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**SN 5569 - Employment, Hours and Wages in the Engineering Employers'
Federation, 1914-1968**

Study Documentation

SUMMARY INFORMATION

- Project Title: Employment, hours and wages in the Engineering Employers' Federation, 1914-1968
- Investigators: Professor R.A. Hart, Dept. of Economics, University of Stirling
- Project duration: 1st July 2003 – 30th October 2006
- Funding body: Economic and social Research Council
Grant RES-000-22-0491
Grant RES-000-22-0860
- Source material: Manuscripts held by University of Warwick Modern Record Centre.
Catalogue numbers:-
MSS.237 (various volumes of Earnings Summeries, from July 1914 – June 1968)
MSS.237/13/3/57-61 (Employment Numbers of Apprentices, Boys and Journeymen, 1928 – 1938)
- Database compiled by: Prof. R.A Hart, Dept of Economics, University of Stirling
J. Elizabeth Roberts, Dept of Economics, University of Stirling
- Data Collection: July 2003 – August 2006
- Software used: Microsoft Excel and STATA9
- Contents of Database: Engineering Employers' Federation data contained in 8 STATA files , giving detailed information on wages (rates and earnings) and hours of work at district and section level for time work and piece rate workers for 1914-1968. There are files for males, females, apprentices boys and youths, shift working. Also 4 further files containing the number of journeymen, apprentices and boys for 1928-1938 and district unemployment rates.
- Publications: Hart, R A. 2007. women doing men's work and women doing women's work: female work and pay in British wartime engineering. Explorations in Economic History 44, 114-130

Hart, R A. 2005. General human capital and employment adjustment in the Great Depression; apprentices and journeymen in UK engineering. *Oxford Economic Papers* 57, 169-189

Hart, R A. 2003. Overtime working, the Phillips curve, and the wage curve: British engineering, 1926-1966. *Manchester School* 71, 97-112

Hart, R A. 2001. Hours and wages in the Depression: British engineering, 1926-1938. *Explorations in Economic History*, 478-502.

Hart, R.A. and D.I.MacKay, 1975, Engineering earnings in Britain, 1914-68, *Journal of the Royal Statistical Society (Series A)* 138, 32-50.

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THE DATA

The complete Engineering Employers' Federation (EEF) payroll data have been transcribed from records kept at the University of Warwick's Modern Record Centre in order to provide electronic access. This is especially rich source of data, representing roughly 30 percent of UK engineering. Detailed information are provided on wages (rates and earnings) and hours of work at engineering district, section, and occupational levels. Statistics separate pieceworkers and timeworkers as well as males and females. Information on apprentices, journeymen, boys and youths is also given. The statistics cover the period 1914 to 1968 and provide exceptional detail for the inter-war period (including the Great Depression), WWII, and the post-war recovery period. Unemployment rates covering 1926 – 1968 and matching 28 of the 56 engineering districts are also provided.

All the data from the original manuscripts was initially entered in Microsoft Excel spreadsheets with one Excel spreadsheet containing data on all districts/sections for one occupation in one year. These individual spreadsheets were then joined together and converted into STATA format. Depending on the year, the data covered either weekly or four-weekly data with earnings given in either pounds and shillings or shillings and pence. These were all standardised to weekly data given in £'s and s's. The data was then checked for any rogue values and these corrected.

The EEF data cover the period 1914 – 1968. They are divided into engineering districts, sections and occupations and by gender, piecework and timework. The available data files contain:

- (a) ***District data for men:*** this covers 36 years between 1914 and 1968 for 25 occupations and 56 districts
- (b) ***Section data for men:*** for 28 years between 1930 and 1968 for 25 occupations and 43 sections
- (c) ***District data for women:*** for 27 years between 1935 and 1968 for 55 districts. For 1935 to 1939 and 1945 to 1962 the breakdown is by women aged under and over 18. For 1940 to 1942 this is broken down further into women doing men's work and women doing women and boy's work. For 1966 to 1968 it is women under and over 21.
- (d) ***Section data for Women:*** this is for 25 years between 1935 and 1968 covering 43 sections and with the same breakdown as the district data.
- (e) ***Apprentices, Boys and Youths:*** both the district data and the section data covers 14 years between 1935 and 1958 for 55 districts and 29 sections.
- (f) ***Night shift and 2/3 shift working:*** the district data it is just for two years, 1935 and 1936 for 51 districts while the section data is for five years from 1935 to 1939 covering 28 sections.
- (g) ***Apprentices, journeymen and boys:*** this gives numbers of apprentices, journeymen and boys for 11 years from 1928 to 1938 covering 38 districts and 8 occupations.
- (h) ***District unemployment rates:*** these have been made available for 28 of the EEF districts from 1926 to 1968.

DATA FILES

AHDS History Note:

Please note that data files are now also available in a tab (*.tab) delimited format

End of Note

Male District data – file name: DHMdata.dta

variable name	type	format	variable label
district	str15	%15s	District
id	byte	%8.0g	District numeric identifier
year	int	%8.0g	Year
occ	byte	%50.0g	Occupation
u	float	%9.0g	District unemployment rate
fpi	float	%9.0g	Final Output Price index
bashrs	byte	%9.0g	Basic weekly hours
notw	int	%8.0g	number of time workers
htw	float	%9.0g	weekly hours of time workers
Etw	float	%9.0g	weekly earnings of time workers - in £'s
etw	float	%9.0g	hourly earnings of time workers - in £'s
wtw	float	%9.0g	hourly basic wage of time workers - in £'s
nopr	int	%8.0g	number of piece rate workers
hpr	float	%9.0g	weekly hours of piece rate workers
Epr	float	%9.0g	weekly earnings of piece rate workers - in £'s
epr	float	%9.0g	hourly earnings of piece rate workers in in £'s

Years covered:- 1914,1924-1942,1948,1951-1956,1958-1962,1964-1966,1968

Male Section data – file name: SHMdata.dta

variable name	type	format	variable label
section	str10	%10s	Section
id	int	%8.0g	Section numeric identifier
year	int	%8.0g	Year
occ	byte	%50.0g	Occupation
fpi	float	%9.0g	Final Output Price index
Ud	float	%9.0g	Annual Unemployment rate
Uf	float	%9.0g	Unemployment rate - Feinstein
bashrs	byte	%9.0g	Basic weekly hours
notw	int	%8.0g	number of time workers
htw	float	%9.0g	weekly hours of time workers
Etw	float	%9.0g	weekly earnings of time workers - in £'s
etw	float	%9.0g	hourly earnings of time workers - in £'s
wtw	float	%9.0g	hourly basic wage of time workers - in £'s
nopr	int	%8.0g	number of piece rate workers
hpr	float	%9.0g	weekly hours of piece rate workers
Epr	float	%9.0g	weekly earnings of piece rate workers - in £'s
epr	float	%9.0g	hourly earnings of piece rate workers in in £'s

Years covered:- 1930-1942,1948,1951,1953-1956,1958-1962,1964,1966,1968

Female District data – file name: DHFdata.dta

variable name	type	format	variable label
district	str11	%11s	District
id	byte	%8.0g	District numeric identifier
year	int	%8.0g	Year
class	byte	%22.0g	Classification of work
u	float	%9.0g	District unemployment rate
rpi	float	%9.0g	Final Output Price index
bashrs	byte	%9.0g	Basic weekly hours
notw	int	%8.0g	number of time workers
htw	float	%9.0g	weekly hours of time workers - in £'s
Etw	float	%9.0g	weekly earnings of time workers - in £'s
etw	float	%9.0g	hourly earnings of time workers - in £'s
wtw	float	%9.0g	hourly basic wage of time workers - in £'s
nopr	int	%8.0g	number of piece rate workers
hpr	float	%9.0g	weekly hours of piece rate workers - in £'s
Epr	float	%9.0g	weekly earnings of piece rate workers - in £'s
epr	float	%9.0g	hourly earnings of piece rate workers in in £'s

Years covered:- 1935-1942,1945-1946,1948,1950-1956,1958-1962,1964-1966,1968

Female Section data – file name: SHFdata.dta

variable name	type	format	variable label
-----	-----	-----	-----
section	str10	%10s	Section
id	byte	%8.0g	District numeric identifier
year	int	%8.0g	Year
class	byte	%22.0g	Classification of work
fpi	float	%9.0g	Final Output Index
Ud	float	%9.0g	Annual Unemployment rate
Uf	float	%9.0g	Unemployment rate - Feinstein
bashrs	byte	%9.0g	Basic weekly hours
notw	int	%8.0g	number of time workers
htw	float	%9.0g	weekly hours of time workers
Etw	float	%9.0g	weekly earnings of time workers - in £'s
etw	float	%9.0g	hourly earnings of time workers - in £'s
wtw	float	%9.0g	hourly basic wage of time workers - in £'s
nopr	int	%8.0g	number of piece rate workers
hpr	float	%9.0g	weekly hours of piece rate workers
Epr	float	%9.0g	weekly earnings of piece rate workers - in £'s
epr	float	%9.0g	hourly earnings of piece rate workers in in £'s

Year covered:- 1935-1942,1945-1946,1948,1950-1951,1953-1956,
1958-1962,1966,1968

Apprentices, Boys and Youths District data – file name: DHABYdata.dta

variable name	type	format	variable label
-----	-----	-----	-----
district	str11	%11s	District
id	byte	%8.0g	District numeric identifier
year	int	%8.0g	Year
u	float	%9.0g	District unemployment rate
fpi	float	%9.0g	Final Output Price index
bashrs	byte	%9.0g	Basic weekly hours
notw	int	%8.0g	number of time workers
htw	float	%9.0g	weekly hours of time workers
Etw	float	%9.0g	weekly earnings of time workers - in £'s
etw	float	%9.0g	hourly earnings of time workers - in £'s
wtw	float	%9.0g	hourly basic wage of time workers - in £'s
nopr	int	%8.0g	number of piece rate workers
hpr	float	%9.0g	weekly hours of piece rate workers
Epr	float	%9.0g	weekly earnings of piece rate workers - in £'s
epr	float	%9.0g	hourly earnings of piece rate workers in in £'s

Years covered:- 1935-1939,1941-1942,1948,1952-1956,1958

Apprentice, Boys and Youths Section data – file name: SHABYdata.dta

variable name	type	format	variable label
-----	-----	-----	-----
section	str10	%10s	Section
id	byte	%8.0g	District numeric identifier
year	int	%8.0g	Year
fpi	float	%9.0g	Final Output Price index
Ud	float	%9.0g	Annual Unemployment rate
Uf	float	%9.0g	Unemployment rate - Feinstein
bashrs	byte	%9.0g	Basic weekly hours
notw	int	%8.0g	number of time workers
htw	float	%9.0g	weekly hours of time workers
Etw	float	%9.0g	weekly earnings of time workers - in £'s
etw	float	%9.0g	hourly earnings of time workers - in £'s
wtw	float	%9.0g	hourly basic wage of time workers - in £'s
nopr	int	%8.0g	number of piece rate workers
hpr	float	%9.0g	weekly hours of piece rate workers
Epr	float	%9.0g	weekly earnings of piece rate workers - in £'s
epr	float	%9.0g	hourly earnings of piece rate workers in in £'s

Years covered:- 1935-1939,1941-1942,1948,1952-1956,1958

Male District Shift data – file name: DHMshiftdata.dta

variable name	type	format	variable label
-----	-----	-----	-----
district	str11	%11s	District
id	byte	%8.0g	District numeric identifier
year	int	%8.0g	Year
shift	byte	%20.0g	type of shift working
u	float	%9.0g	District unemployment rate
fpi	float	%9.0g	Final Output Price index
bashrs	byte	%9.0g	Basic weekly hours
notw	int	%8.0g	number of time workers
htw	float	%9.0g	weekly hours of time workers
Etw	float	%9.0g	weekly earnings of time workers - in £'s
etw	float	%9.0g	hourly earnings of time workers - in £'s
wtw	float	%9.0g	hourly basic wage of time workers - in £'s
nopr	int	%8.0g	number of piece rate workers
hpr	float	%9.0g	weekly hours of piece rate workers
Epr	float	%9.0g	weekly earnings of piece rate workers - in £'s
epr	float	%9.0g	hourly earnings of piece rate workers in in £'s

Years covered:- 1935-1936

Male Section Shift data – file name: SHMshiftdata.dta

variable name	type	format	variable label
-----	-----	-----	-----
section	str10	%10s	Section
id	byte	%8.0g	District numeric identifier
year	int	%8.0g	Year
shift	byte	%20.0g	type of shift working
fpi	float	%9.0g	Final Output Price index
Ud	float	%9.0g	Annual Unemployment rate
Uf	float	%9.0g	Unemployment rate - Feinstein
bashrs	byte	%9.0g	Basic weekly hours
notw	int	%8.0g	number of time workers
htw	float	%9.0g	weekly hours of time workers
Etw	float	%9.0g	weekly earnings of time workers - in £'s
etw	float	%9.0g	hourly earnings of time workers - in £'s
wtw	float	%9.0g	hourly basic wage of time workers - in £'s
nopr	int	%8.0g	number of piece rate workers
hpr	float	%9.0g	weekly hours of piece rate workers
Epr	float	%9.0g	weekly earnings of piece rate workers - in £'s
epr	float	%9.0g	hourly earnings of piece rate workers in in £'s

Years covered:- 1935-1939

District Apprentice data – file name: Apprentdata.dta

variable name	type	format	variable label
-----	-----	-----	-----
district	str15	%15s	District
id	byte	%8.0g	District numeric identifier
year	int	%8.0g	Year
nojourney	int	%8.0g	number of Journeymen
noappren	int	%8.0g	number of Apprentices
occ	byte	%15.0g	Occupation
u	float	%9.0g	District unemployment rate
fpi	float	%9.0g	Final Output Price index

Years covered:- 1928-1938

District Boys data – file name: Boysdata.dta

variable name	type	format	variable label
-----	-----	-----	-----
district	str15	%15s	District
id	byte	%8.0g	District numeric identifier
year	int	%8.0g	Year
noboys	int	%8.0g	number of Boys
occ	byte	%15.0g	Occupation
u	float	%9.0g	District unemployment rate
fpi	float	%9.0g	Final Output Price Index

Years covered:- 1928-1938

District Unemployment Rates – file name: DistrictUnemp.dta

variable name	type	format	variable label
-----	-----	-----	-----
district	str13	%13s	
id	byte	%8.0g	District numeric identifier
year	int	%8.0g	
u	float	%9.0g	District unemployment rate

Years covered:- 1926-1938,1951-1966

Annual Unemployment Rates – file name: UnempFein.dta

variable name	type	format	variable label
-----	-----	-----	-----
year	int	%8.0g	
Ud	float	%9.0g	Annual Unemployment rate
Uf	float	%9.0g	Unemployment rate - Feinstein

Years covered:-

Annual unemployment rate 1926-1938,1951-1966 : Hart & MacKay (1975)

Unemployment rate 1914,1924-1965 : Feinstein (1972)

Notes

weekly hours = Average weekly hours: total hours/number of workers

weekly earnings = Average weekly earnings: total earnings/no. of workers

hourly earnings = Average hourly earnings: weekly earnings/weekly hours

hourly basic wage } Average hourly basic wage:
if weekly hours > bashrs
= weekly earnings / (bashrs + (weekly hours - bashrs) * 1.5)
} if weekly hours ≤ bashrs
= weekly earnings / weekly hours

u District unemployment rate - Hart, R.A. and D.I. MacKay, 1975, Engineering earnings in Britain, 1914-68, Journal of the Royal Statistical Society (Series A) 138, 32-50.

Ud Hart, R.A. and D.I. MacKay, 1975, Engineering earnings in Britain, 1914-68, Journal of the Royal Statistical Society (Series A) 138, 32-50.

Uf Feinstein, C.H., 1972, National income, expenditure and output of the United Kingdom 1855-1965, Cambridge, Cambridge University Press. Table 57, p. T126.

fpi Final Output Price index - Feinstein, C.H., 1972, National income, expenditure and output of the United Kingdom 1855-1965, Cambridge, Cambridge University Press. Table 61, p. T133.

Classifications

Districts

id	District	id	District
1	Aberdeen	41	Oldham
2	Barrow	42	Otley
3	Bedford.	43	Peterborough
4	Belfast Marine	44	Preston
5	Birkenhead	45	Rochdale
6	West Midlands	46	St Helens
7	Blackburn	47	Sheffield
8	Bolton	48	Shropshire
9	Border Counties	49	Wakefield
10	Bradford	50	West England
11	Burnley	51	Wigan
12	Burton	52	South Wales
13	Cambridge	53	Scottish
14	Chester	54	Grimsby
15	Coventry	55	Explosives
16	Derby	56	West Riding
17	Doncaster		
18	Dublin		
19	Dundee		
20	East Anglia		
21	East Scotland		
22	Grantham		
23	Halifax		
24	Heavy Wool		
25	Huddersfield		
26	Hull		
27	Keighley		
28	Kilmarnock		
29	Leeds		
30	Leicester		
31	Lincoln		
32	Liverpool		
33	London		
34	Outer Lond		
35	Manchester		
36	N.E.Coast		
37	N. Ireland		
38	North Staffs		
39	N.W.Scotland		
40	Nottingham		

Sections

id	Section	
1	Agr Eng	Agricultural engineers
2	Air Man	Aircraft manufacturers
3	All Tra	Allied trades
4	Boiler	Boilermakers
5	Brass	Brassfounders
6	Cnstr Eng	Construction engineers
7	Copper	Coppersmiths
8	Drop Forg	Drop forgers
9	Elec Eng	Electrical engineers
10	Founders	Founders
11	Gas Mtr M	Gas meter makers
12	G Eng. H	General engineers (Heavy)
13	G Eng. L	General engineers (Light)
14	Instr Mak	Instrument makers
15	Lmp Man	Lamp manufacturers
16	Lift	Lift manufacturers
17	Locom	Locomotive manufacturers
18	Mch Tl Ma	Machine tool makers
19	Mar Eng	Marine engineers
20	Mt, Cr, Cy	Motors: cars,cycles
21	Cmmrcl	Motors: commercial
22	Scl, Bm M	Scale, beam etc makers
23	St M Wor	Sheet metal workers
24	Tnk G M	Tank and gasholder makers
25	Tel Man	Telephone manufacturers
26	Txtl M Ma	Taxtile machinery makers
27	Veh Buil	Vehicle builders
28	Misc	Miscellaneous
29	Plastic M	Plastic moulders
101	Iron Cast	Iron castings
102	Non.I Cast	Non-ferrous castings
103	Oth Mt Mg	Other metal manufacturing
104	Eng Sm Tl	Engineers' small tools
105	Mch Ha Eq	Mechanical handling equipment
106	Ind Pl Stl	Industrial plant steel workings
107	Ot Mch Eng	Other mechanical engineering
108	Scientific	Scientific etc./ watches
109	Rad App	Radio & telephone apperatus
110	Dom E App	Domestic electrical appliances
111	Oth Elc G	Other electrical goods
112	Mt Veh M	Motor vehicle manufacturing
113	Mt & Cy	Motors & pedal cycles
114	Met Good	Metal goods n.e.s.

Occupations

id label

- 1 Fitters (skilled)
- 2 Fitters (other than skilled)
- 3 Toolroom fitters
- 4 Turners
- 5 Patternmakers
- 6 Moulders(loose pattern)
- 7 Platers, riveters and caulkers
- 8 Sheet metal workers
- 9 Coppersmiths
- 10 Turners and machinemen (at or above fitter's rates)
- 11 Turners and machinemen (below fitter's rates)
- 12 Machinemen (at or above fitter's rates)
- 13 Machinemen (below fitter's rates)
- 14 Labourers
- 15 Machine moulders (at or above fitter's rates)
- 16 Machine moulders (below fitter's rates)
- 17 Moulding machine operators
- 18 Fitters
- 19 Fitters skilled (not toolroom or other)
- 20 Toolroom fitters & turners
- 21 Skilled maintenance electricians
- 22 Skilled maintenance fitters
- 23 Other skilled maintenance
- 24 Maintenance men
- 25 Moulders

Class for female workers

id label

- 1 Under 18 - Mens work
- 2 Over 18 - Mens work
- 3 Under 18 - Womens work
- 4 Over 18 - Womens work
- 5 Under 18
- 6 Over 18
- 7 Under 21
- 8 Over 21

Shift type

id label

- 1 Night shift
- 2 2 or 3 shift working

Occupations for Apprentices & Boys

id label

- 1 Fitters
- 2 Turners
- 3 Patternmakers
- 4 Smiths
- 5 Boilermakers
- 6 Moulders
- 7 Brass moulders
- 8 Brass Finishers

