

The Minimum Wage Era?

Recent Developments in Policy and Evidence

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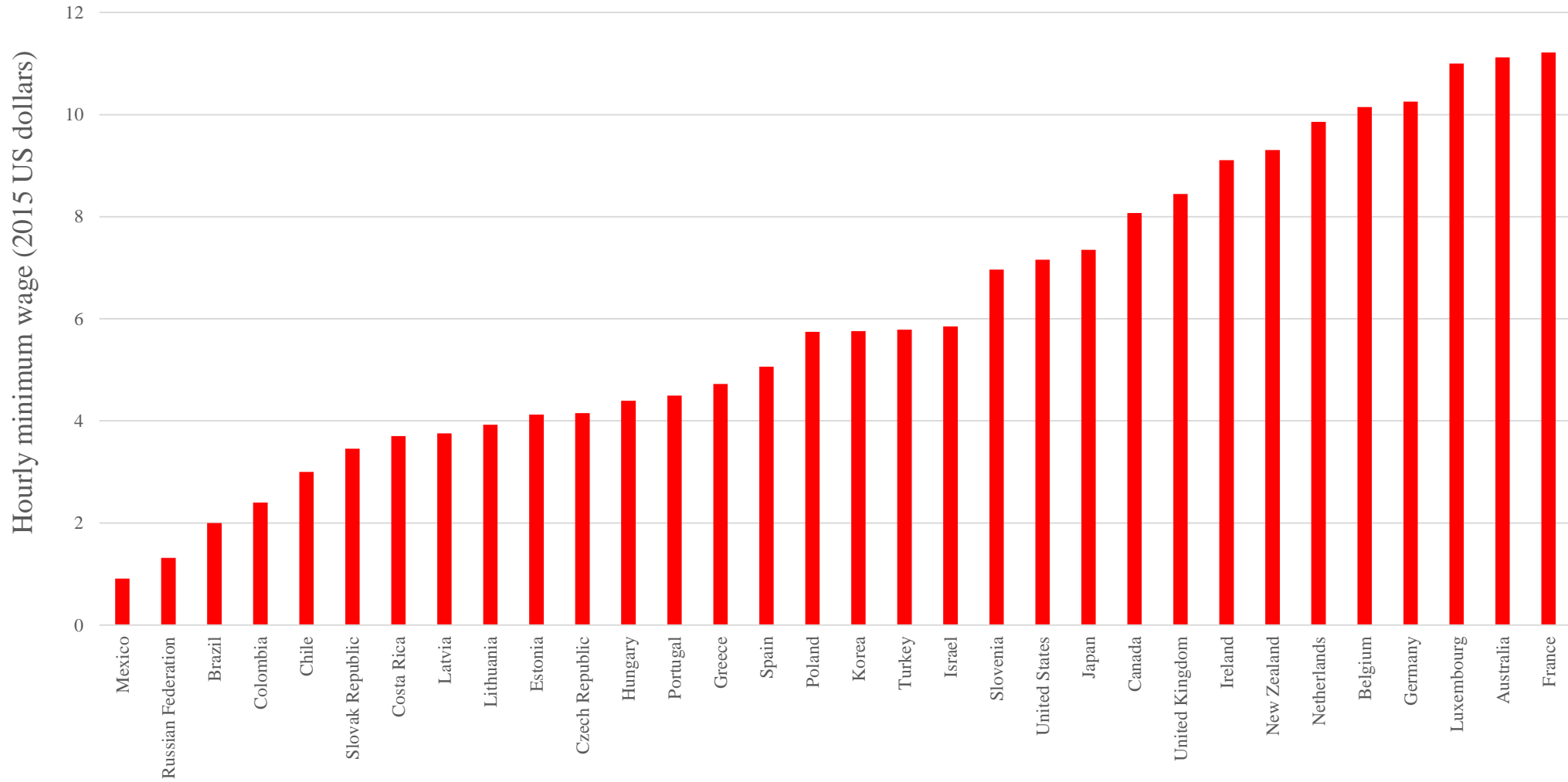
Visiting Motu (until January)



History of minimum wages

- The earliest minimum wage was set in England in 1604 ([Act Fixing a Minimum Wage](#)) and applied to textile workers.
- New Zealand was the first country to establish a national minimum wage, in 1894.
- Economists have long argued about the effectiveness of the minimum wage – if it leads to large employment losses, it might do more harm than good.
- New evidence since the 1990s has largely refuted this.
- Perhaps as a consequence, there has been an explosion in popularity of minimum wages across the world this century.
- Acceptance of the minimum wage as a policy tool across the political spectrum (albeit for different purposes) suggests we are in the Minimum Wage Era.

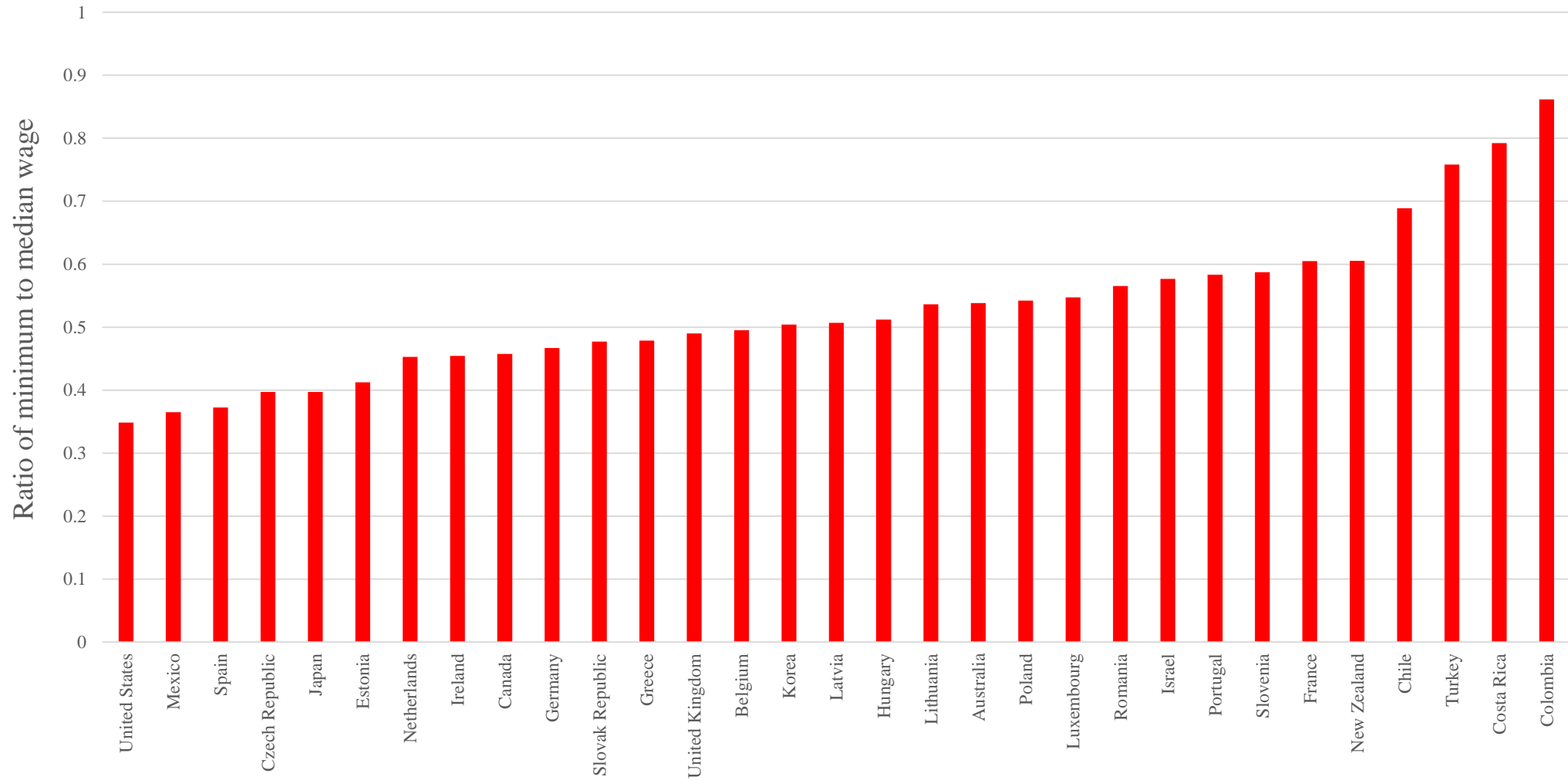
Minimum wages in 2016 (OECD)



Minimum wage vs median wage

- The ratio of the minimum wage and a country's median wage is a common measure of the “bite” of the minimum wage, that is, how much it affects the wage distribution.
- This ratio is known as the Kaitz index.
- Comparing the minimum wage to the median is better than comparing it to the mean because the median is not affected by the minimum wage (or by wage changes at the very top end of the wage distribution).

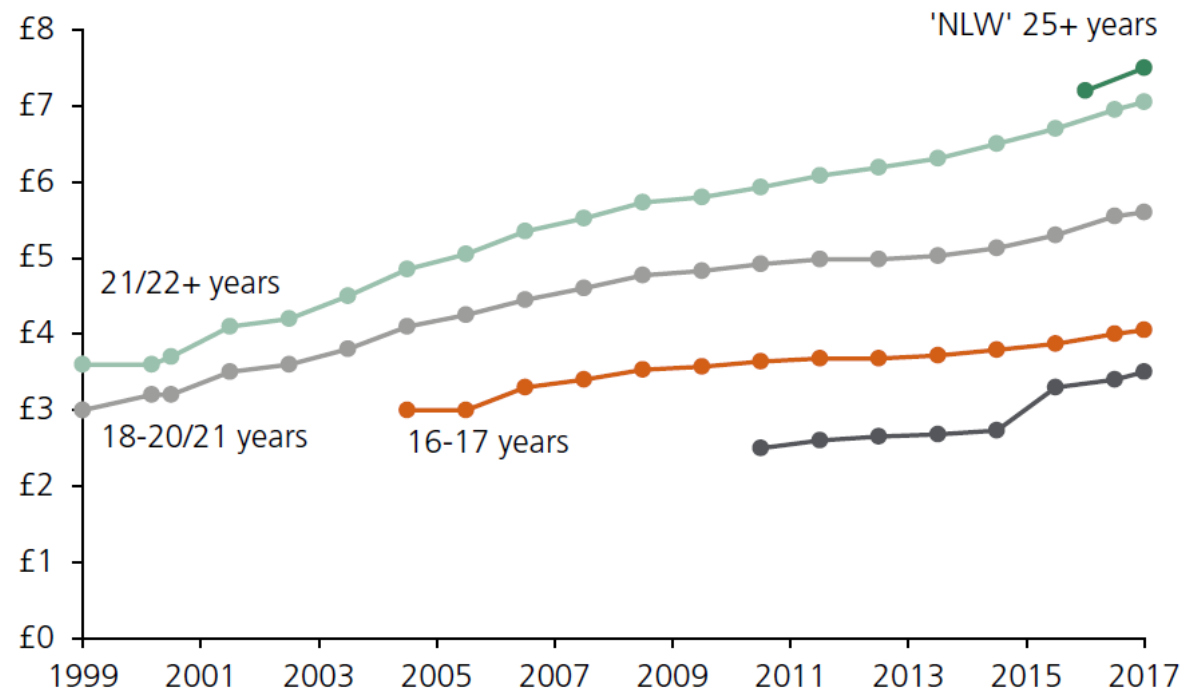
Kaitz indices in 2016 (OECD)



The UK example: National Minimum Wage

- Introduced in 1999 under Labour government.
- In 2016, the Conservative government introduced the National Living Wage, which is just a new rate of the NMW applying to those aged 25 and over.
- Differs from Living Wage Foundation's living wage, which is calculated according to basic cost of living and is much higher ([£10.20 in London and £8.75 in rest of country](#) – in NZ, the living wage is \$20.20).
- The government is advised by independent body – the [Low Pay Commission](#) – which makes recommendations each year.
- LPC has 9 members: 3 with management background, 3 with union background, 3 independents (chair and two academic economists).
- Recommendations have always been reached unanimously and have been accepted in full by Government.
- In 2010 voted top public policy of previous 30 years by Political Studies Association members.

Evolution of the NMW rates



From [Brown and McGuinness \(2016\)](#)

NMW rules

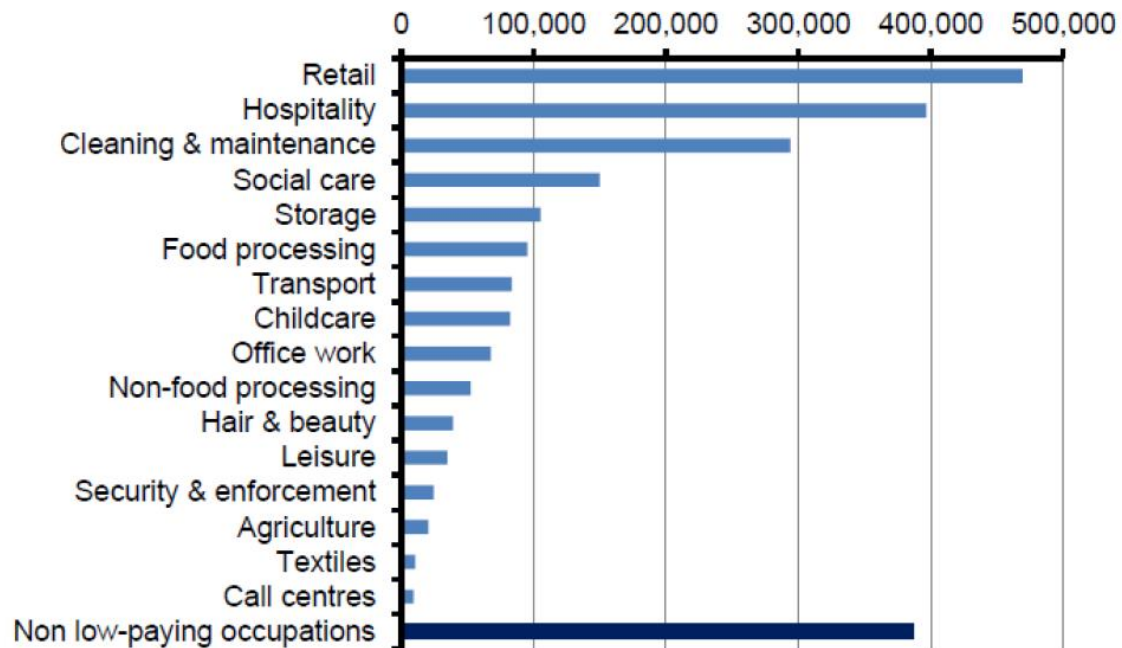
- The rates from 1 April 2017 are:
 - £7.50 per hour – 25 years old and over;
 - £7.05 per hour – 21-24 years old;
 - £5.60 per hour – 18-20 years old;
 - £4.05 per hour – 16-17 years old;
 - £3.50 for apprentices under 19 or 19 or over who are in the first year of apprenticeship.
- The following groups are exempted from the National Minimum Wage:
 - self-employed people;
 - volunteers or voluntary workers;
 - company directors;
 - family members or people who live in the family home of the employer who undertake household tasks.
- Covers piece rate workers ([employers have to work out average productivity and divide by 1.2](#)).

NMW rules

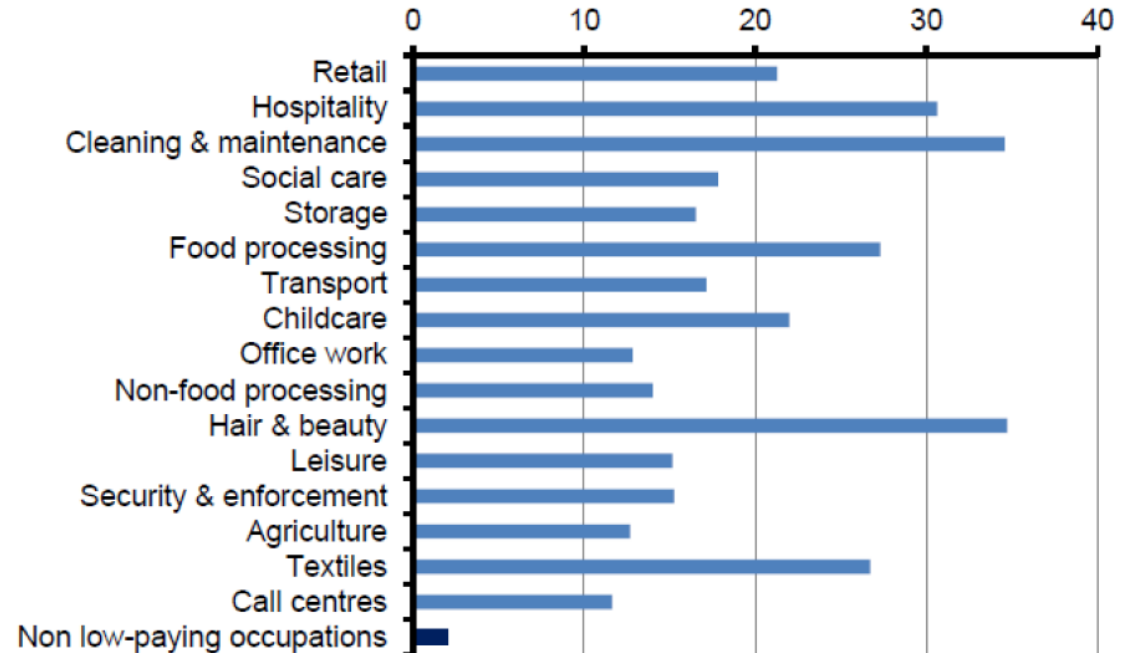
- For all types of work, include time spent:
 - at work and required to be working or on standby near the workplace (but not rest breaks);
 - not working because of machine breakdown, but kept at the workplace;
 - waiting to collect goods, meet someone for work or start a job;
 - travelling in connection with work;
 - training or travelling to training;
 - at work and under certain work-related responsibilities even when workers are allowed to sleep (whether or not a place to sleep is provided).
- Does not cover time:
 - travelling between home and work;
 - away from work on rest breaks, holidays, sick leave or maternity leave;
 - on industrial action;
 - not working but at the workplace or available for work at or near the workplace during a time when workers are allowed to sleep (and a place to sleep is provided).

Occupations affected by the NMW

Number of workers covered by NLW/NMW, by occupation, April 2017



Percentage of workers covered by NLW/NMW, by occupation, April 2017 – ordered by the numbers covered



From [Brown and McGuinness \(2016\)](#)

Recent developments

- In [2015 Budget](#), Government set a target for the NLW of 60% of median wage by 2020 – originally expected to be £9 in 2020, now expected to be £8.75 (due to lower growth in earnings).
- Since 2013, the Government “[names and shames](#)” employers who fail to pay the minimum wage.
- In [2017](#), 8.5% of employees were covered by the minimum wage – projected to increase to 12% by 2020.

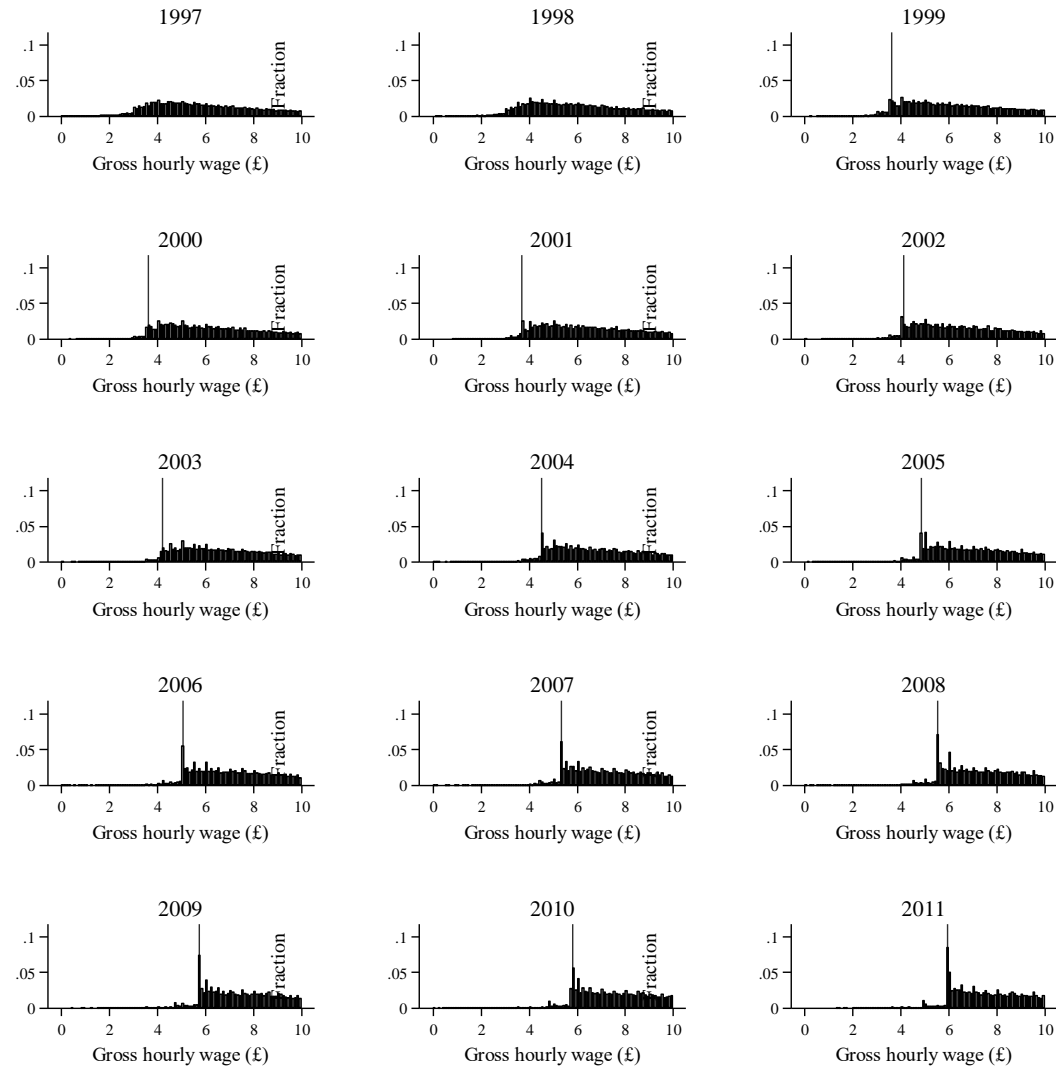
Other European countries

- Germany established a national minimum wage in 2015.
- The only European countries without a minimum wage covering the whole country are Austria, Denmark, Finland, Iceland, Italy, Liechtenstein, Norway, Sweden and Switzerland.
- Most of these countries have de facto minimum wages set at the industry level via collective bargaining.

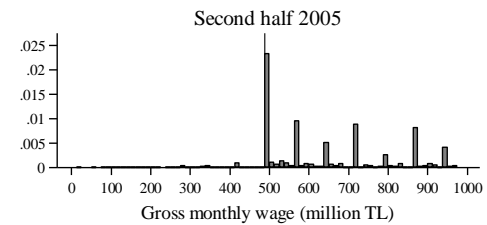
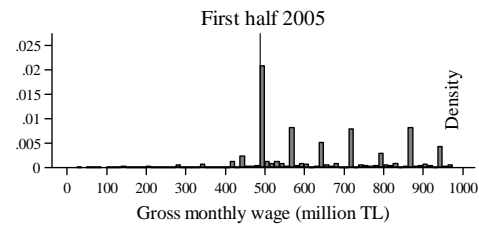
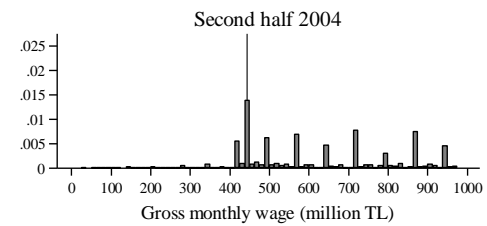
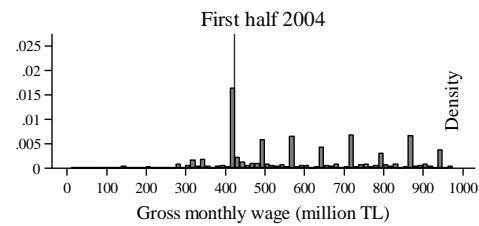
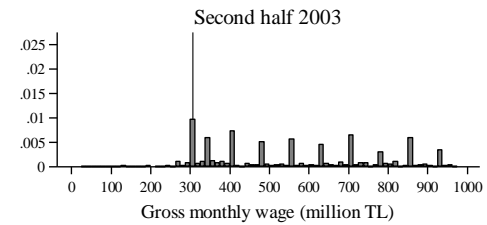
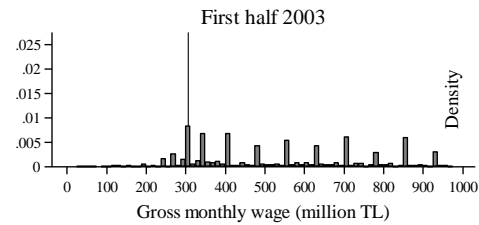
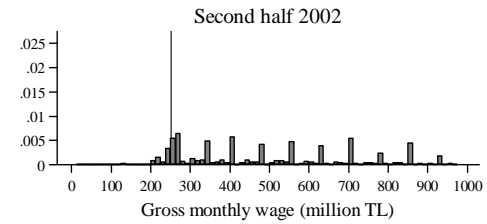
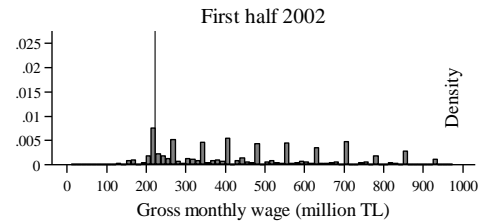
Effects on wages

- Theory says minimum wage will have no effect if set below market wage.
- If employers are compliant with the law, they must raise wages to the level of the minimum wage.
- In [2016](#), 1.3% of UK employees (2.4% of part-timers) earned less than the minimum wage, although this is not necessarily a measure of non-compliance because it is not always clear from survey data whether workers were eligible for the minimum.

Wage distributions in UK



Wage distributions in Turkey



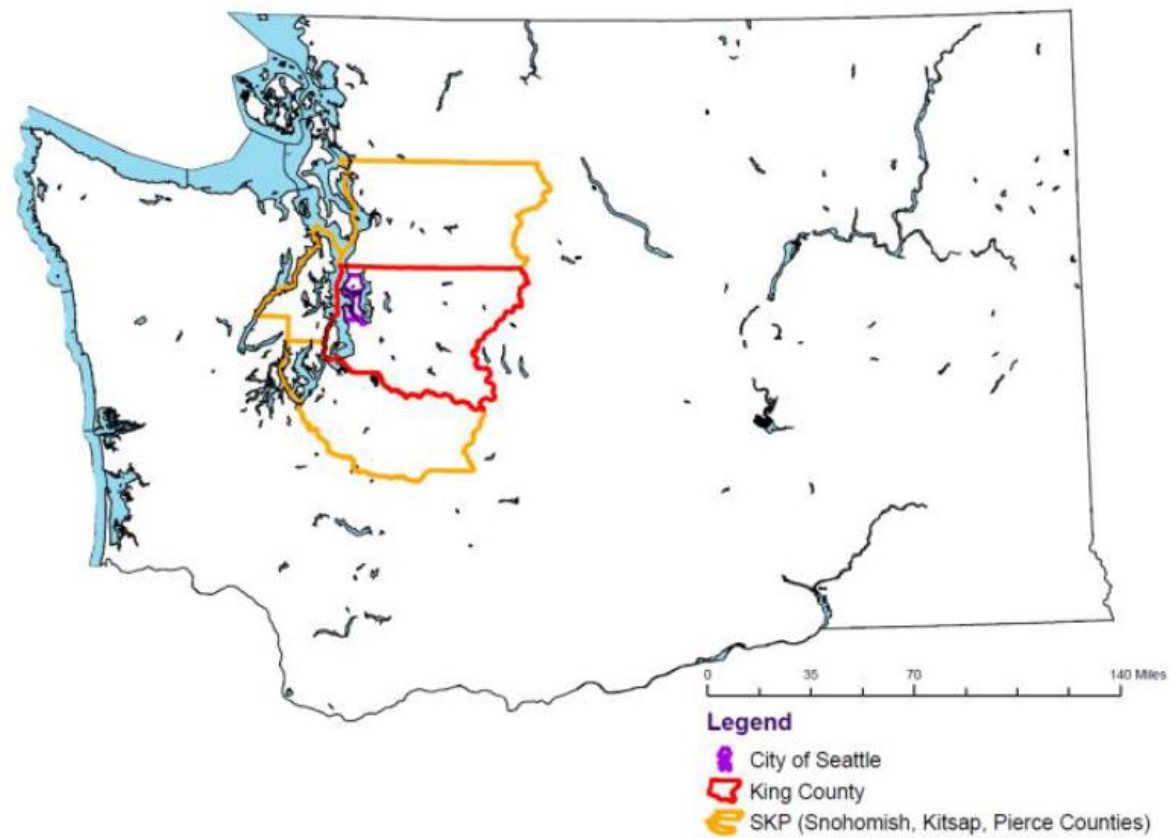
Effects on employment and hours

- If we raise workers' wages by 1% what percentage change in employment will result? This is the employment elasticity with respect to the wage.
- Be careful: some studies report elasticities with respect to the *minimum wage*, which is slightly different because some workers earn between the old and new minimum wages, which means their wages will rise by less than the minimum wage rises.
- Key problem is to establish a counterfactual – what would employment be in the absence of the minimum wage.
- Standard approach in the US is to compare employment in cities/states with different minimum wages.
- For example, the classic study by [Card and Krueger \(1994\)](#) compared the change in employment in New Jersey (where the minimum wage rose) with Pennsylvania (where it didn't).
- Studies tend to find employment elasticities with respect to the wage of between 0 and -0.2, which means that a 10% increase in the wage reduces employment by 0-2%.

Effects on employment and hours

- A recent paper by [Jardim et al. \(2017\)](#) has proved controversial.
- They examine the effect of Seattle's new minimum wage law on employment and hours.
- This raised the minimum wage from \$9.47 to \$11 in 2015 and \$13 in 2016 (although still a relatively modest 50% of the median).
- They found a 3.1% increase in wages among low-paid workers resulted in a 6.8% reduction in jobs and a 9.4% fall in overall work hours (including among job losers).

Jardim et al. (2017) approach



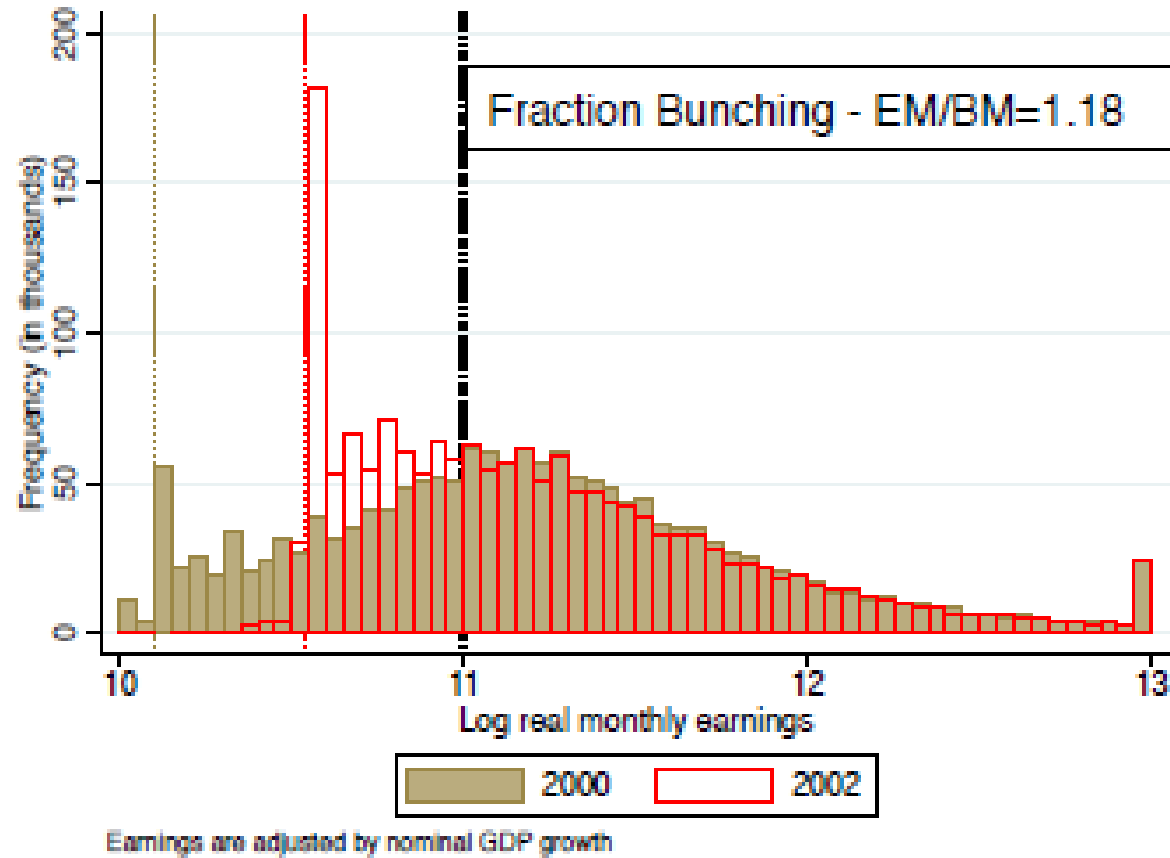
UK evidence on employment and hours

- Most European countries have uniform minimum wage, so either:
 - Compare workers just above and just below minimum wage; or
 - Use cost of living differences across regions and look at real minimum wages.
- Almost all UK studies have found insignificant effects on employment, except for part-time women ([Dickens et al. \(2015\)](#) find an employment elasticity with respect to wages of -0.2 for this group).
- There is more evidence of hours effects, among those who retain their jobs. [Papps and Gregg \(2014\)](#) found an elasticity of around -0.27 (i.e. a 10% increase in a person's wage reduces hours by about 3%, which translates to about 41 minutes a week).

A novel approach

- [Harasztosi and Lindner \(2017\)](#) study a very large minimum wage increase (around 60%) in Hungary in 2001.
- This raised the ratio of minimum to median wage from 35% to 55%.
- They look directly at the wage distribution and calculate how many people moved up to the new minimum wage and how many exited employment.
- They find an employment elasticity with respect to the minimum wage of -0.21, i.e. a 10% increase in the minimum wage leads to a 2.1% reduction in employment.
- Their approach also highlights “spillovers” – after the minimum wage increase, more people earn slightly more than the minimum.

Harasztosi and Lindner's approach



How high is too high?

- Economists use a rule of thumb that minimum wages start to cause employment losses when set above [50% of the median wage](#).
- Not much evidence to back this up.
- [Arindrijat Dube](#) argues that US states and cities should target 50% of the median when setting minimum wages.
- The UK targets 60% of median earnings by 2020; the Government has accepted employment losses as a consequence of raising the minimum wage to this level (although no evidence of any yet).
- New Zealand is already at 60%.
- How transferable are results across countries?

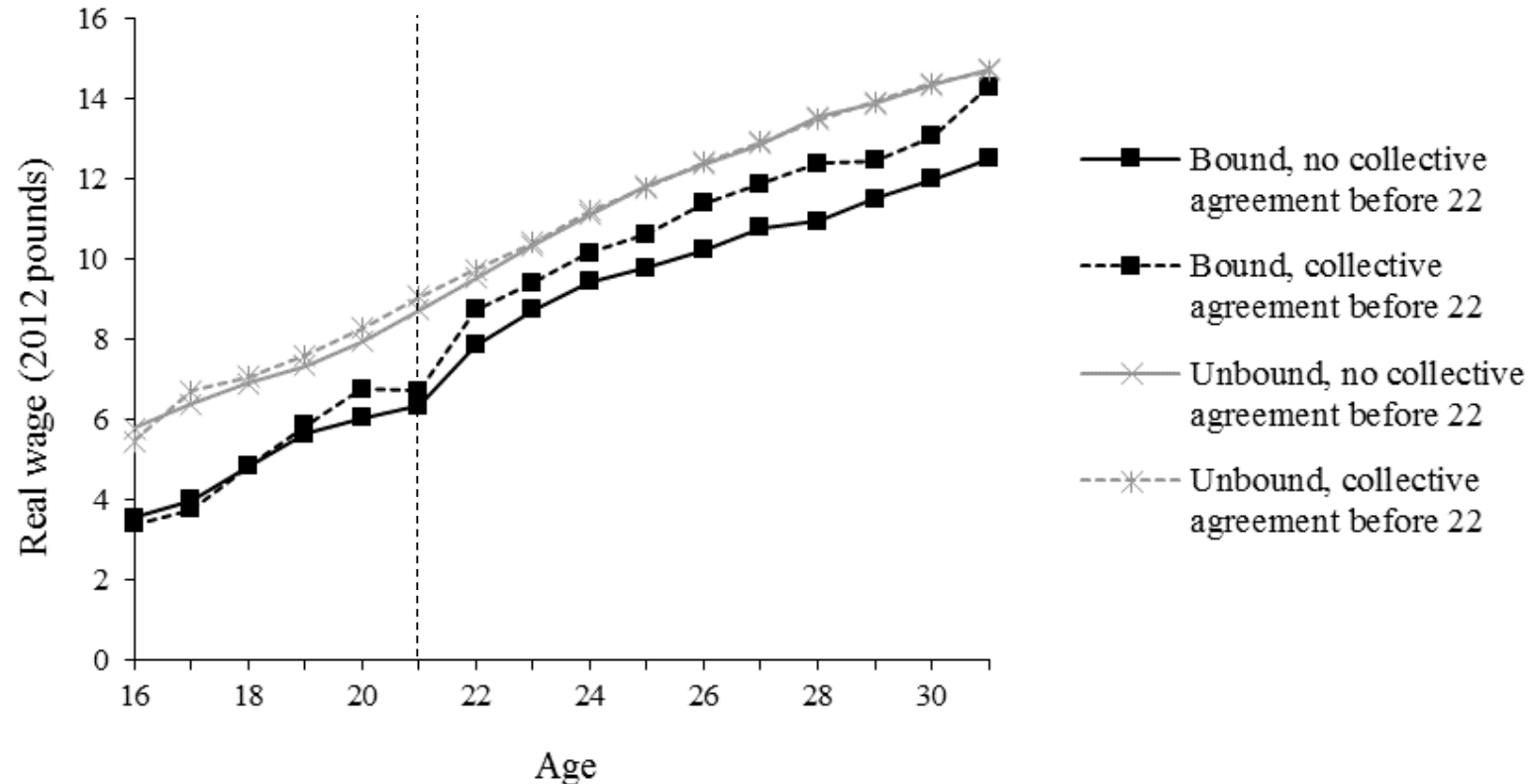
What gives?

- If employment does not respond to the minimum wage, something else must.
- But what?
- The Four “P”s:
 - Perks
 - Productivity
 - Prices
 - Profits

Effects on perks

- Employers might try to offset the minimum wage by cutting other aspects of the total pay package, such as overtime pay or annual leave.
- Papps and Gregg (2014) looked at this for the Low Pay Commission.
- No evidence of cuts to incentive pay, shift/premium pay, overtime pay, use of temporary contracts or pension provision.
- Could also be reduction in training provision.
- Recent studies have found no significant effects on training.
- However, older evidence suggests negative effect on long-run earnings, which would be expected if training fell.
- Papps (2017) looks at long-run effects of minimum wage.
- Earning the minimum wage before age 21 had no effect on earnings from 22 to 30, but those not covered by a collective agreement did experience worse wage growth. Might be due to training.

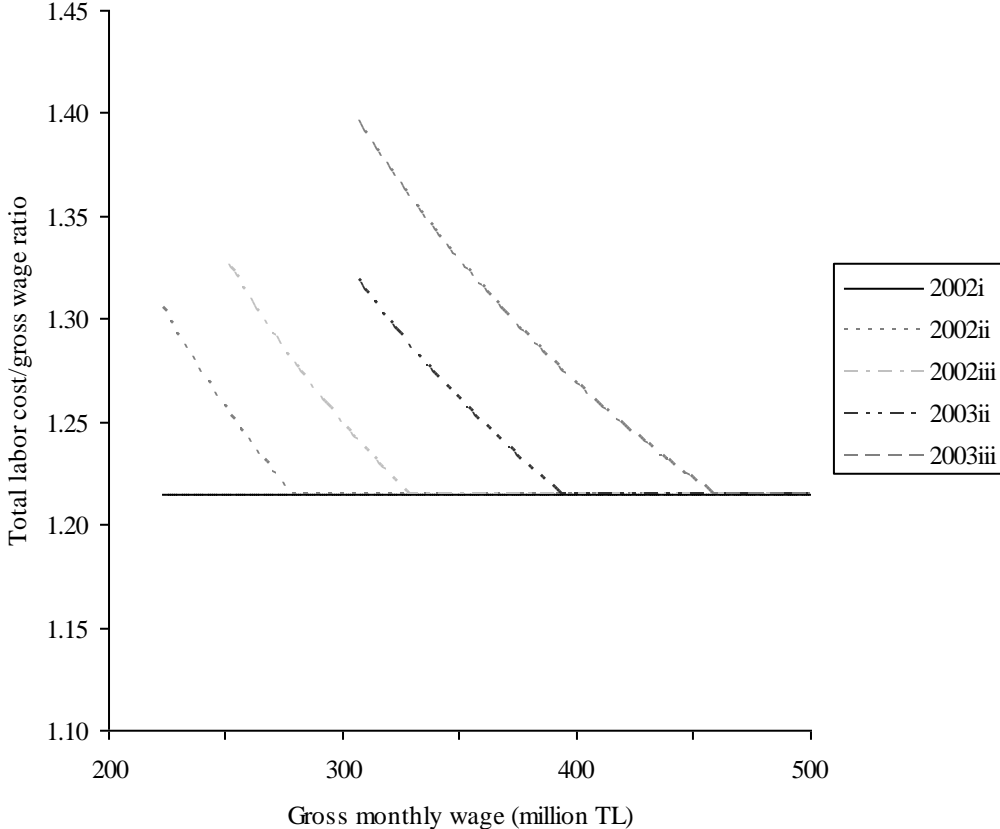
Career wage profiles for youth minimum wage earners (from Papps 2017)



Effects on productivity

- If employees work harder in response to a minimum wage, this might offset some of the costs and explain lack of employment response.
- [Papps \(2012\)](#) studied the minimum wage vs payroll taxes in Turkey.
- Minimum wages and payroll taxes were both raised during the same period.
- Both raised labour costs to firm, but minimum wage raised workers' pay whereas payroll taxes went to government.
- Since firm might be able to pass on some of the cost of the payroll tax to workers in the form of lower pay, the employment change under the payroll tax should be no larger than the employment change under the minimum wage.
- A 1 million lira increase in costs led to a 0.13% fall in a person's probability of staying in his/her job if it was due to minimum wage, but a 0.28% fall if it was due to a change in payroll tax rates.
- Consistent with a productivity response under the minimum wage.

Total labour costs and wages in Turkey



Other studies of productivity

- Ku (2017) looks at tomato pickers in Florida and finds an increase in productivity after a 2009 minimum wage increase.
- Studies in the UK use productivity measures at the firm or industry level and find a positive link in the low-paying sector, e.g. [Rizov et al. \(2016\)](#).

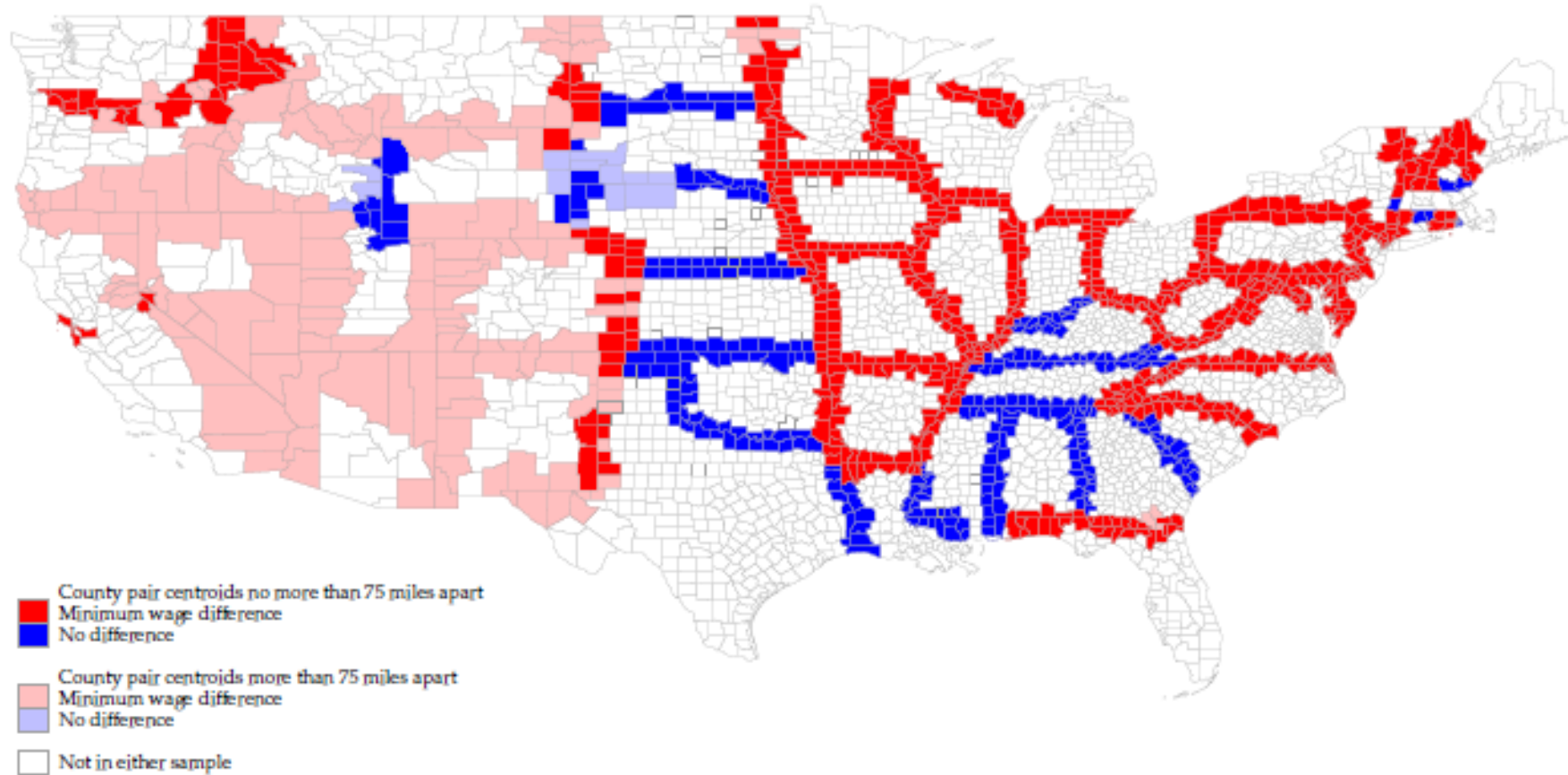
Reasons behind productivity response?

- Is the response voluntary or forced on workers?
- Efficiency wage theory says workers will raise productivity when wages are higher.
- Another way workers might respond is by staying longer on previously undesirable jobs.
- However, firms might also demand more effort from their workers in return for higher wage.
- Survey evidence in UK and Germany suggests firms raise “work intensity” when minimum wage goes up.

Job turnover

- [Dube et al. \(2016\)](#) looked at effects of minimum wage on job turnover in US.
- To get better counterfactuals, rather than comparing states, they compared counties on either side of state borders.
- No effect on overall employment, but reduction in flows in and out of employment – an elasticity of -0.23 for teenagers.
- Similar evidence in Canada ([Brochu and Green 2013](#)) and UK ([Papps and Dickson 2016](#)).
- Possible explanations:
 - Minimum wage workers are less likely to quit when the minimum wage rises;
 - Firms are less likely to lay off workers when the minimum wage rises, because they know they have to pay the minimum wage to any replacement.
- Brochu and Green favour the second explanation; Dube et al. and Papps and Dickson the first.

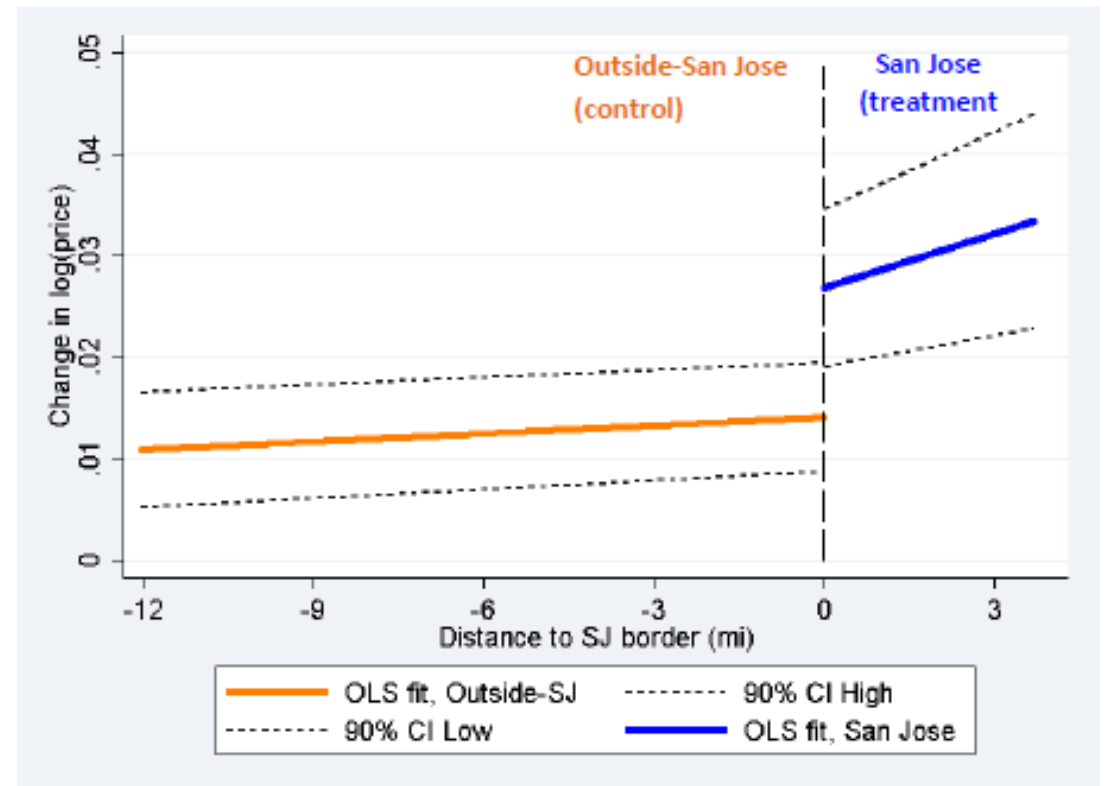
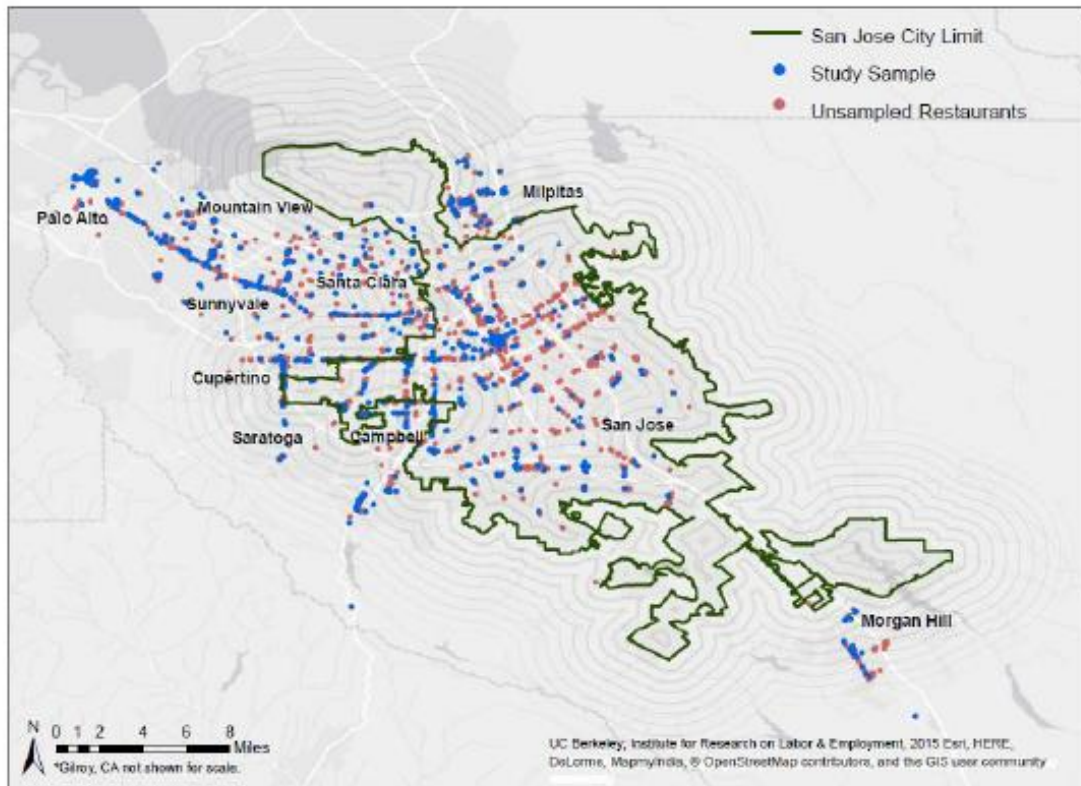
Counties in Dube et al.'s turnover study



Effects on prices

- Early evidence from Germany suggests that prices increased for products most affected by the minimum wage (e.g. taxi rides).
- [Allegretto and Reich \(2015\)](#) collected data on Internet-based restaurant menu items before and after a 25% local minimum wage increase in San Jose, CA.
- They look at price increases on both sides of the city border.
- They find a lot of payroll cost increases are passed on to consumers.
- Their estimated price elasticity with respect to the minimum wage for the food service sector as a whole was 0.058 (smaller for full service restaurants and larger for limited service restaurants).
- Price differences among restaurants close to the city border were not competed away, suggesting that city minimum wages might not lead to big job losses.

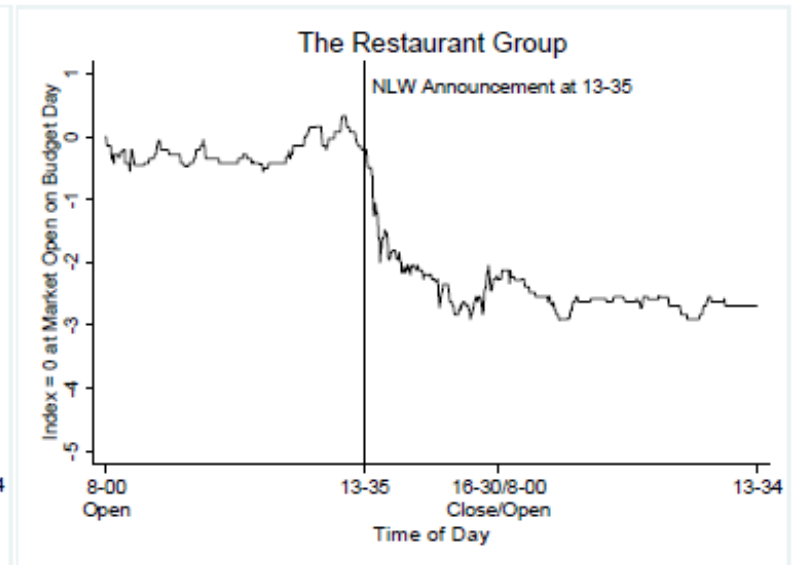
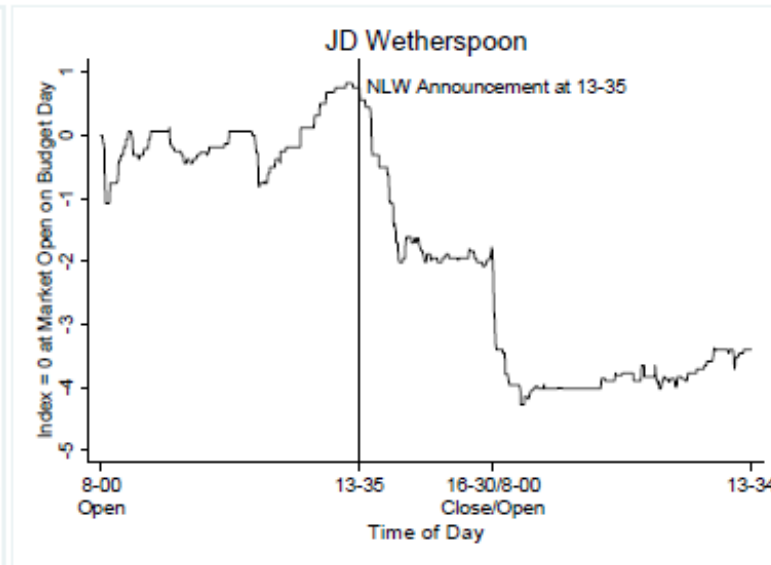
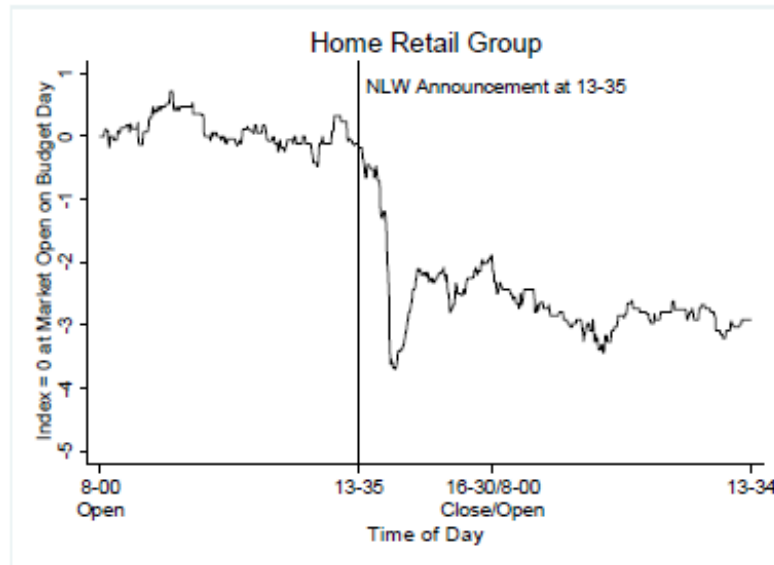
San Jose minimum wage price effects (from Allegretto and Reich)



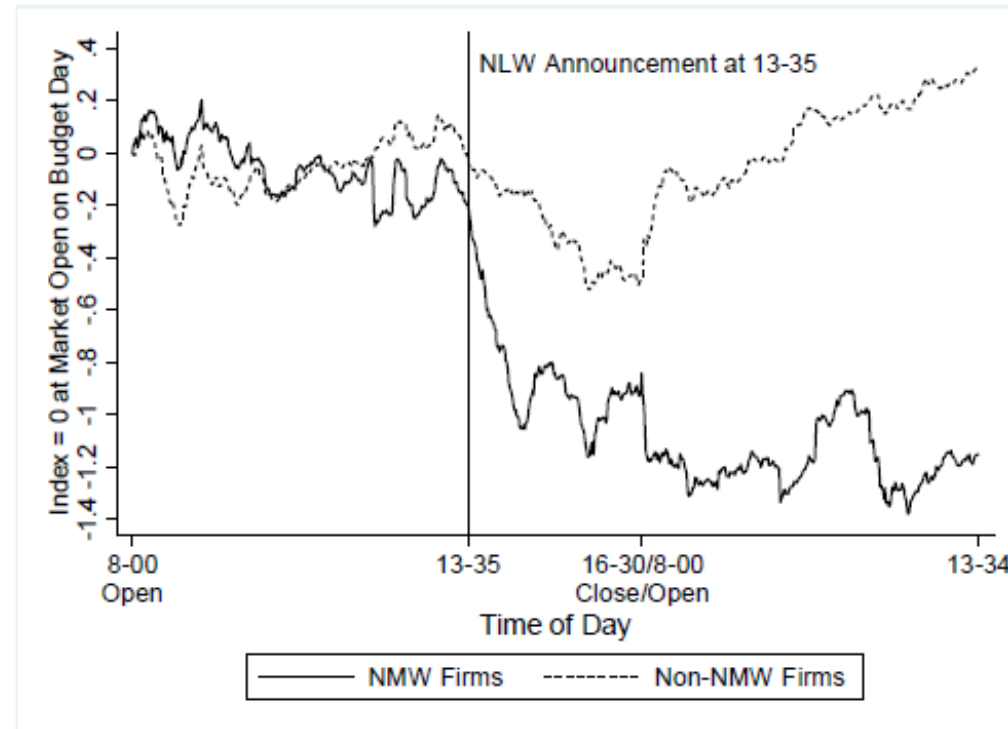
Effects on profits

- In economic theory, firms can only absorb cost increases if they make “supernormal” profits, which requires imperfect competition in the product market.
- [Bell and Machin \(forthcoming\)](#) exploit the fact that the announcement of the National Living Wage on Budget Day 2015 was a complete surprise.
- How did investors in companies that employ a lot of minimum wage workers respond in the minutes and hours after the announcement?
- Difference in share price from other firms should reflect expected loss of future profits, as valued by the market (cumulative abnormal return).
- They find that a 10% minimum wage rise results in a 2-3% fall in market value of affected firms.
- They also estimate what the NLW should do to the firms’ future profits, given its effect on their wage bill.
- A firm’s present value could fall by as much as 12% if the costs are permanent, therefore the changes in share price are consistent with the market anticipating firms offsetting a lot of the costs in the medium term (e.g. by raising prices, productivity or cost efficiency).

Share price of minimum wage firms (from Bell and Machin)



Overall effect of NLW announcement



Other policy considerations

- Age rates
- Regional rates
- Indexed minimum wages

Age rates

- The UK has four age brackets: under 18, 18-20, 21-24 and 25 and over.
- Relatively rare: Belgium, Netherlands, Ireland, Luxembourg are only other European countries with different rates by age.
- Survey evidence suggests that in practice UK employers do not use all the age rates, e.g. just one threshold, at 18 or 21.
- Do employers substitute one age group for another when the minimum wage of one group changes?
- Comparing age-specific employment rates with age-specific minimum wage rates, not much evidence that this occurs.
- Studies also find no significant change in a person's probability of being employed when he/she turns 21 or 22 and becomes eligible for a higher rate of the NMW.

Regional rates

- US has federal, state and city minimum wages.
- Recently, some large cities have set much higher rates than the \$7.25 federal rate: San Francisco (\$15 by 2018), New York (\$15 by 2019), Seattle (\$15 by 2021), Los Angeles (\$15 by 2021), Chicago (\$13 by 2019).
- Most European countries have national minimum wages (Bosnia and Herzegovina and Switzerland are the only countries with regional variation).
- UK has considered London rate in the past, but has not pursued it.

Indexed minimum wages

- Seven US states (Alaska, Florida, Missouri, Montana, New Jersey, Ohio and South Dakota) index their minimum wage to the inflation rate, so that it automatically rises each year (assuming prices go up).
- Using same methodology as Dube et al. (2016), Brummond and Strain (2016) find that the disemployment effects of the minimum wage are 2.5 times larger when they are inflation-indexed.
- Possibly due to firms knowing that minimum wage increases are permanent (and will not be eroded by price inflation). On the other hand, indexing provides certainty to firms.

Remaining questions

- Can the minimum wage be used to address poor productivity growth?
 - When launching the National Living Wage, George Osborne claimed that it might lead to an increase in productivity (whether voluntary or not) and training (which is theoretically possible – Acemoglu and Pischke (1999)).
- How to treat self-employed (gig economy)?
 - The self-employed are not covered by the UK National Minimum Wage, but many blurry cases in “gig economy” ([Deliveroo](#) vs [Uber](#) court verdicts).
- How do apprentices fit in?
 - UK apprentice rate not well understood and has not encouraged more apprenticeships.

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