effects are not explicitly modelled and cannot be identified.

⁶ See Fogelman (1976) for a full description of the survey methods and information collected at NCDS3.

⁷ The NCDS cohort were the first to be affected by the rise in the minimum school-leaving age from 15 to 16 in 1973.

⁸ It should be noted that there are some limitations to using the NCDS as opposed to the FES. The absence of a time-series component to the data on 16-year-olds rules out much analysis of the relationship between labour-

For this analysis, we have a sample of 3,821 16-year-olds living in England and Wales; this is substantially less than the original 18,500 children born in the relevant week, and reflects the effects of panel attrition and problems of missing data. In the sample, some 52 per cent of the 16-year-olds surveyed in 1974 had a regular part-time job during term-time,⁹ and the overall participation rate in part-time work did not vary significantly between males and females. Amongst those 16-year-olds with part-time jobs, modal earnings were in the range £1–£2 per week (the data are in banded form), and some 8 per cent of those working earned £6 per week or more.¹⁰ On average, hours worked were between six and nine per week.

What factors are significant in determining whether a teenager decides to work part-time or not? Are there a set of characteristics that distinguish the group of ‘workers’ from the group of ‘non-workers’? Is there any evidence that children living in particular regions are more likely to work than their counterparts elsewhere? Can more able children secure part-time employment more easily than less intelligent ones?

One way of disentangling the relative effects of various individual and household characteristics is to estimate a reduced-form probit model of the probability of participation. We use as our dependent variable an indicator that takes the value of one if individuals worked in regular part-time employment during term-time during last year and zero otherwise, and then control for differences in household circumstances (such as household income and region), parental variables (age parents left school and parental occupation), family composition (number of younger siblings and whether the teenager has a father present), type of school attended and individual characteristics (sex and ethnic origin). The results of estimating our preferred specification are given in Table 1.

They show that a large number of variables have a significant impact on the probability of working part-time whilst at school. As in the FES-based analysis reported in Micklewright, Rajah and Smith (1994), there are large regional effects; the regional pattern in fact differs between the two studies, but this is difficult to interpret since the other variables included in the models differ. There are also large and significant effects relating to ethnicity: children of non-European parents are more likely to work, other things being equal, but children who were themselves born outside Europe are less likely to work whilst at school. In this model, the sex of the child appears to have no significant effect on

market conditions and part-time work, whilst the less-detailed income data in the NCDS do not permit us to calculate household income excluding the 16-year-old’s own earnings, which we were able to do in our FES analysis.

⁹ In NCDS3, individuals were asked ‘Do you have a regular part-time job during term-time?’. This suggests that the definition of participation is closer to the ‘narrow’ definition of participation used in our FES analysis than to the ‘broad’ definition.

¹⁰ The equivalents in current prices to these 1974 values are that modal earnings lie in the range £5–£10, and some 8 per cent earned £30 or more.

TABLE 1
Participation in Part-Time Work at Age 16: A Reduced-Form Probit Model

	<i>Marginal effect</i>	<i>t statistic</i>	<i>Mean</i>
<i>Dependent variable:</i>			
Probability of part-time work at 16			0.521
<i>Independent variables:</i>			
South, south-east, London or east	0.013	0.46	0.371
North or Yorkshire	-0.189	-6.24	0.158
North-west or Midlands	-0.096	-3.51	0.310
Wales	-0.179	-4.83	0.068
Ability aged 11: 2nd quartile	0.068	3.26	0.250
Ability aged 11: 3rd quartile	0.062	2.82	0.250
Ability aged 11: 4th (top) quartile	0.043	1.83	0.250
Number of younger siblings	0.023	3.96	1.247
Age father left full-time education	-0.013	-2.96	4.070
Teenager not European	-0.299	-4.50	0.019
Parents not European	0.121	2.62	0.038
No father present	0.093	2.06	0.048
Father working	0.091	2.66	0.899
Father skilled worker	0.036	2.32	0.499
Father self-employed	0.109	3.09	0.041
Mother working	0.050	2.89	0.681
Mother working in service sector	0.067	2.34	0.124
Teenager at secondary modern	0.054	1.07	0.248
Teenager at technical school	0.009	0.12	0.008
Teenager at independent school	-0.260	-5.91	0.040
Teenager at grammar school	-0.007	-0.26	0.148
Teenager at single-sex school	-0.043	-2.26	0.267
Teenager at special school	-0.202	-3.79	0.022
Log of household income	-0.021	-0.93	3.855
Female	-0.008	-0.62	0.494
Constant		-0.33	
Log likelihood		-2,491.68	
$\chi^2(25)$		306.89	
Pseudo R^2		0.0580	
Number of observations		3,821	

Note: The income information in NCDS3 is recorded in a banded form. For the purposes of this analysis, we constructed a continuous measure of income, taking into account all sources of household income. For details of its construction, see Micklewright (1986).

the probability of working part-time. Large effects are found from some of the type-of-school variables.

Three features of the results are of particular interest in considering the relevance of this evidence for educational policy:

- Both in Table 1 and in our earlier FES analysis, the effect of household income on part-time working is insignificant: other things being equal, children from poor households do not appear to be more likely to have a part-time job whilst at school than children from households with higher incomes.
- Part-time working is substantially higher where the father is working; a working mother also increases the probability that the child will work part-time, though the effect is smaller. This suggests that the way in which parental unemployment may affect the decision of the child to work may be more that it reduces the teenager's contacts with the labour market and potential employers than through the financial pressures resulting from unemployment. This effect of parental unemployment also appears in our earlier FES-based analysis. In this, we were also able to include regional labour-market variables, showing that the negative impact of parental unemployment on part-time work by the 16-year-old is not simply a reflection of a weak labour market, affecting parents and children alike.
- Measured ability at age 11 has a significant — and *positive* — effect on whether 16-year-olds in the sample have a part-time job. In particular, the model finds that the probability that an individual in the bottom quartile of ability at 11 will work part-time at 16 is significantly lower, other things being equal, than the probability that individuals in the second, third and fourth quartiles of ability will work part-time; on the other hand, no significant difference is found *between* the ability effects for the second, third and fourth quartiles.

IV. THE ROLE OF FINANCIAL FACTORS

Whilst the reduced-form model described in the previous section can shed light on the relationship between part-time working and various given characteristics of the individual and family, it provides little evidence about the processes by which the observed correlations arise. For this, structural models are needed, in which the behavioural relationships underlying the reduced-form model can be estimated. There are a number of possible directions that these could take. One, in particular, that raises important issues for policy is to specify in more detail the way in which financial factors may affect individual decisions.

Precisely how does the household's financial position, summarised in the household income variable in the reduced-form model, feed through into the individual's decision? One relatively simple view, widely adopted in many econometric studies of individual and household behaviour, is to assume that

decisions are made by the household as a whole, that the incomes of household members are in effect pooled, and that the pattern of incomes across household members is irrelevant to the decisions that are taken.

This approach, whilst it has the virtue of simplicity, may seem seriously at odds with the real-world relationships — and tensions — between household members. At least one motive that 16-year-olds might have for seeking a part-time job whilst at school might be to obtain an income source of their own, independent of their parents' financial support. Similarly, in policy discussions of proposals for education maintenance allowances for teenagers who stay at school beyond the statutory leaving age, it is suggested that payments to the teenager might have a greater impact on staying-on decisions than an equivalent amount paid to the parents in child benefit (Micklewright, Pearson and Smith, 1988).¹¹

What can we learn from the NCDS about the role that financial relationships within the household play in the part-time working decisions of children in full-time education? The NCDS contains data on the financial transfers (pocket-money) paid to 16-year-olds by their parents, which can be employed in two ways. First, they allow us to assess the scale of parent-child transfers and their variation across different households; the larger these transfers are, and the more they vary across households, the greater the likelihood that parental transfer decisions would be a major factor in the choices made by 16-year-olds about taking on part-time work whilst in education. Second, the NCDS data can be used to estimate behavioural models that explicitly include interactions between the transfers that parents make to their children and part-time labour-supply decisions of the children.

1. The Scale and Pattern of Parental Transfers

Although the term 'pocket-money' has a somewhat derisory ring to it, its importance should not be underestimated. Many teenagers receive substantial amounts of pocket-money, as we show below.¹² Pocket-money also provides children and teenagers with their first taste of financial independence and allows them the opportunity to develop skills in managing resources.

Although intra-household transfers are known to be widespread, it is very rare for them to be recorded in any great detail in individual- or household-level surveys. NCDS3 contains information on the amount of pocket-money that teenagers receive, based on the bands shown in Table 2. The teenagers were also asked what they were expected to purchase out of the payment, e.g. clothes, travel, meals, etc.

¹¹ Indeed, the fact that child benefit is paid to the mother rather than to the father is a recognition in existing policy that the identity of the household member receiving the benefit makes a difference to its ultimate effect.

¹² A report in the *Observer* noted that in 1994, 5- to 16-year-olds received on average £2.05 per week from their parents, with the 14- to 16-year-old age-group receiving over £3.50 per week (*Observer*, 1994).

**Amount of Pocket-Money Received (1974 Prices),
by whether or not an Individual is Working**

	<i>Percentage of non-working sample</i>	<i>Percentage of working sample</i>	<i>Percentage of total sample</i>
<i>Pocket-money</i>			
None	2.5	12.5	7.7
0–49p	6.6	10.6	8.7
50–74p	22.3	25.2	23.8
75–99p	11.9	11.8	11.9
100–149p	26.5	21.4	23.8
150–199p	14.3	9.1	11.6
200–299p	10.4	6.0	8.1
300p+	5.4	3.6	4.5
Total	100.0	100.0	100.0
Sample size	1,830	1,991	3,821

Source: NCDS3.

Some 92 per cent of individuals received regular cash payments from their parents. The probability of receiving money was slightly higher for females, at 94 per cent, than for males, of whom 91 per cent received pocket-money. Across the whole sample, the median level of pocket-money was between 75 and 99 pence per week in 1974 prices, equivalent to between £3.75 and £5 per week in 1994 prices. However, over 10 per cent of the sample received £2 or more in 1974 prices, or approximately £10 in 1994 prices.

The implication of a given level of financial transfers for the standard of living of the recipient will, of course, depend on what non-financial transfers are also provided, in terms of board, lodging, clothes, etc. The NCDS data showed that these varied across individuals. Some 13 per cent of the sample were expected to pay for meals out of their pocket-money, 14 per cent for clothes and another 13 per cent for travel to school. Overall, females were more likely to be expected to pay for specified items out of their pocket-money than males, and this difference is primarily because females were given cash transfers so that they had some freedom in the choice of their clothes.

Table 3 shows a model estimating the relationship between various individual and household characteristics and the amounts of pocket-money paid by parents to children in the NCDS. The model is estimated as a grouped regression, reflecting the banded structure of the pocket-money data. The coefficients can be interpreted directly as the marginal effect of each independent variable on

pocket-money levels. Regional differences appear marked. Females appear to receive significantly higher levels of pocket-money than males, other things being equal. Higher household income increases the size of transfers, whilst the presence of younger siblings reduces the level of transfer to the 16-year-old in question (presumably reflecting the impact of younger siblings on household equivalent income). Older siblings, by contrast, do not appear to affect transfers to the 16-year-old, presumably because they are more likely to contribute incomes of their own to the household.¹³

2. Transfers and Part-Time Work

In the current context, the most interesting issue about the pattern of pocket-money payments in the NCDS is whether there is any indication that pocket-

TABLE 3
Grouped Regression Equation for Pocket-Money

	Coefficient	<i>t</i> statistic	Mean
<i>Dependent variable:</i>			
Pocket-money (£ per week)			1.080
<i>Independent variables:</i>			
South, south-east, London or east	0.057	1.14	0.371
North or Yorkshire	0.288	5.13	0.158
North-west or Midlands	0.242	4.76	0.310
Wales	0.374	5.46	0.068
Number of younger siblings	-0.090	-8.46	1.247
Number of older siblings	-0.028	-1.35	0.441
Age mother left full-time education	-0.027	-2.72	4.029
Teenager at single-sex school	0.053	1.66	0.267
Log of household income	0.267	7.46	3.855
Female	0.084	3.09	0.493
Constant	0.060	0.43	
σ	0.819	76.47	
Log likelihood		-7,900.722	
Pseudo R ²		0.0130	
Number of observations		3,821	

Note: The dependent variable is a measure of average weekly pocket-money (1974 prices) based on banded data corresponding to the categories shown in Table 2.

¹³ This explanation presumes that, in general, these incomes have not been fully-reflected in the NCDS household income data.

money has a significant influence on a teenager's decision to work. Intuition would suggest that there would be a close correlation between money given to children by parents and earnings from part-time work for those still in full-time education. The less that teenagers receive from their parents, the more likely that they feel it necessary to find employment, and vice versa. Similarly, parents might be less disposed to subsidise their children's expenditure through transfers in the form of pocket-money, the greater the level of their children's earnings from part-time employment.

Table 2 shows the distribution of pocket-money disaggregated by employment status. The table confirms that there is a correlation between whether a 16-year-old works or not and the amount of pocket-money that they receive. Of children who were working, 40 per cent received more than £1 per week compared with 57 per cent of non-working children, and the proportion of children receiving no pocket-money at all was five times higher amongst children who were working than amongst non-working children. Only 2.5 per cent of the non-working sample had no income at all.

The close correlation between working part-time and pocket-money received requires further investigation before it can be concluded that transfers (in the form of pocket-money) affect, or are affected by, part-time working. The correlation could be accounted for by the influence of other variables, both on the level of transfers and on part-time work. However, it is not possible to isolate the contribution made by pocket-money transfers to the probability of part-time work simply by including pocket-money as one of the independent variables in the reduced-form model of teenage labour supply. To do so would ignore the possibility that transfers from parent to child may be jointly determined with the labour-supply decision:

- Transfers could affect labour supply: other things being equal, children of parents unable or unwilling to provide pocket-money might be more likely to work than others.
- Equally, however, the level of pocket-money that parents provide may reflect whether the child has other sources of income: parents may see little need to provide pocket-money for a child who has substantial part-time earnings.

Estimation of a structural model of the joint determination of transfers and labour supply, rather than a reduced-form model, is necessary if this potential simultaneity is to be accounted for properly. However, it is by no means straightforward, given the complicated banded nature of the pocket-money variable recorded in NCDS3.

In a study that tries to overcome these difficulties, Dustmann, Micklewright and Rajah (1996) estimate a structural model in which the labour supply of 16-year-olds is analysed jointly with the cash transfers made to them by their parents. The theoretical framework used is one in which there is an 'altruistic' parent, who makes transfers out of a concern for the welfare of the child, and a

'selfish' child, whose labour-supply decisions are based on the consequences for his or her welfare only. Labour supply and transfers would thus be expected to be jointly determined, because the parent's transfer decisions will depend on the extent to which the child works and the child's labour supply will depend on how much income is being received in transfers from the parent. Various specifications of an econometric model are estimated, which confirm the empirical importance of this interaction.

The results show that parental transfers and the child's labour supply have large effects on each other, and also show the importance of a range of other factors in both decisions. The presence of younger brothers and sisters is found to have a negative effect on transfers to the 16-year-old, but the effect is surprisingly small. Parents' education levels have a negative effect on transfer payments, suggesting that better-educated parents tend to keep their children short of money. Non-European children do not differ in terms of the amount of transfers, but they have a considerably lower participation probability. The child's ability has a much stronger positive effect on the probability of participation of females than on that of males. One particular result of importance for policy is the finding that parental transfers are not very elastic with respect to parental income; children from poor households do not appear, therefore, under disproportionately high financial pressure to find part-time jobs.

V. THE EFFECT OF PART-TIME WORK ON FUTURE CAREER PROSPECTS

What consequences does part-time working while at school have for the future career prospects and living standards of the children involved? The future incomes of teenagers who have worked part-time whilst at school may be affected *directly* by the labour-market experience that they gain by working and *indirectly* through possible effects of part-time work on their educational qualifications.

In general, it might be expected that working part-time would have a positive direct effect on future wage rates, for a range of reasons. Working part-time could, for example, bring the teenager into contact with employers, allowing the 'screening' of the teenager with a view to potential full-time employment at a later date. Working part-time gives teenagers an opportunity to 'research' the labour market, so that when they enter it on a full-time basis, they will have a better idea of the type of work that they are suited to, thus reducing the possibility of job mismatch. Additionally, part-time work brings with it labour-market experience and teaches the teenager work skills that would be valued by employers. Finally, since working part-time provides a way of increasing income without leaving school altogether, it might also encourage individuals to stay in education for a longer period; this will lead to an increase in human capital and,

other things being equal, might also be expected to lead to higher wages for those who worked part-time.

The results of US empirical studies of the effects of working part-time have tended to correspond with the idea that working part-time whilst still remaining in education is positively related to subsequent wage rates. For example, Meyer and Wise (1984) examined the relationship between high-school preparation and early labour-force experience after leaving education. Although their findings showed *no* relationship between job-related training in high school and post-graduation wage rates, they *did* find a strong relationship between hours worked whilst in high school and both weeks worked after graduation and wage rates.

The indirect effect of working part-time on wages, acting through the effects of part-time work on examination results, could be either positive or negative. In one respect, we might expect that teenagers who are working will have less time to devote to their studies and so will perform less well in examinations. On the other hand, the experience of working part-time provides the individual with useful attributes such as time-management and organisational skills which can improve educational performance. Using data on US college students, Ehrenberg and Sherman (1987) conclude that there is no indication of a significant impact of hours of part-time work during the academic year on examination results.

Information contained in the 'Public Exam Results' educational follow-up survey of the NCDS cohort members in 1978 and in the two most recent waves of the NCDS, conducted in 1981 and 1991 when cohort members were aged 23 and 33 respectively, has made it possible for us to examine some of the potential effects of working part-time on educational and labour-market outcomes.

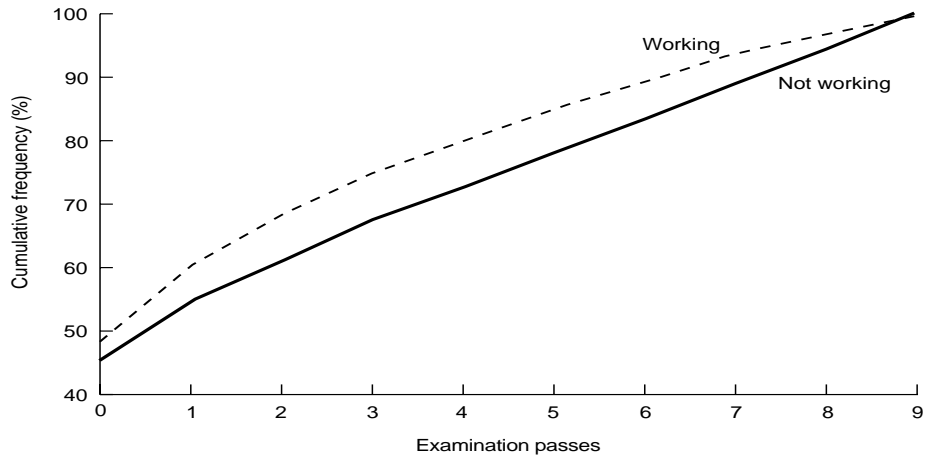
1. Effects on Examination Performance

We begin by looking at the data on the examination performance of the part-time workers compared with that of those of their cohort who did not have a paid job at age 16. The educational follow-up survey contains, for some 80 per cent of the original participants of the NCDS, a full list of the results of all the public examinations taken and passed by 1978 for each individual, obtained from the respondent's school. Figure 2 shows the cumulative distribution of examination results for our sample of 3,821 16-year-olds living in England and Wales. The top half of the figure shows the distribution of O level and CSE grade 1 passes obtained by 1974, whereas the bottom half shows the distribution of A levels passed by 1978.

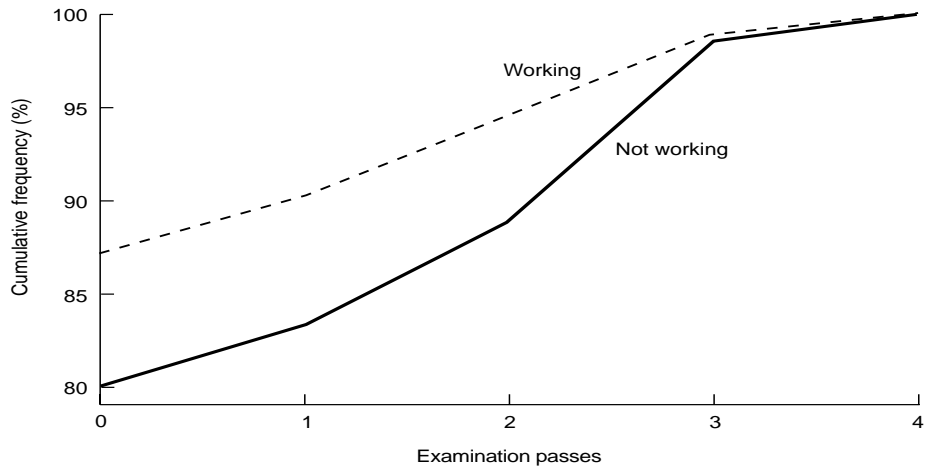
Looking at the distribution of O level and CSE grade 1 passes, it is clear that the performance of children in the 'working' and 'non-working' groups differed. Children whom the NCDS recorded as having a part-time job at age 16 whilst still at school achieved, on average, 2.0 O level and CSE grade 1 passes, whilst those who did not work at age 16 had an average of 2.5 passes — on average a 25 per cent better performance in terms of the number of passes. Differences can

FIGURE 2
**Cumulative Distribution of Examination Results
By whether or not Teenager Worked Part-Time at Age 16**

O levels and CSE grade 1s



A levels



be seen at the bottom and, especially, at the top of the outcome range. The percentage of 'workers' who achieved no passes at all was three points higher than the percentage of 'non-workers' without any passes. At the other end of the scale, the proportion of children with five or more passes was 30 per cent lower among the group of 'workers' than amongst those who had not held a part-time job whilst in school at age 16. An individual at the 75th percentile of the distribution of results by children who had worked part-time had 3.0 passes, whilst an individual at the same percentile of the 'non-working' distribution had 4.3.

Further dimensions of the examination performance of individuals would also be of interest, including the grades achieved as well as the sheer quantity of O level and CSE grade 1 passes. We concentrate here on the number of such passes since it is widely held to be one good indicator of overall performance and subsequent prospects.

The differences in the number of A levels shown in the bottom half of Figure 2 are less informative, since, by this stage, the examinations are being taken only by a subset of all children in the age-group. The pattern of performance can then reflect differences in staying-on rates at school as well as differences in achievement by those who have entered. In considering the impact of part-time work on A level performance, it may then be necessary to consider how the desire for part-time work interacts with school-leaving decisions.¹⁴

How far do the differences in O level and CSE grade 1 performance observed in Figure 2 provide evidence that working part-time has a negative influence on examination performance for an individual with given characteristics? Might they not equally well be accounted for by a greater tendency for children with poor examination prospects to choose to work part-time whilst at school? In other words, in Figure 2, do we observe cause or effect?

To begin to disentangle the effects of part-time work from the effects of other, correlated, influences on examination performance, we estimate a simple count- data (Poisson) model of the number of O level and CSE grade 1 passes attained (Table 4). The tests of ability at age 11 are, not surprisingly, strongly and significantly correlated with performance. Parental education, the number of brothers and sisters, parental employment and the type of school all have significant coefficients. Also, the teenager's desire for income appears to be correlated (negatively) with examination outcomes.

Dummy variables are included for weekly hours of part-time work at age 16; the base consists of individuals who did not have a part-time job. Compared to the base, we do not detect any significant effect of working a small number of hours of part-time work. However, weekly hours of part-time work in the six-to-nine- hours band and higher bands are found to have a negative and statistically

¹⁴ A model looking at school-leaving decisions as part of a joint decision with part-time working is discussed by Dustmann, Rajah and van Soest (1995).

TABLE 4
Count-Data Model of the Number of O Level and CSE Grade 1 Passes

	<i>Coefficient</i>	<i>t statistic</i>	<i>Mean</i>
<i>Dependent variable:</i>			
Number of O levels and CSE grade 1s			2.253
<i>Independent variables:</i>			
Teenager worked under 3 hours at age 16	-0.046	-0.89	0.047
Teenager worked 3–6 hours at age 16	-0.025	-0.81	0.161
Teenager worked 6–9 hours at age 16	-0.088	-2.89	0.171
Teenager worked 9–12 hours at age 16	-0.259	-4.57	0.063
Teenager worked 12–15 hours at age 16	-0.289	-3.63	0.034
Teenager worked 15+ hours at age 16	-0.566	-7.31	0.046
Ability aged 11: 2nd quartile	1.417	20.19	0.250
Ability aged 11: 3rd quartile	2.013	29.82	0.250
Ability aged 11: 4th (top) quartile	2.381	35.27	0.250
Number of siblings	-0.082	-8.87	1.688
Age father left full-time education	0.043	6.79	4.071
Age mother left full-time education	0.045	5.88	4.029
Father working	0.215	4.39	0.899
Father professional	0.138	3.78	0.054
Father self-employed	-0.148	-2.39	0.042
Mother working	-0.053	-2.14	0.681
Teenager at secondary modern	-0.448	-11.88	0.248
Teenager at technical school	0.129	1.20	0.008
Teenager at independent school	0.356	8.59	0.040
Teenager at grammar school	0.392	14.75	0.145
Teenager at special school	0.074	0.74	0.022
Teenager would like a high-paying job	-0.268	-7.50	0.177
Log of household income	0.067	1.95	3.855
Female	-0.022	-0.99	0.494
Constant	-1.637	-12.50	
Log likelihood		-6,919.952	
$\chi^2(24)$		6,915.336	
Pseudo R ²		0.3332	
Number of observations		3,821	

Note: The model is estimated as a Poisson regression. The coefficients are to be interpreted as the marginal effects of the independent variable on the conditional mean.

significant effect on the number of examination passes. The negative effect of part-time work increases with increasing hours. This is illustrated in Table 5, which gives an estimate, based on the model in Table 4, of the number of examination passes for an individual with given characteristics. For the base case — an individual with no part-time job at age 16 — the model predicts 3.0 passes; for an otherwise- identical individual working between six and nine hours part-time at age 16, the model predicts 2.7 passes, and this falls to 1.7 passes if the individual worked more than 15 hours part-time per week.

It is, however, necessary to be cautious about drawing inferences from this model about the relationship between part-time work and examination performance. Whilst we have interpreted the model as a reduced-form model, it is difficult to be entirely clear as to what variables should count as genuinely exogenous in determining examination performance. In the case of the part-time work variable, it is possible that this could be affected by the individual's expectations about their examination prospects. An individual who believes that they will perform poorly in their examinations might take a part-time job in order to increase their chances of long-term employment by gaining work experience. If this type of response is common, inclusion of the part-time work variable in the reduced-form model will not correctly estimate its effect, and a more complex approach may be necessary, to take account of the endogeneity of the part-time work decision. In fact, Dustmann, Rajah and van Soest (1995) find, in the context of a structural model, that allowing for endogeneity of the part-time work decision has the effect of sharply reducing the significance of part-time

TABLE 5

Estimated Number of O Level and CSE Grade 1 Passes Obtained by 1974

<i>Individual and household characteristics</i>	<i>Estimated results</i>
Base case: male with no part-time job at 16, attending a comprehensive school, in 3rd ability quartile at age 11 and having no siblings. Household income is £47 per week. Father is working but mother is not. Mother and father left school aged 14–15.	3.0
As for base case but individual worked 6–9 hours per week at age 16.	2.7
As for base case but individual worked 15+ hours per week at age 16.	1.7
As for base case but individual was in 4th ability quartile at age 11.	4.4
As for base case but father left school aged 18–19.	3.5
As for base case but individual attends an independent school.	4.3
As for base case but father is not working.	2.5
As for base case but individual has one sibling.	2.8

Note: The table uses the equation shown in Table 4 to estimate the number of O level and CSE grade 1 passes that would be achieved by an individual with the 'base' characteristics, and shows how the estimated number of passes changes when a change is made to the value of some of the variables that have significant coefficients in Table 4.

hours in the determination of examination results, though the sign on the hours variable remains negative.

2. Effects on Future Wages

Gaining labour-market experience through part-time work while at school would be expected to have a positive effect on future employment prospects through both 'human capital' and 'screening' effects. Part-time work might teach skills relating to working behaviour that would be more widely applicable in later full-time work — in other words, the individual's general human capital might be increased through on-the-job experience and training. Also, the fact that an employer is prepared to employ a 16-year-old part-time may provide other potential employers in the future with a useful indicator of important but otherwise unobservable information about motivation and other qualities of the individual. Given these effects, we would expect there to be a positive correlation between working part-time aged 16 and wages received once the individual has completed their full-time education.

However, the importance of part-time working at age 16 in determining future employment prospects is likely to diminish over time. The amount of human capital acquired through on-the-job experience at age 16 is likely to become an increasingly negligible proportion of total work experience after only a few years of full-time employment. Similarly, the value of work at age 16 as a source of screening information will tend to diminish quickly once individuals have gained other, possibly more relevant, work experience. For both these reasons, it is to be expected that part-time work at age 16 will become less important in explaining wage variation over time.

The data collected for NCDS4 and NCDS5 on earnings and hours for the current job of the study participant allow us to calculate the gross hourly wage paid to individuals at the ages of 23 and 33. Using these data, we have estimated reduced-form wage equations for wages at these ages.¹⁵ The dummy variables for the various ranges of hours of part-time work at age 16 are mostly not significant in explaining wage rates at age 23, with the exception of the band representing between six and nine hours of work. This is significant at the 5 per cent level and has a positive sign, suggesting that individuals who worked average part-time hours at age 16 may have had higher wages at age 23 than those who did not work at all at age 16. In the equation for wage rates at age 33, none of the variables for part-time hours at age 16 was significant.

We do not place any great weight on these results. The sample used for the wage equations is substantially smaller than that for the earlier analysis: earnings and hours information are recorded in both NCDS4 and NCDS5 for only 1,219 individuals. The sample also seems likely to be affected by sample selection

¹⁵ The results are not given in detail here, but are available from Stephen Smith on request.

problems, relating both to post-compulsory education (which means that individuals start their post-school careers at very different times) and to differences in rates of employment of individuals with different characteristics (for example, there are fewer female participants in the labour force than males at the age of 33).

In addition, interpretation of the results is complicated by the reduced-form nature of the model. We cannot distinguish between the direct effect of part-time work on wages and the indirect effect operating through examination results; for this, a structural model would be required. This may be an interesting area for future research, although, because of the range and complexity of the educational choices available, it would be far from straightforward.

VI. CONCLUSIONS AND POLICY IMPLICATIONS

Part-time work by teenagers in full-time education in the UK is widespread, and the proportion of teenagers involved has been growing over time. Half of the 16-year-olds in the National Child Development Study in 1974 had a part-time job during term-time; on average, those working worked for between six and nine hours per week. Since then, as time-series data from the Family Expenditure Survey show, the proportion of teenagers in full-time education who have part-time jobs, and their weekly hours, have both risen.

What consequences does part-time work by teenagers in full-time education have for their educational performance and future career prospects? In principle, the effects of working part-time could be felt in both examination performance and in labour-market experience after school:

- Part-time work whilst in education might prevent enough time and effort being devoted to school work, and might thus worsen educational performance; on the other hand, it is possible that it could make pupils more mature and better at organising work of all sorts, and these effects might tend to counterbalance the displacement of time and effort. Taken at face value, the data from the National Child Development Study analysed in this paper suggest that working part-time may worsen examination performance: those who worked while at school had on average about two O level and CSE grade 1 passes, while those who did not work had on average about two-and-a-half. Our analysis shows that the negative effect on examinations of working part-time is largest and most significant when many hours are worked each week; no significant effect was detected from part-time jobs involving less than six hours of work per week. This result may, however, be affected by possible endogeneity of part-time hours; as Dustmann, Rajah and van Soest (1995) have found, taking account of this could reduce the level of significance of the hours effect on examination results, although they found that the sign remained negative.

- On the other hand, part-time work could have a direct impact on future employment prospects: skills may be learned in part-time work which may be useful in other employment, and part-time employment whilst at school may be used for 'screening' by future potential employers, to infer otherwise unobservable information about motivation and other dimensions of performance not measured in school work. Assessing the direct effects of part-time work on future career prospects is difficult, since it requires account to be taken of differences in qualifications achieved, and of the decisions by each individual about school leaving, further education and training, etc.; we have not been able to provide any robust evidence about this possible effect of part-time work.

Whilst the evidence is far from conclusive, and further empirical study of these issues would be desirable, we may none the less wish to consider what implications should be drawn for education and employment policies, if, as seems likely, a major commitment of time to part-time work whilst in education has a negative effect on the examination performance of those involved. Is there any reason to believe that teenagers in full-time education may be tending to work excessively?

A basis for assessing the efficiency of individual decisions can be provided by a human capital framework, in which the current benefits from working may be weighed up against forgone future welfare. The current benefits may be mainly seen as the additional current income from part-time work, whilst the forgone future welfare might be seen in terms of lower future wage rates, if the negative educational consequences of working part-time exceed any positive effects of gaining work experience. Assessing efficiency would then turn on two issues.

First, efficient decisions in this framework would require that individuals correctly perceive the relevant costs and benefits of the options they face. In educational decisions, there may be good grounds for believing that individuals are not in a position to make fully-informed decisions; some degree of paternalism in educational policy may therefore be appropriate.

Second, in addition to the perception of costs and benefits, there is an issue of whether working teenagers are placing an excessive value on current income at the expense of future prospects. As Micklewright, Pearson and Smith (1988) discuss in the context of education maintenance allowances, imperfections in credit markets may prevent individuals with a strong demand for current consumption from borrowing to meet their current consumption needs, even where immediate work involves a substantial sacrifice in terms of forgone future incomes.

What might be a sign that such pressures are a major factor in the decisions regarding part-time work of the teenagers in the NCDS data we have discussed above? A strong relationship between part-time working and low household

income or parents who were unemployed would, for example, suggest that, other things being equal, these factors might be influencing teenagers to work part-time to earn current income, even where this has significant future costs. Neither effect is evident in the data discussed here, however. In the reduced-form model of part-time work discussed in Section III, the income effect on participation is not statistically significant. Also, in the structural model discussed in Section IV, in which part-time working and parental transfers are jointly determined, the effect of household income on part-time working behaviour, operating through the income elasticity of transfers, seems likely to be small. Likewise, there is little evidence that parental unemployment pushes teenagers into excessive part-time work; if anything, the children of unemployed parents are less likely to work part-time, perhaps because their parents are not able to provide contacts with potential employers.

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