

# **Minimum Wages in the UK**

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# Structure of Talk

- Background and History
- Impact and Evidence
- Other Issues

# Background and History

- History of wage floors in the UK
- The debate leading up to the introduction of a National Minimum Wage in April 1999

# Some History

- **19<sup>th</sup> Century and early 20<sup>th</sup> Century**
  - various Factory Acts had set minimum conditions for hours, health and safety but not wages
  - Fair Wages Resolution 1893 – Local government could set minimum wages for their contractors
- **1909–1993 Trade Boards and Wages Councils**
  - **1909–1945 Trade Boards and 1945–1993 Wages Councils**
  - introduced by Winston Churchill as President of the Board of Trade in 1909
  - set minimum wages and conditions in certain industries (generally the unorganised trades)
    - very limited initial coverage - ‘the sweated industries’
    - over time more sectors added including some service sectors
    - coverage never universal but reached about 2.5 million workers in 1990.
  - weak enforcement
  - diminishing effectiveness of these regulations in 1980s
  - abolished 1993 (except Agricultural Wages Board which still exists today)

# Towards a Wage Floor

- **Momentum towards a wage floor in the 1990s**
  - increasing wage inequality
    - abolition of Wages Councils
    - decline of trade unions
    - globalisation
    - outsourcing and sub-contracting of services
  - increase in child poverty after 1980
    - poverty, in particular child poverty rose sharply in UK after 1983
  - growth of in-work benefits as wage subsidy
  - election of Labour Government in May 1997

# Debate About a Wage Floor in the 1990s

- Pro
  - Trade Unions
  - Lobby Groups
    - Low Pay Unit
  - Labour Party
  - Press
    - Daily Mirror
- Against
  - Business Groups
  - Conservative Party
  - City Economists
  - Press
    - The Economist

# What Proponents Argued

- A minimum wage will prevent exploitation and play a key role in tackling poverty.
- It will allow companies to compete on quality rather than price.
- Without it, the good employer is undercut by the bad and the bad by the worst.
- Better paid staff work more productively.
- It will prevent poor employers relying on the state to top up poverty wages.

# What Opponents Argued

- It will lead to rising prices, business closures and loss of jobs
- Between 1 and 2m jobs will be lost
- The Government may gain (higher taxes and reduced in-work benefits) but workers & business will lose, as NMW workers lose in benefits what they gain in pay
- Maintaining differentials will be very costly
- Young people will suffer – the higher the NMW, the higher youth unemployment



# The Low Pay Commission

- LPC set up in 1997 to define the National Minimum Wage and recommend its introductory level.
- NMW introduced on 1 April 1999.
- The NMW *“heralds a fundamental change to the labour market in the UK. There will be a floor to wages in the first time in this country, eradicating the worst cases of exploitation.”*

**Professor George Bain, the first chair of the LPC (1999)**

- *“Our aim is to have a minimum wage that helps as many low-paid workers as possible without any significant adverse impacts on inflation or employment.”*

**LPC Report (2005)**

# LPC Process

- How the Low Pay Commission Works
  - social partnership
  - small secretariat
  - evidence-based policymaking
  - LPC **recommends** then Government **decides**
  - compliance and enforcement

# Social Partnership

- 9 Commissioners, of whom:
  - Paul Myners, Chair (background in business)
  - 2 academic labour economists
  - 3 trade union background
  - 3 employer background
- Supported by a small Secretariat (fewer than 10 Civil Servants – policy, analysis, admin)

# Impact and Evidence

- Most evidence has concentrated on impact of minimum wages on earnings and employment/hours.
- But some (more limited) evidence on other outcomes (e.g. profitability, prices, productivity and training).
- Older work on Wages Councils, newer work on NMW.

# UK Wages Councils

- System of minimum wages that used to operate in UK was a partial coverage industry based system.
- Wages councils introduced in 1909 (by Churchill) covered workers in low wage industries (the sweated trades). Abolished in 1993.
- At time of abolition covered around 12 percent of workers in the labour market. Were concentrated in low wage service sector industries. Largest was retail trade.

## **UK Wages Councils (Continued)**

- Dickens, Machin, Manning (1999) look at employment and minimum wages in Wages Council industries from 1975-92.
- Reduced wage inequality, but no evidence of disemployment effects.

# Wages Councils: Wage Structure Impacts

**Table 2**  
**Effects of Minimum Wages on the Wage Distribution**  
 Dependent Variable:  $\Delta$ *i*th Percentile/Average of log Real Hourly Earnings  
 Distribution

Dependent Variable	Coefficient (Standard Error) on $\Delta \log(\text{Real Minimum Hourly Wage})$	Test for Serial Correlation
$\Delta$ tenth percentile	.193 (.082)	-1.168
$\Delta$ twentieth percentile	.242 (.065)	-1.778
$\Delta$ thirtieth percentile	.217 (.068)	-.707
$\Delta$ fortieth percentile	.126 (.057)	-1.213
$\Delta$ fiftieth percentile	.089 (.066)	-1.558
$\Delta$ sixtieth percentile	.040 (.069)	-1.803
$\Delta$ seventieth percentile	-.001 (.058)	1.533
$\Delta$ eightieth percentile	.005 (.069)	.229
$\Delta$ ninetieth percentile	.020 (.083)	.300
$\Delta$ average	.114 (.057)	-1.414

NOTE.—Sample size is 198; estimation period is 1976–92. Regressions are weighted by employment in industry-year cell. Heteroskedastic consistent standard errors are in parentheses. Time dummies included in all specifications. Serial correlation test is an  $N(0, 1)$  statistic for first-differenced panel data models as described in Arellano and Bond (1991).

# Changes in Employment and Toughness

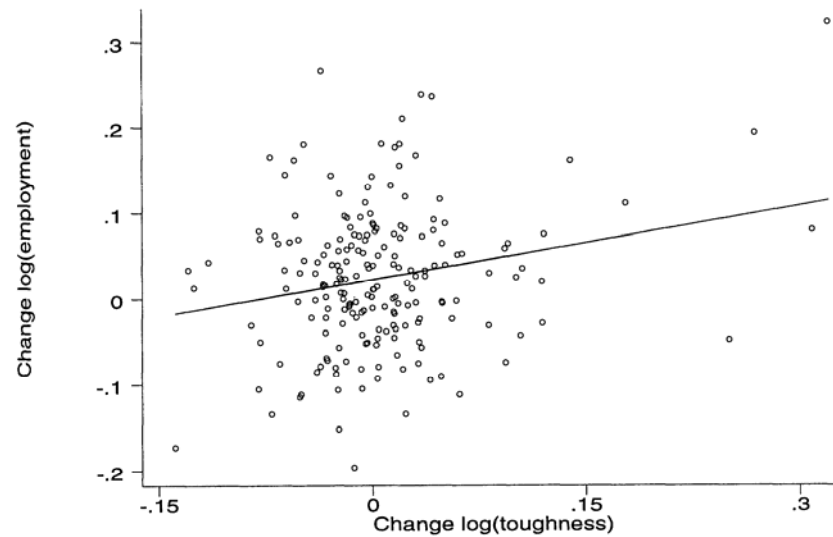


FIG. 4.—Changes in  $\log(\text{employment})$  and changes in  $\log(\text{toughness})$ . Based on New Earnings Survey data described in table 1. The regression line is from a regression of the change in  $\log(\text{employment})$  on the change in the  $\log(\text{minimum/average})$  (standard errors in brackets):

$$\text{Change in } \log(\text{employment}) = .022 + .286 \text{ Change in } \log(\text{minimum/average}).$$

(.006) (.125)

An analogous regression estimated by robust regression methods to downgrade the importance of potential outliers was

$$\text{Change in } \log(\text{employment}) = .020 + .220 \text{ change in } \log(\text{minimum/average}).$$

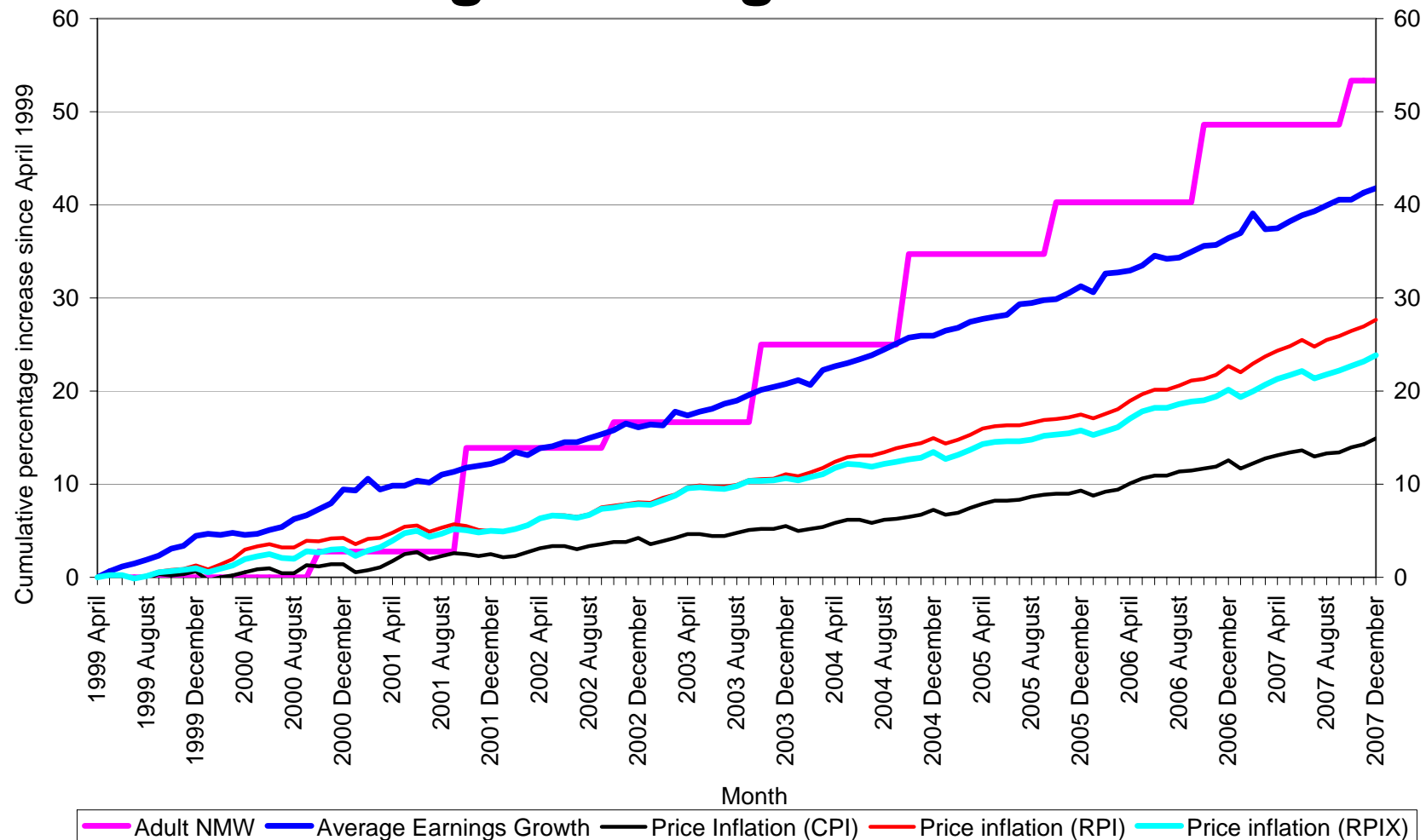
(.006) (.092)



# **The Introduction of a National Minimum Wage in the UK**

- Introduced in April 1999 at £3.60 for over 21s, £3.00 for 18-21s, none for 16-17 year olds.
- Raised (by fairly small amounts at first and bigger ones later) on an irregular basis. Now (after last change) stands at £5.52 for the adult rate, at £4.60 for the development rate and, since October 2004, there is a rate for 16-17 year olds (currently £3.40).

# Value of Actual Adult NMW Compared with Initial NMW (£3.60) Uprated by Indices of Average Earnings and Prices



Source: LPC estimates based on ONS data, average earnings growth using AEI including bonuses (ONS code LNMQ), price inflation using RPIX (ONS code CHMK), RPI (ONS code CHAW) and CPI (ONS code D7BT), monthly, seasonally adjusted (not seasonally adjusted for RPIX, RPI and CPI), UK (GB for AEI), 1999–2007.

# The National Minimum Wage as a Percentage of Various Points on the Earnings Distribution, UK, 1999–2007

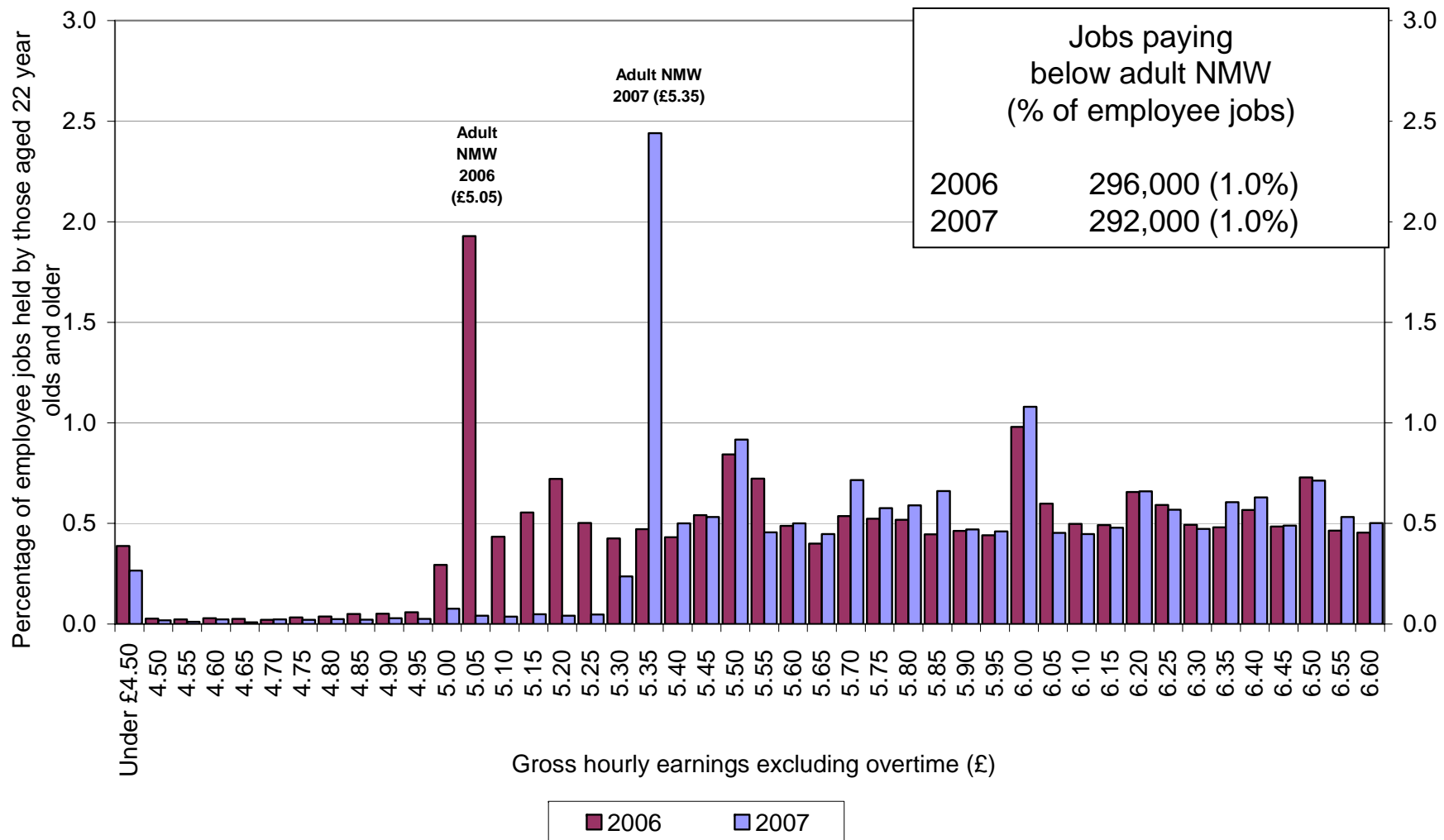
	Year	Adult National Minimum Wage (£)	Adult National Minimum Wage as % of					
			Lowest Decile	Lowest Quartile	Median	Mean	Upper Quartile	Upper Decile
ASHE without supplementary information	1999	3.60	83.9	65.1	45.7	36.6	30.4	21.1
	2000	3.60	81.2	64.2	45.4	35.7	29.8	20.6
	2001	3.70	80.3	63.0	44.2	34.7	29.0	19.9
	2002	4.10	85.2	67.5	47.2	36.5	30.8	21.0
	2003	4.20	82.4	65.8	46.5	35.9	30.5	20.8
	2004	4.50	84.9	67.6	47.5	37.2	31.3	21.4
ASHE with supplementary information	2004	4.50	85.6	68.3	48.1	37.7	31.6	21.7
	2005	4.85	88.0	69.9	49.4	38.5	32.3	22.1
	2006	5.05	87.5	69.9	49.4	38.4	32.3	22.1
ASHE 2007 methodology	2006	5.05	87.5	70.0	49.7	38.5	32.5	22.3
	2007	5.35	89.2	71.8	51.1	39.6	33.6	22.9

Source: LPC estimates based on the Annual Survey of Hours and Earnings (ASHE) 2007 without supplementary information, standard weights, UK, April 1999–2004, ASHE with supplementary information, standard weights, UK, April 2004–2006 and ASHE 2007 methodology, standard weights, UK, April 2006–2007.

Notes:

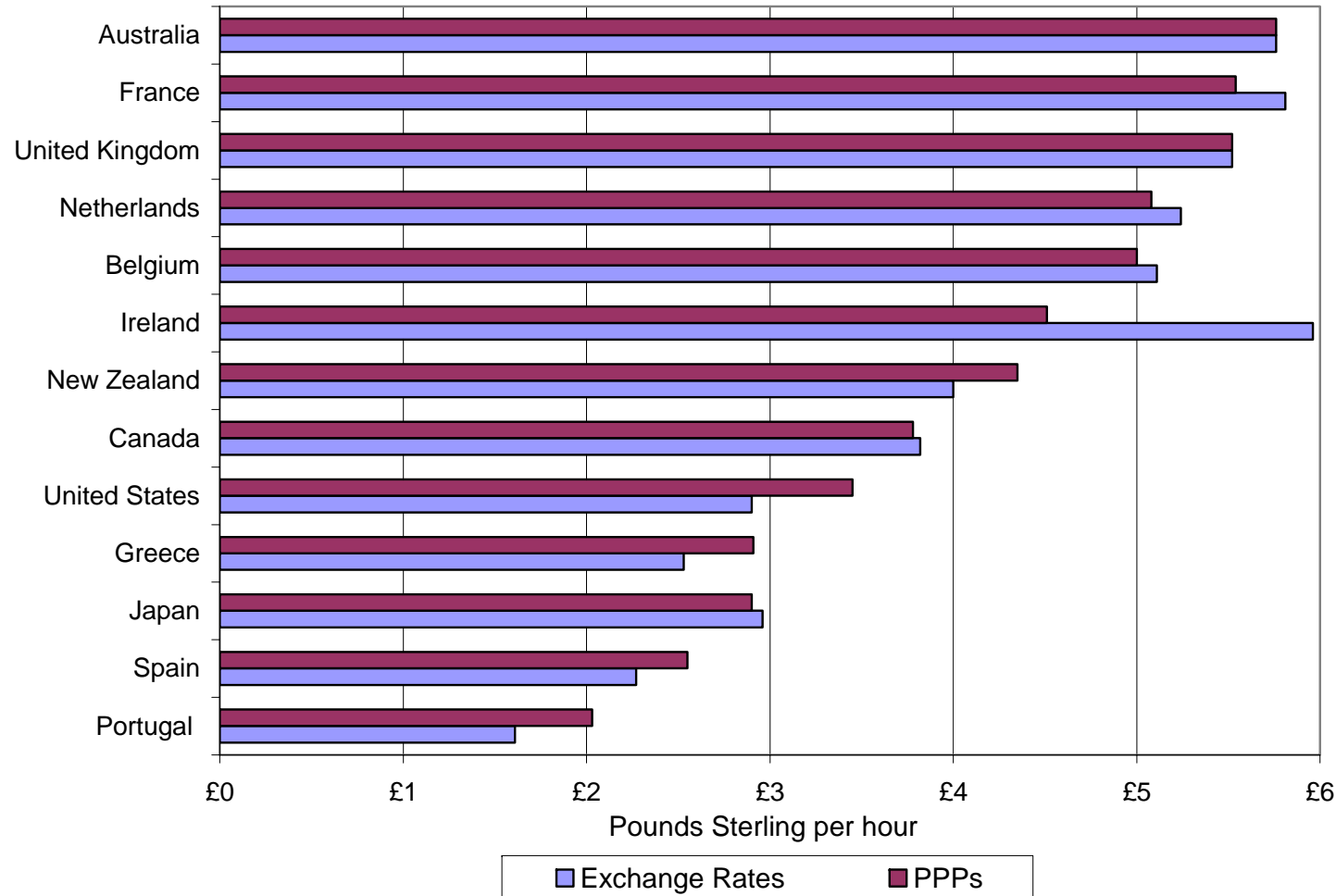
1. Direct comparisons before and after 2004 and those before and after 2007, should be made with care due to changes in the data series.
2. Those jobs where pay was affected by absence in the reference period were removed before the percentiles were calculated.

# Hourly Earnings Excluding Overtime, Jobs Held by Employees Aged 22 and Over, UK, 2006–2007



Source: LPC estimates based on ASHE 2007 methodology, low-pay weights, UK, April 2006–2007.

# International Perspective



- Using Exchange rates or PPP, the UK NMW is ranked as one of the highest in the OECD

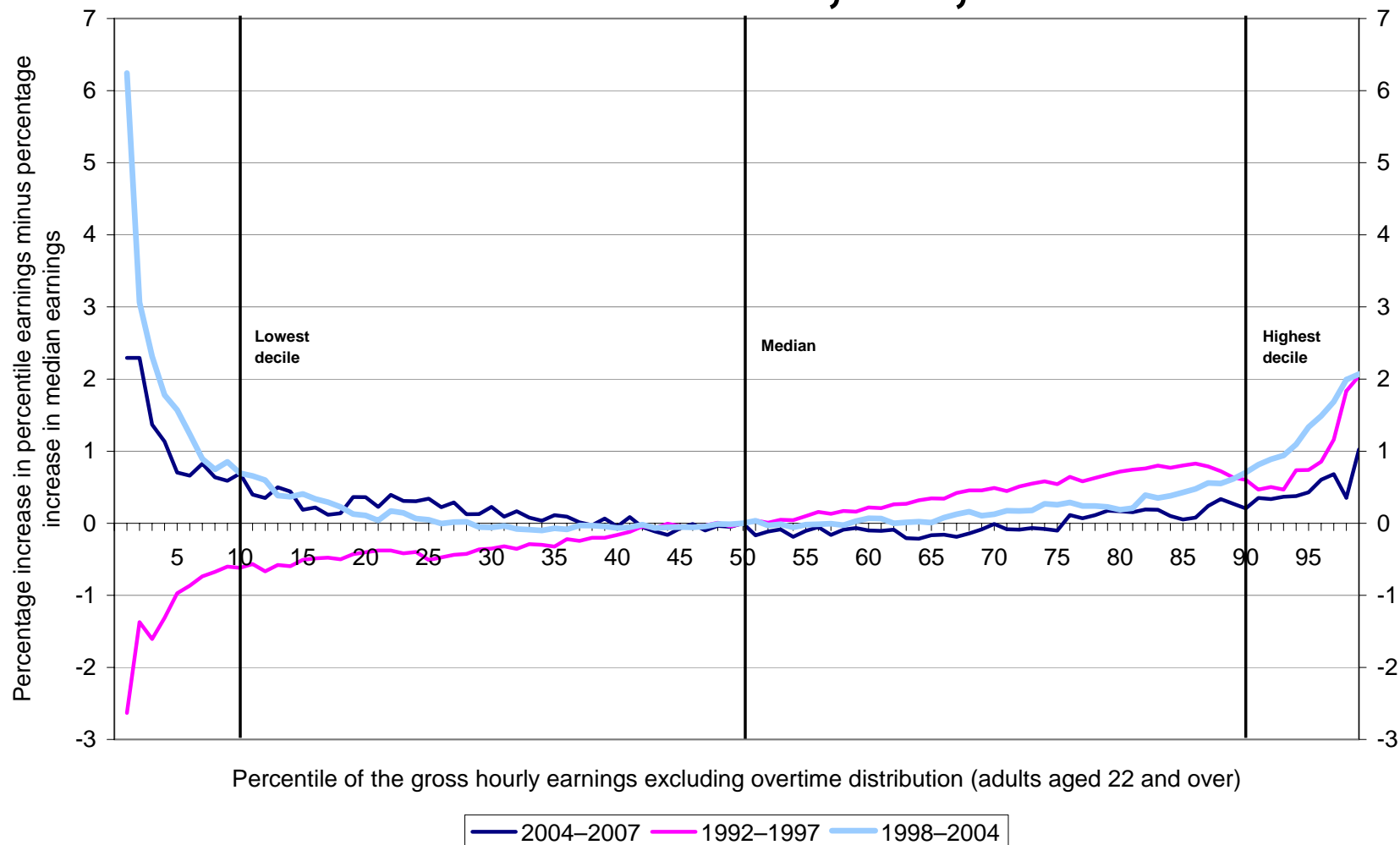
- BUT, as a percentage of average wages, the NMW in the UK is mid-table

Source: OECD, British Embassies and High Commissions, 31 December 2007.

Note: LPC estimates based on Purchasing Power Parity using OECD Comparative Price Levels, September 2007.

Exchange rate comparisons use Bank of England monthly average spot exchange rate converted to UK sterling.

# Changes in Percentile Gross Hourly Earnings Relative to the Median, UK, 1992–2007



Source: LPC estimates based on unweighted New Earnings Survey (NES), April 1992–1997, ASHE without supplementary information, standard weights, UK, April 1998–2004, ASHE with supplementary information, standard weights, UK, April 2004 and ASHE 2007 methodology, standard weights, UK, April 2007.

Note: Comparisons have been made here for illustrative purposes only as no consistent earnings time series data is available from 1992 to 2007. This analysis uses ASHE with supplementary information for 2004 and ASHE methodology for 2007. These two series are not strictly comparable although the data for 2006 are similar in both.

# Decadal Changes in UK Wage Inequality (New Earnings Survey)

	<b>Trends in UK Hourly Wage Inequality Indices (Annualised Percentage Points)</b>		
	1980s	1990s	2000s
90-10 Differential	1.9	1.0	0.4
90-50 Differential	1.2	0.6	0.6
10-50 Differential	-0.7	-0.4	0.2

# Introduction of NMW – Employment Effects

- Key economic question concerns impact on employment.
- LPC stated that their view was that NMW was set at level that would not harm jobs (logic is idea that can have monopsony power up to a certain level of wages so get inverse U-shape in employment effects).



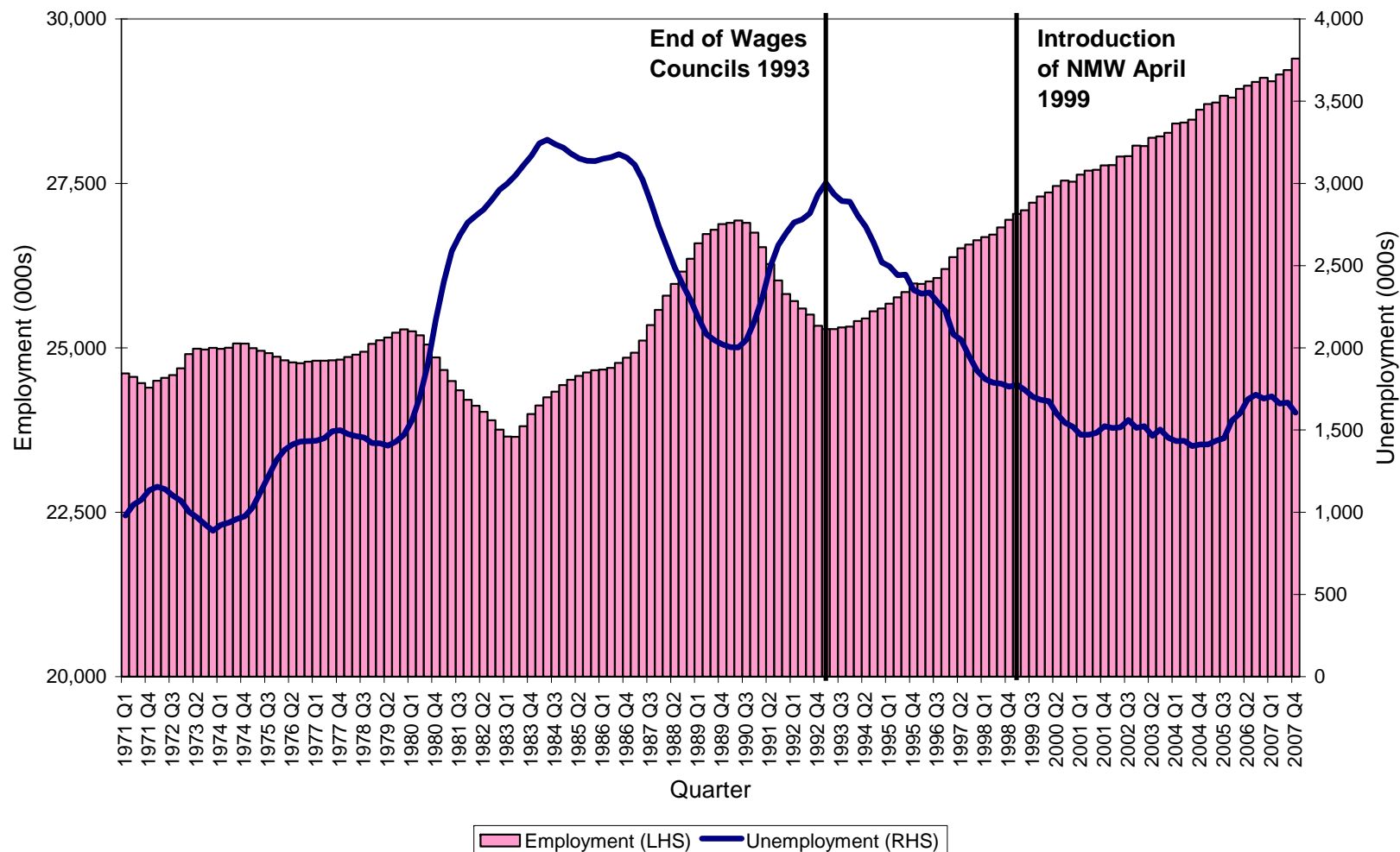
# Introduction of NMW - Employment Effects (Continued)

## 1). Macroeconomic picture

- No obvious unemployment effect from NMW introduction.
- Aggregate employment rates (%): 1998 – 73.5, 1999 – 73.9, 2000 – 74.4, 2001 – 74.4;  
Unemployment rates (%): 1998 – 6.3, 1999 – 6.0, 2000 – 5.4, 2001 – 5.1.

(Source: Labour Market Trends, March 2003)

# Employment and Unemployment 1971–2007



Source: ONS Labour Force Survey. Employment is defined to include employees, self-employed, family workers and those on government training schemes (ONS code MGRZ). Unemployment is the ILO definition – actively sought work in the last four weeks and available to start within two weeks (ONS code MGSC).

# **Introduction of NMW- Employment Effects (Continued)**

## **2). Micro studies with treatment-control design.**

- Stewart (2004) looks at individual-level data sources to appraise the impact of NMW introduction on individual employment probabilities.
- Explicitly looks before and after minimum wage introduction using longitudinal data on people (from Labour Force Survey, British Household Panel Survey and New Earnings Survey).

# **Introduction of NMW- Employment Effects (Continued)**

- Stewart (2004) presents difference-in-difference estimates for four groups: adult men, young men (<22), adult women, young women (<22).
- Also cross-area paper (Stewart, 2002) where uses geographical variation in the proportion affected (across 140 areas) to identify any minimum wage effect.

# **Introduction of NMW- Employment Effects (Continued)**

- Stewart (2004) approach is to compare those workers affected by the minimum wage with workers above the minimum wage floor.
- Looks at differences-in-differences across these groups (again 'treatment'-'control' type comparison).

# Introduction of NMW- Employment Effects (Continued)

- Step 1 looks at wage effects.

TABLE 1. Difference-in-differences and wage-gap estimates of the effect of the introduction of the minimum wage on wage growth.

Basic specification: Matched Labor Force Survey data				
	LFS ( $W_U$ )	LFS ( $W_A$ )	NES	BHPS
Raw difference-in-differences	4.633 (2.68)	6.024 (2.95)	4.033 (4.92)	7.494 (2.53)
Full set of time dummies added	4.605 (2.66)	6.100 (2.99)	4.047 (4.93)	7.170 (2.45)
Robust regression	4.887 (3.86)	5.018 (3.00)	4.178 (10.11)	7.422 (3.26)
Wage-gap estimator	6.899 (4.47)	8.837 (4.81)	10.012 (10.05)	9.062 (3.25)

*Notes:*  $W_U$  = wage based on “usual” hours,  $W_A$  = wage based on “actual” hours. Sample sizes: LFS: 44,076; NES: 450,319; BHPS: 14,047. *t*-ratios in parentheses.

# Introduction of NMW- Employment Effects (Continued)

- Step 2 looks at differences in employment probabilities.

TABLE 2. Difference-in-differences and wage-gap estimates of the effect of the introduction of the minimum wage on the probability of subsequent employment.

Basic specification: Matched Labor Force Survey data				
	Adult men	Young men	Adult women	Young women
Raw linear difference-in-differences estimates				
Wage based on usual hours	.020 (0.68)	.012 (0.15)	-.006 (0.32)	.067 (0.79)
Wage based on actual hours	.015 (0.49)	.059 (0.72)	.011 (0.60)	.079 (0.86)
Logit difference-in-differences estimates with controls				
Wage based on usual hours	.014 (0.93)	.073 (0.88)	-.010 (0.93)	.119 (1.15)
Wage based on actual hours	.011 (0.74)	.155 (1.36)	.006 (0.51)	.065 (0.78)
Logit "wage gap" estimates with controls				
Wage based on usual hours	.006 (0.77)	.058 (1.22)	-.005 (0.67)	.045 (1.00)
Implied elasticity Wage based on actual hours	.005 (0.83)	.047 (2.70)	-.003 (1.02)	.038 (0.11)
Implied elasticity	.007 (0.06)	.138 (.108)	.008 (.006)	-.005 (-.004)

*Notes:* Based on 13 Quarterly Labor Force Surveys using data from March 1997 to March 2000. Sample size = 54,165, made up of 26,312 men (1,087 young) and 27,853 women (942 young). Logit models contain as control variables: age completed full-time education, highest educational qualification dummies, labor market experience (quartic), length of tenure with current employer (quadratic), part-time, marital status, ethnic status, dummy for job at time  $t$  not permanent, public sector, health problem or disability limits kind of work can do, real hourly wage (cubic), regional dummies, year and month dummies. Absolute values of "robust"  $t$ -ratios on model coefficients in parentheses.

# **Introduction of NMW- Employment Effects (Continued)**

- In both papers fails to find negative effects on employment from NMW introduction.
- Across all workers no evidence of an adverse effect on employment resulting from NMW introduction.



# **Introduction of NMW- Employment Effects (Continued)**

## **3). Employment Effects in a Vulnerable Sector – Care Homes**

- Machin, Manning and Rahman (2003) look for minimum wage effects in one of the sectors most vulnerable to employment losses induced by minimum wage introduction, the labour market for care assistants.
- Carried out own survey to collect data on workers and homes before and after minimum wage introduction.

# Introduction of NMW- Employment Effects (Continued)

- Why is this a useful research exercise?
  - 1). The sector contains many low-wage workers, so the minimum wage has real potential to have a noticeable important impact on outcomes.
  - 2). The sector is not unionised.
  - 3). It consists of large numbers of small firms (average employment being somewhere in the range of 15-20 workers) doing a very homogeneous activity in geographically concentrated markets.
  - 4). The product market side of this sector is interesting. An important fraction of the residents of these homes have their care paid for by the Department for Social Security (DSS).

# **Introduction of NMW- Employment Effects (Continued)**

- Therefore provides good testing ground for trying to identify minimum wage effects on employment.
- Carried out survey of all UK residential care homes before and after introduction. Asked for information on all workers in each home.
- Then considered wage and employment effects using methodology that relates changes in wages and employment before and after the minimum wage introduction to the fraction of low paid workers in the pre-minimum wage period.

# Introduction of NMW- Employment Effects (Continued)

- Impact on Wages
- Approach 1: look at percent below minimum before introduction and for spike at minimum after
- Approach 2: estimate statistical models, relating the change in the average wage before and after minimum wage introduction to the proportion of workers paid less than the minimum wage in the period before introduction.

# Introduction of NMW- Employment Effects (Continued)

- Impact on Wages, Approach 1:

TABLE 2. THE "BITE" OF THE MINIMUM WAGE INTRODUCTION

	All firms		Balanced panel		Balanced panel (Excluding firms with a lot of missing worker information)	
	Pre- minimum	Post- minimum	Pre- minimum	Post- minimum	Pre- minimum	Post- minimum
% Paid less than minimum wage	32.3	1.0	31.2	0.8	31.6	0.7
% Paid less than adult minimum wage	38.2	4.2	37.7	4.3	38.2	4.3
Wage gap	0.039	0.002	0.041	0.003	0.039	0.002
Adult wage gap	0.047	0.006	0.049	0.007	0.047	0.007
% Paid exactly minimum wage	8.7	27.7	9.3	28.4	9.5	28.7
% Paid exactly adult minimum wage	8.6	30.0	9.0	30.6	9.3	31.0
Number of homes	1865	2141	641	641	615	615

Notes: Pre-minimum observations refer to responses received before April 1999 and Post-minimum to responses received after March 1999. The final two columns exclude homes where less than half of the workers have missing hours or wage information.

# Introduction of NMW- Employment Effects (Continued)

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Wage gap	0.039	0.002	0.041	0.003	0.039	0.002
Adult wage gap	0.047	0.006	0.049	0.007	0.047	0.007
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# Introduction of NMW- Employment Effects (Continued)

- Impact on Wages, Approach 2:  
Estimate home-level wage change models

$$\Delta \ln W_{it} = \alpha_1 + \beta_1 \text{MIN}_{i,t-1} + \delta_1 X_{i,t-1} + \epsilon_{it}$$

TABLE 3. CHANGES IN LOG WAGES AND INITIAL PERIOD WAGE MEASURES IN THE PERIOD SURROUNDING MINIMUM WAGE INTRODUCTION

Change in log average hourly wage							
	Time period	Initial low pay proportion	Initial wage gap	Initial log wage	Controls	R <sup>2</sup>	Number of homes
(1)	1998/1999	0.145 (0.012)			No	0.19	641
(2)	1998/1999	0.149 (0.021)			Yes	0.30	598
(3)	1998/1999		0.800 (0.070)		No	0.36	641
(4)	1998/1999		0.815 (0.086)		Yes	0.45	598
Change in log average weekly wage							
	Time period	Initial low pay proportion	Initial wage gap	Initial log wage	Controls	R <sup>2</sup>	Number of homes
(1)	1998/1999	0.136 (0.025)			No	0.04	641
(2)	1998/1999	0.141 (0.035)			Yes	0.19	598
(3)	1998/1999		0.664 (0.118)		No	0.06	641
(4)	1998/1999		0.693 (0.159)		Yes	0.21	598

Notes: Sample is balanced panel of homes. Standard errors in parentheses. Control variables are the initial proportion female, proportion with nursing qualification, proportion of care assistants and average age (all workers), occupancy rate, proportion of local authority/dss residents, county and response month dummies.

# **Introduction of NMW- Employment Effects (Continued)**

Impact on Employment:

- Study whether homes where wages went up by more experienced employment falls.
- Slight evidence of job losses, but moderate given scale of wage gains.
- Even in this most vulnerable sector hard to find employment losses due to minimum wage introduction.



# Introduction of NMW- Employment Effects (Continued)

TABLE 6. CHANGES IN LOG EMPLOYMENT AND HOURS AND INITIAL PERIOD MINIMUM WAGE MEASURES IN THE PERIOD SURROUNDING MINIMUM WAGE INTRODUCTION

	Change in log number employed							
	Reduced form models					Structural models		
	(1)	(2)	(3) Clean panel	(4)	(5)	(6) Clean panel	(7) IV estimates	(8) Clean panel, IV estimates
Initial proportion paid less than minimum wage	-0.059 (0.042)	-0.136 (0.056)	-0.165 (0.057)					
Initial wage gap				-0.173 (0.108)	-0.281 (0.141)	-0.552 (0.259)		
Change in log hourly wage							-0.345 (0.159)	-0.561 (0.317)
Demographic variables		Yes	Yes		Yes	Yes	Yes	Yes
Firm characteristics variables		Yes	Yes		Yes	Yes	Yes	Yes
Response month dummies		Yes	Yes		Yes	Yes	Yes	Yes
Average elasticity: (4.00-3.60)	-0.14	-0.31	-0.38	-0.08	-0.14	-0.27		
Observations	641	598	575	641	598	575	598	575
R <sup>2</sup>	0.003	0.155	0.152	0.001	0.149	0.143		
	Change in log total hours							
	Reduced form models					Structural models		
	(1)	(2)	(3) Clean panel	(4)	(5)	(6) Clean panel	(7) IV estimates	(8) Clean panel, IV estimates
Initial proportion paid less than minimum wage	-0.069 (0.046)	-0.144 (0.066)	-0.170 (0.066)					
Initial wage gap				-0.310 (0.135)	-0.402 (0.145)	-0.509 (0.311)		
Change in log hourly wage							-0.494 (0.289)	-0.518 (0.353)
Demographic variables		Yes	Yes		Yes	Yes	Yes	Yes
Firm characteristics variables		Yes	Yes		Yes	Yes	Yes	Yes
Response month dummies		Yes	Yes		Yes	Yes	Yes	Yes
Average elasticity: (4.00-3.60)	-0.16	-0.33	-0.39	-0.15	-0.20	-0.25		
Observations	641	598	575	641	598	575	598	575
R <sup>2</sup>	0.003	0.135	0.148	0.004	0.132	0.139		

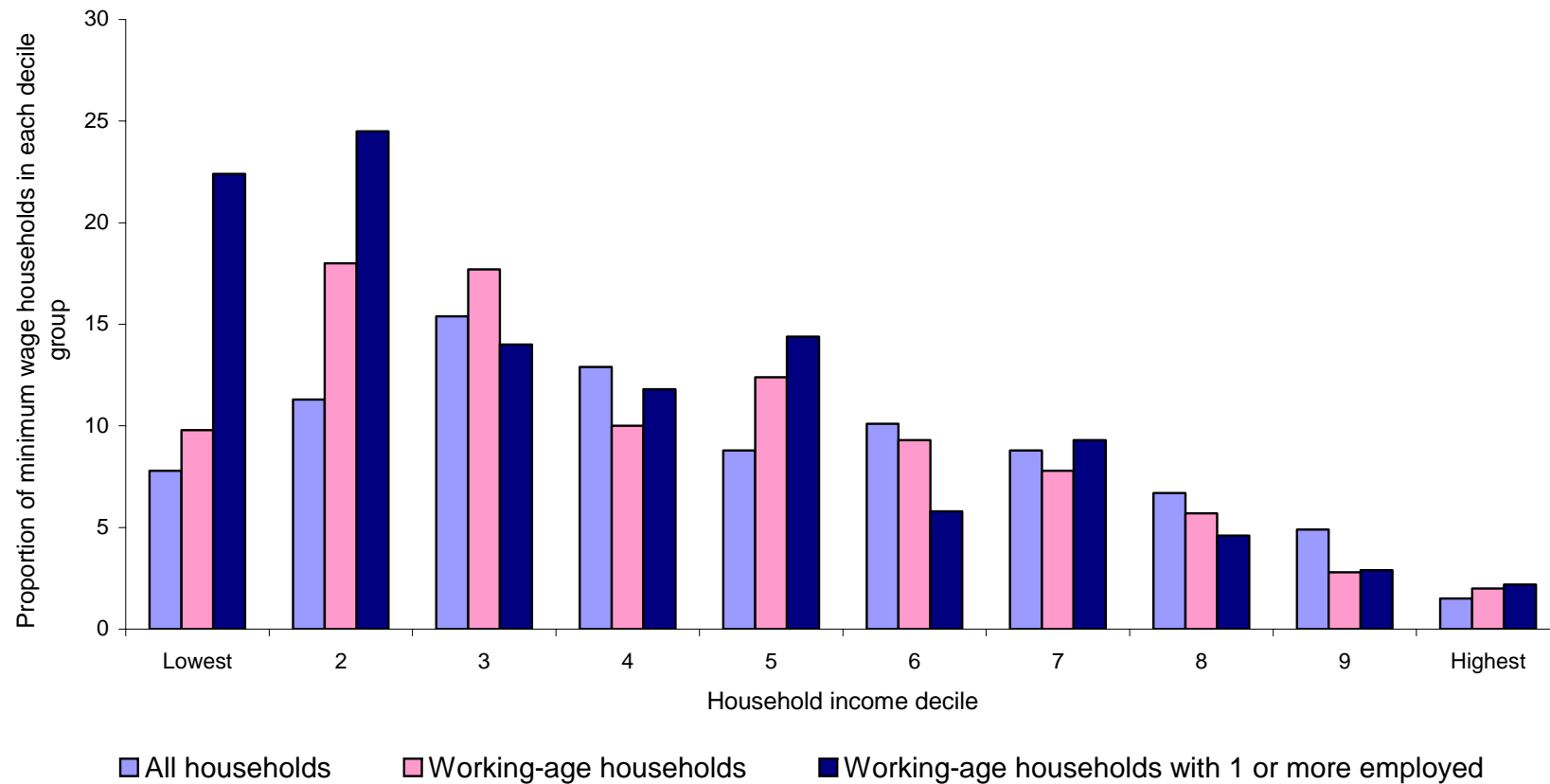
Notes: Sample is balanced panel of homes. Standard errors in parentheses. Control variables are the initial proportion female, proportion with nursing qualification, proportion of care assistants and average age (all workers), occupancy rate, proportion of local authority/dss residents, county, and response month dummies.

# Hours

- Aggregate Hours Worked in the Economy has increased since 1998 and continues to rise to record highs
- No evidence of an impact on hours (Connolly and Gregory 2002)
- Some evidence of reduction in hours (Stewart and Swaffield 2004)
- No impact on second jobs (Robinson and Wadsworth 2005)

# Evidence of Redistribution?

## The Proportion of NMW Households in Each Income Decile Group



Source: Bryan and Taylor (2004) 'An Analysis of the Household Characteristics of Minimum Wage Recipients', Report to the Low Pay Commission 21 December 2004, using the British Household Panel Survey, 2002–2003.

Note: A minimum wage household is defined as any household containing an individual earning less than the relevant minimum wage plus 5 pence. The income data are gross income and do not take account of tax credits or benefits.

# Prices and Profits

## Prices

- UK price inflation has been low since 1998 although it has picked up over the last year
- Some impact on longer run growth in prices (Wadsworth 2007 and 2008)

## Profits

- Impact in certain sectors (Draca, Machin, Van Reenan 2004)
- Impact on care homes (Machin, Manning and Rahman 2003, Machin and Wilson 2004)
- No impact on firm closures (Machin, Manning and Rahman 2003, Machin and Wilson 2004, Draca, Machin, Van Reenan 2004)

# Productivity and Training

## Productivity

- Positive but not significant impact on productivity (Forth and O'Mahoney 2002)

## Training

- No positive or negative impact on training (Dickerson 2007)
- Some positive impact on training (Arulampalam et al 2004)

# What Other Countries Do

## Adjustment mechanism

- Independent commission
  - UK, Australia
- Tripartite commission
  - Poland, Portugal
- Government
  - US, New Zealand
- Government and formula
  - France, Netherlands
- Government and social partners
  - Ireland, Spain
- Social partners/collective bargaining
  - Belgium, Greece

# The Level

- “...coming up with a minimum wage that will not seriously harm the economy, and destroy jobs, will require the wisdom of Solomon – or extraordinary luck.”

**The Economist (5 June 1997)**

# Conclusions

- Little evidence of negative effects of UK minimum wages on employment and hours.
- ‘Something else has to give’ and that has become focus of newer research, together with consideration of more recent (sometimes large) upratings.