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INCREASES
INCOME**
&
ANTI
POVERTY***

*DEPENDENT ON AGE GROUP
**BY 0.9% ACROSS ALL INDIVIDUALS
***IN WORKING HOUSEHOLDS

RECOMMENDED BY THE
GOVERNMENT

Low pay

Richard Dickens finds that the new floor on wages in the UK has not had the negative effect on employment that conventional economic models predicted and that it has been set too low to affect all of those targeted on the bottom 9% of the wage scale.

On 1 April 1999 the first legally binding National Minimum Wage (NMW) was introduced in the UK. What has been the evidence so far about its impact on pay, employment, poverty and income inequality?

Britain has never before had a national wage floor. Between 1909 and 1993, Wages Councils set minimum rates in a number of different low paying industries and a minimum wage still exists in the agricultural sector. This was set at £3.60 an hour for workers aged 22 and over and at £3.00 an hour for those aged 18 to 21. These rates were changed in June 2000 to £3.20 an hour for youths and in October 2000 to £3.70 an hour for adults. The Labour government also made an election pledge to increase the adult rate to £4.10 an hour in October 2001 and to £4.20 an hour a year after that.

One might imagine that measuring the number of workers affected by the introduction of the minimum wage would be relatively straightforward. However, the available UK survey data on individuals' hourly earnings are just not up to the job. This has led to considerable uncertainty over the likely impact of the minimum wage, both in terms of how many workers will experience a wage increase and the size of that increase. Before its introduction, the Low Pay Commission (LPC) estimated that around 2 million workers (or 9%) would receive a wage increase, with the average wage increase being in the region of 30%. However, since then the LPC has twice revised down its estimates of the number of workers affected to 1.5 million (6.4%) in February 2000 and then to 1.3 million (5.5%) in March 2001.

The problem arises because none of the available survey data provides an accurate measure of individuals' hourly wages. The two surveys most commonly used for this type of analysis are the Labour Force Survey (LFS) and the New Earnings Survey (NES). The LFS is a household based survey that samples about 60,000 households every quarter. Individuals are asked about their most recent

earnings and their number of hours worked. The responses are used to compute an hourly wage. However, there is good reason to think there is a large amount of measurement error in these computed hourly wages. This probably arises for a number of reasons, including the large number of proxy responses in the LFS and confusion over *gross* and *net* wages. Computing hourly wages by dividing earnings by hours is likely to amplify any such errors. The earnings information in the NES is likely to be much more accurate, since it is obtained from employers. However, since the NES sample is constructed from tax records, it under-samples workers with low earnings (mainly part-timers and women) and so is not very useful for measuring the extent of low pay.

The Low Pay Commission is well aware of these problems and has made a number of attempts to obtain a better estimate of the extent of low pay. In March 1999 a question was introduced into the LFS asking workers whether they were hourly paid and for their hourly rate. Since only a proportion of workers report an hourly rate, some form of imputation is required for those not reporting one. The LPC combines this imputed hourly rate information from the LFS with information from the NES to compute an overall estimate of the number of affected workers. Table 1 presents the latest LPC estimates of those paid below the minimum wage in Spring 1998.

Table 1 LPC estimates of the number of workers affected by the NMW

	Individuals paid less than NMW	
	%	('000s)
Spring 1998		
18-21 years	6.6	105
22 years and over	5.3	1,150
All over 18 years	5.4	1,255

Computed from Table A1.5 in Low Pay Commission, 2001a). Figures are those for adults and youths paid below £3.50 and £2.90 respectively in Spring 1998 to allow for earnings growth between Spring 1998 and Spring 1999.

We estimate that in March 1999 some 6% of workers were paid below the minimum.

These LPC estimates suggest that before the NMW just under 1.3 million workers were paid less than the minimum rate (deflated to Spring 1998 earnings levels). This constitutes some 5.4% of workers: 5.3% of adults and 6.6% of youths. These figures are well below the original estimate of 2 million workers (9%). This is important, since one of the stated criteria used by the LPC in deciding what the minimum rate should be was the proportion of workers affected (Low Pay Commission, 1999). Clearly, if the intention was to set the rate so that 9% of workers were covered, then a substantially higher rate is required. Using the most recent LPC estimates of the proportions paid below different hourly rates, the adult minimum would have had to have been £4.00 an hour to affect 9% (Low Pay Commission, 2001a).

Since the LPC is largely concerned with under-payment, most of the figures it publishes refer to the number (or proportion) of workers paid below the minimum wage. However, we are interested in the numbers actually paid the minimum wage when it was introduced and up-rated. Therefore, we have computed our own estimates of the distribution of hourly pay, based on the hourly rate information in the LFS. Table 2 presents these estimates of the proportion of adult workers whose pay lies in different hourly pay bands over the period of the introduction of the minimum wage and the period when the adult rate was up-rated to £3.70. Rather than taking the exact minimum rate, we look at a 5p pay band around it.

We estimate that in March 1999 some 6% of workers were paid below the minimum and about 1% were paid at the minimum. These estimates are somewhat above those reported by the LPC. By April-May 1999 we find 5% paid at the minimum, so it appears that the legislation did impact substantially on wages. We do find a significant number paid below the minimum (1.6%), but this proportion declines by the next period (June-August 1999) as the proportion at the minimum increases slightly to 5.2%.

The next period of interest is October 2000, when the adult rate was up-rated. By September 2000 only 2% of workers were paid at the minimum wage (and very few below). Overall wage growth lessened its impact on the distribution.

Consequently, when it was increased by only 10p, the number of workers affected was much less than at the initial introduction. In the period October to November 2000 we find only 2.2% of workers at the new rate of £3.70, with some still at the old rate. By December 2000 to February 2001 the proportion below has declined, but there are still only 2% at the new rate. In October 2001 the rate was increased to £4.10. We can see that some 7.6% of adult workers are paid below £4.10 in the period December 2000 to February 2001. Given that overall wage growth is currently strong, this represents an upper bound on the proportion of workers who will be affected by the October 2001 up-rating. We expect this to be similar to the proportion affected by original introduction of the NMW.

One of the major considerations in introducing the minimum wage was the effect it might have on employment. The conventional model of the labour market unambiguously predicts that, if a minimum wage is introduced above the market clearing wage, employment will fall. Until the early 1990s, the conventional wisdom was that minimum wages set at levels generally observed in Europe and the US had small negative effects on employment. However, more recent estimates of the impact of raising the US minimum wage in the early 1990s (Card and Krueger, 1995) and the impact of the UK Wages Councils (Dickens, Machin and Manning, 1999) found small positive effects on employment.

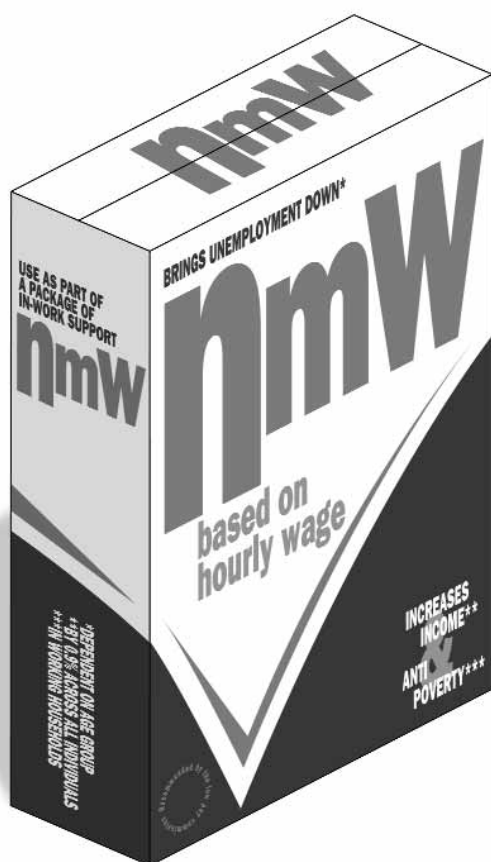
Trying to estimate the impact of introduction of the minimum wage on aggregate employment levels is difficult. Aggregate employment growth has been strong throughout this period, with employment reaching a record level of 28 million by the end of 2000. Of course, we do not know what would have happened in the absence of the minimum wage. A simple way of attempting to evaluate this is to examine employment rates across different age groups. Since there is no minimum wage for 16 and 17 year olds, and since the minimum wage for 18 to 21 year olds has more bite than the adult rate, we might expect to see some substitution between these groups. In fact, estimates from the LPC show that between Spring 1999 and Spring 2000 the employment share of 16 and 17 year olds actually fell, while the employment share of 18 to 21 year olds increased.

Table 2 Proportion of adult workers in hourly rate bands

	March 1999	April-May 1999	June-Aug 1999	Sep 2000	Oct-Nov 2000	Dec 2000 – Feb 2001
Under £3.575	5.97	1.58	0.86	0.45	0.43	0.38
£3.575 – £3.625	0.98	4.99	5.20	2.07	0.72	0.40
£3.625 – £3.675	0.37	0.71	0.59	0.12	0.14	0.02
£3.675 – £3.725	0.61	0.74	0.60	0.54	2.17	2.06
£3.725 – £4.00	2.67	3.25	3.32	2.27	2.14	1.94
£4.00 – £4.10	3.42	4.03	4.19	3.38	3.06	2.83

Estimates from Dickens and Manning (2001). Labour Force Survey data.

The Low Pay Commission has twice revised down its estimates of the numbers affected.



However, there have been other policy changes that will have affected these age groups differently, e.g. the New Deal and education enrolment. Overall, the evidence from aggregate employment levels is inconclusive.

Another approach is to examine the micro-economic evidence on employment change. Stewart (2001) compares the probability of remaining in employment from one period to the next between workers directly affected by the minimum wage and those not directly affected. The conventional model would predict a relative fall in employment rates for those affected over the period of introduc-

tion. He finds essentially no significant difference in the employment retention rates of those initially paid below the minimum and those paid above over the period of introduction. In fact, he finds small positive effects for young men, adult men and young women, but small (insignificant) negative effects for adult women. One difficulty in this type of analysis is choosing a suitable comparison group. Stewart focused on those paid just above the minimum wage prior to introduction. However, we have seen above that this earnings data contains a substantial amount of measurement error, which may mean that the comparison group is unreliable.

Another way to analyse aggregate employment changes due to the minimum wage is to utilise the regional variation in wages that exists across Britain. We expect those regions that are most affected by the minimum wage to exhibit the greatest employment changes over the period of introduction. Using county level data from the LFS, we examine differences in employment in the six months after introduction (April to September 1999) compared with those in the six month period a year earlier (April to September 1999). We use regression analysis in order to control for other characteristics in the counties. Table 3 presents our results using three different measures of employment (change in (log) employment-population ratio, change in (log) total employment and change in (log) total hours worked) and two measures of the impact of the minimum wage (the initial proportion paid below the NMW and the wage gap: the wage increase required to raise everyone up to the minimum wage expressed as a percentage of the total wage bill).

We find that those counties most affected by the minimum wage have a small increase in employment (both in the employment-population rate and in the employment level), although none of our results is significant. Thus a 1% increase in the proportion paid below the NMW prior to introduction leads to a 0.18% change in the employment/population ratio. We find a small negative impact on total hours, but again this is insignificant. So, while nothing very strong emerges here, we can find no evidence that the minimum wage has adversely affected aggregate employment.

The National Minimum Wage was introduced as part of an anti-poverty strategy designed to make work pay. However, many commentators have doubted the effectiveness of the minimum wage as an anti-poverty device. An argument often made is that the minimum wage raises the incomes of second earners in relatively well off households (teenagers and working wives), whereas most of the poor are those without work (pensioners and the jobless). Indeed, in 1978 the Royal Commission on Income and Wealth rejected the introduction of a minimum wage for precisely these reasons.

However, rising wage inequality in the 1980s and 1990s

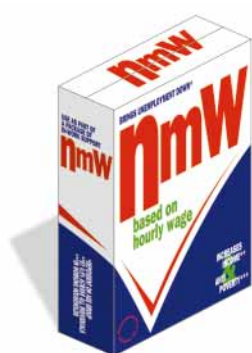
Table 3 County level changes in Employment and Hours. April-Sep 1998 and April-Sep 1999

Effect of 1% change in minimum wage measure on		
Change in employment/population ratio (%)		
Initial proportion paid below NMW	0.18	(0.20)
Wage Gap	1.60	(1.44)
Change in employment (%)		
Initial proportion paid below NMW	0.06	(0.35)
Wage Gap	0.03	(2.51)
Change in total hours (%)		
Initial proportion paid below NMW	-0.06	(0.34)
Wage Gap	-0.92	(2.45)

Notes: Regression on 65 counties in Great Britain. Other control variables are proportion female, proportion manual, average age, proportion white. Wage Gap is the wage cost of raising those below NMW up to NMW, expressed as percent of total hourly wage bill. Standard errors in brackets.

Table 4 Household Income Deciles of individuals in households affected by minimum wage

Household income decile	All individuals		Individuals in working age households		Individuals in working age employed households	
	% Affected	Distribution of affected	% Affected	Distribution of affected	% Affected	Distribution of affected
1st decile	12.7	12.6	14.2	12.9	39.7	30.2
2nd decile	16.1	14.3	21.7	18.2	22.8	16.4
3rd decile	14.5	11.7	16.8	13.6	22.3	15.1
4th decile	16.0	14.1	18.2	15.5	18.9	12.7
5th decile	15.2	13.9	16.8	14.1	9.4	5.6
6th decile	11.8	10.8	8.9	6.7	11.3	6.7
7th decile	9.3	8.3	9.0	6.8	7.6	4.4
8th decile	6.3	5.7	8.9	6.5	8.7	4.7
9th decile	7.0	5.8	4.7	3.1	5.9	3.0
10th decile	3.6	2.8	4.0	2.6	2.8	1.4
All deciles	11.4	100.0	12.8	100.0	16.3	100.0



Rising wage inequality has made the minimum wage a more effective tool for tackling poverty.

(and the increasing prosperity of pensioners) has resulted in a stronger link between low pay and low household income (Dickens, 1999). This has made the minimum wage a more effective policy tool for tackling poverty and reducing inequality. Table 4 presents information on the link between low pay and household income, using data from the Family Expenditure Survey 1998/99. The analysis considered the impact of going from a situation with no minimum wage to one of £4.10 for adults and £3.50 for those aged 18 to 20 (at October 2001 earnings levels). The Table presents the percentage of individuals, by household income decile, affected by the minimum wage for three different populations: all individuals, individuals in working age households and individuals in working age employed households. Also presented is the distribution of affected workers across household income deciles. Note that

Table 5 Gains from the minimum wage across household income deciles

Household income decile	All individuals		Individuals in working age households		Individuals in working age employed households	
	% increase in income	Distribution of gains	% increase in income	Distribution of gains	% increase in income	Distribution of gains
1st decile	2.3	13.0	2.5	13.1	5.2	28.9
2nd decile	1.5	13.9	2.1	18.2	1.8	16.8
3rd decile	1.4	16.5	1.3	15.3	1.3	14.9
4th decile	0.9	12.9	1.1	15.1	0.8	9.0
5th decile	0.9	12.8	0.7	9.6	0.4	5.5
6th decile	0.5	7.1	0.4	6.4	0.6	8.8
7th decile	0.4	8.5	0.5	9.1	0.3	4.7
8th decile	0.3	5.9	0.2	5.8	0.2	5.3
9th decile	0.2	6.5	0.2	4.4	0.2	4.1
10th decile	0.1	2.8	0.1	3.1	0.1	2.1
All deciles	0.9	100.0	1.0	100.0	1.3	100.0

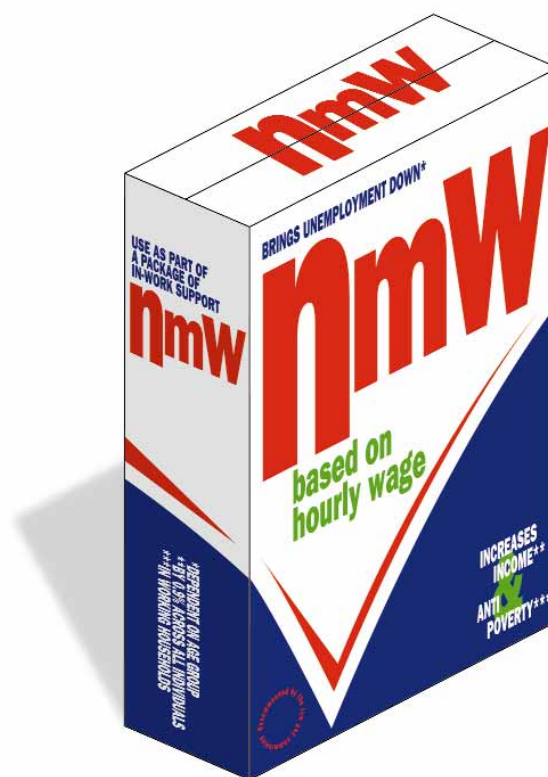
individuals may be affected if they live with a minimum wage worker, thus bringing the effect on children into the picture.

Looking first at the impact across all individuals, we see that some 11% are affected by the introduction of the minimum wage at these rates. Some 13% of those with incomes in the bottom decile are affected and 16% of those in the second decile. Many of those in the bottom decile are pensioners and workless households. The second column presents the distribution of affected individuals. We see that over 50% of those affected are in the bottom four deciles of the household income distribution. Dropping pensioner households from this analysis strengthens the link between low pay and low income. Here some 60% of affected individuals are in the bottom four deciles. When we focus on those in households of working age with someone in work, we see a much stronger link. Almost 40% of those in the bottom decile are affected by the minimum wage and almost 75% of those affected have incomes in the bottom four deciles.

These figures show us the incidence of low pay in households with different incomes, but tell us nothing about the impact of the minimum wage upon these incomes. Table 5 presents the percentage change in household income arising from the introduction of the minimum wage at these rates and the distribution of the gains across income deciles for all individuals in these three populations.

One should note that these are gross gains and so take no account of tax and benefit changes that will arise with the increase in earnings. These changes will dampen the effect of the minimum for all households. The table shows that the distribution of gains is similar to the distribution of affected workers in Table 4. This suggests that it is the presence of a single minimum wage worker in the household that is important, rather than the number of hours they work or the presence of more than two or more minimum wage workers.

Across all individuals the minimum wage raises gross income by 0.9%. The largest affect is for those individuals whose household income is in the bottom decile. Their incomes rises by 2.3%, compared with 0.9% for those in decile five and 0.1% for those in the top decile. This means that the minimum wage will have some impact on household income inequality, by raising incomes at the bottom by more than at the top of the distribution. The figures for individuals in working age employed households are stronger still. Overall income will rise by 1.3%, but for those in the bottom decile of this population incomes rises by 5.2%. While it is clear that the minimum wage cannot directly affect individuals who are out of work, it appears that it will have some relatively modest effects on the incomes of the working poor. Furthermore, the minimum wage has been introduced as part of a package of in-work support, which overall will have larger effects on poverty.



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