

The effect of overtime regulations on employment

There is no evidence that being strict with overtime hours and pay boosts employment—it could even lower it

Keywords: overtime, wages, labor demand, employment

ELEVATOR PITCH

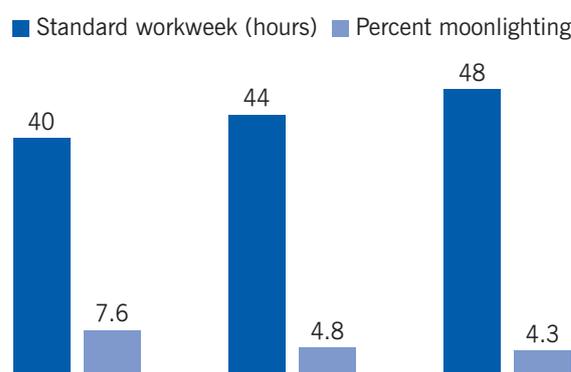
Regulation of standard workweek hours and overtime hours and pay can protect workers who might otherwise be required to work more than they would like to at the going rate. By discouraging the use of overtime, such regulation can increase the standard hourly wage of some workers and encourage work sharing that increases employment, with particular advantages for female workers. However, regulation of overtime raises employment costs, setting in motion economic forces that can limit, neutralize, or even reduce employment. And increasing the coverage of overtime pay regulations has little effect on the share of workers who work overtime or on weekly overtime hours per worker.

KEY FINDINGS

Pros

- + Regulation of standard workweek hours and overtime hours and pay can protect workers who might otherwise be required to work more than they would like to at the going rate.
- + Shortening the legal standard workweek can potentially raise employment, especially among women.
- + Shortening the legal standard workweek can increase the straight-time hourly wages of some workers.
- + Shortening the legal standard workweek permits more time for leisure and for home production.
- + Limiting overtime might benefit women workers, especially managerial workers, through an induced reorganization of work time.

A shorter standard workweek boosts incentives for multiple job holding and undermines work sharing



Source: Based on data in [1].

IZA
World of Labor

Cons

- Curbing overtime reduces employment of both skilled and unskilled workers.
- Overtime workers tend to be more skilled, so unemployed and other workers are not satisfactory substitutes for overtime workers.
- Shortening the legal standard workweek increases moonlighting and therefore increases competition for jobs for unemployed workers.
- Expanding the coverage of overtime pay regulations has little effect on the share of workers who work overtime or on weekly overtime hours per worker.
- Shortening the legal standard workweek raises labor costs, which can lead to a reduction in overall employment.

AUTHOR'S MAIN MESSAGE

Regulating overtime hours and pay can increase the standard hourly wage of some workers and encourage work sharing that increases employment, particularly for women. But the work-sharing potential of restrictive overtime regulations disappears when workers and employers fully adjust to the regulations. Legal reduction in work time raises labor costs, which can lead to a reduction in overall employment. The empirical record offers no evidence of job creation through overtime regulation. In the end, such regulations may not only fail to increase job holding but may actually reduce employment.

MOTIVATION

Many industrialized countries have labor laws governing standard workweeks and overtime provisions. The regulatory environment might specify the maximum daily or weekly hours of work. Or the law might require that employers pay a wage premium for each additional hour worked in excess of the legal standard workweek.

In addition to concerns about worker safety and well-being, some policymakers view maximum hours and overtime provisions as vehicles for creating jobs and thereby reducing unemployment. But the employment-boosting potential of overtime regulations disappears once workers and employers fully adjust to the regulations.

Adjustments include production cutbacks in response to higher labor costs, increased moonlighting by workers whose overtime hours are cut, and the mismatch between the skill requirements of overtime jobs and the skill sets of unemployed workers. Thus it is critical to know what economic forces are set in motion by overtime regulations before considering policies to regulate overtime hours and pay.

DISCUSSION OF PROS AND CONS

Labor market regulations governing maximum working hours and mandated compensation for hours of work in excess of that legal threshold are near universal. Economic development—earlier in industrialized countries and currently in developing countries—has been accompanied by long work hours at low wages for many workers. Governments in both industrialized and developing countries have sought to curb working hours that are deemed to be excessive. Figure 1 offers a summary of overtime work regulations for several industrial countries. While there is a fair amount of variation

Figure 1. Principal features of overtime schemes in industrial countries as of 2013

<i>Country</i>	<i>Threshold level</i>	<i>Enhanced pay rate</i>
Australia	38 hours a week	50% for the first two hours and 100% thereafter
Austria	8 hours a day, 40 hours a week	50%
Canada	44 hours a week	50%
France	35 hours a week	10% for additional hours up to 43 and 50% for 44 or more
Germany	Varies by sectoral agreement	25% on work days, and 50% on Sundays and holidays
Italy	40 hours a week	10%
Japan	8 hours a day, 48 hours a week	25–85% depending on day and time of a day
Norway	10 hours a day	40%
UK	Varies by agreements	By agreement
US	40 hours a week	50%

Source: Eurofound, <http://www.eurofound.europa.eu/eiro/2003/02/study/tn0302101s.htm>, provides additional information on updates and changes in legislation.

in national provisions for overtime regulation, most specify a compensatory overtime premium for hours worked in excess of a legally defined workweek. The economic justification for overtime hours and pay regulation would have to presume some sort of labor market failure that necessitates intervention. Otherwise, the natural operation of a competitive labor market would establish the compensating wage differentials necessary to coax additional hours from the available labor force.

Work sharing induced by limitations on standard workweeks is the hoped for vehicle for stimulating employment growth. Even if overall employment does not grow, there is still scope for differentially benefiting women workers through reorganization of work schedules. Furthermore, shortening the standard legal workweek could encourage workers to spend more hours in leisure activities and production in the home.

Even in the absence of overtime regulation, changing economic circumstances force firms to make choices pertaining to substitution among various types of workers and between labor and nonlabor inputs [2].

To make things concrete, consider the case in which workers are divided into two general categories: production workers and nonproduction workers, and in which there are multiple possible combinations of overtime defined over these two categories of labor. A noteworthy combination is one in which production workers work overtime while nonproduction workers do not. This is very close to the case in US manufacturing. While some nonproduction workers in manufacturing do engage in overtime, the amount of time is very small compared with overtime hours for production workers (Figure 2). Between March 2006 and July 2013, nonproduction workers who worked overtime in US manufacturing averaged just one hour of overtime a week, while their production colleagues averaged 3.9 hours a week of overtime. The extent to which different types of workers can be substituted for one another is an empirical question for which evidence is presented below.

Figure 2. Average weekly overtime hours in US manufacturing

<i>Year</i>	<i>Production workers</i>	<i>Nonproduction workers</i>
2006	4.4	0.7
2007	4.2	1.0
2008	3.7	1.1
2009	3.0	0.9
2010	3.8	1.2
2011	4.1	1.0
2012	4.2	1.0

Source: BLS data. Online at: <http://www.bls.gov/data/#employment> [Accessed February 10, 2014].

I Z A
World of Labor

The argument for restricting overtime hours

How might overtime regulations increase employment? A tempting line of speculation is that a sufficiently aggressive overtime premium, such as time and a half or double-

time, would virtually eliminate, or at least severely curtail, overtime work. Somehow, the argument goes, this reduced overtime will be converted into new jobs that will reduce unemployment. Following this line of reasoning, Congressman John Conyers of Michigan introduced a bill in 1978 to amend the Fair Labor Standards Act to reduce the standard workweek from 40 hours to 35 hours and to raise the overtime premium from time and a half to double-time. This proposal was motivated by the expectation that the measure would alleviate unemployment by spreading the work more broadly. Indeed, the expectation of work sharing induced by a legislated standard workweek and overtime premia is probably the primary justification for political intervention in the labor market.

Potential employment and wage enhancing effects of workweek regulation

A Canadian study takes advantage of the fact that in addition to uniform federal overtime regulations, provinces have their own statutory standard workweek and overtime regulations, which vary [1]. A statistical model was used to simulate the most optimistic impact on average hours of work from reductions of the statutory standard workweek from 44 or 48 hours to 40 hours. The simulations provide upper bounds on how much employment could increase in the extreme case in which there are no production cutbacks and no substitution of other inputs for the affected workers. In other words, the simulations considered what the maximum employment effect would be if reduced hours of work could be entirely transformed into new jobs for the workers who are covered by overtime regulations.

The simulated maximum percentage employment increases were 0.2% for the 44-hour standard workweek jurisdictions and 0.6% for the 48-hour jurisdictions. To put things in perspective, this would mean that if the unemployment rate were 10% in the 48-hour standard workweek labor market, reducing the standard workweek to 40 hours would at a maximum lower the unemployment rate to about 9.5%. Of course, if there were production cutbacks and substitution for labor, the unemployment rate might actually rise.

The Canadian study also finds evidence that shortening the standard legal workweek actually leads to increases in the **straight-time** hourly wages of workers covered by the restrictions [1]. In a 40-hour workweek jurisdiction, a job that requires the median overtime (ten hours of overtime) is estimated to pay 2% higher wages for a covered

Straight time

In human resources, especially in the US, “straight time” refers to an employee’s regular established working hours over a standard period (such as a week), excluding time lost due to absence or gained by working overtime.

Straight-time pay refers to the agreed hourly rate for work performed within these agreed hours. Additional work performed beyond these hours may be paid at a higher overtime rate.

Source: “Straight time.” *Merriam-Webster.com*. Online at: <http://www.merriam-webster.com/dictionary/straight%20time> [Accessed September 12, 2014].

worker than for an uncovered worker. In a 44-hour workweek setting with the same number of overtime hours, the effect would be a 3% higher wage for a covered worker than for an uncovered worker. Increases in the wage costs for straight-time hours induced by overtime regulations open the door to substitution of other inputs and scaling back of production, neither of which is conducive to employment creation.

Another Canadian study evaluates the effects of Quebec Province's attempt to stimulate employment by reducing the standard workweek from 44 hours to 40 hours between 1997 and 2000 [3]. That change meant that weekly work hours in excess of 40 hours became overtime hours, which led to a 20% reduction in weekly overtime hours among full-time workers. Nonetheless, the policy did not succeed in its intended objective of increasing employment.

Studies in France and Germany also show that reducing the standard workweek has not succeeded in increasing employment. In February 1982, France implemented a mandatory reduction in weekly hours from 40 to 39. Among workers who had been employed in March 1981, those who had been working 40 or more hours a week in March 1981 were more likely to lose their jobs between 1981 and 1982 than those who had been working 36–39 hours [4]. The employment losses associated with the mandated workweek reduction ranged from 2% to 4%.

Another study exploits the special historical regulations governing the Alsace-Moselle region of France to identify the effects of a 1998 French law that reduced the standard workweek from 39 hours to 35 [5]. This study took advantage of the less stringent application of the law in Alsace-Moselle than in the rest of France. No significant impact on employment was found in Alsace-Moselle, which suggests that reducing standard workweek hours through labor legislation does not culminate in employment growth. Germany made an early attempt to create more employment by curtailing standard weekly hours beginning in 1985. Research finds that hourly compensation rose sufficiently to neutralize the employment effects of the reductions over the period 1984–1994 [6]. However, deeper analysis of industry-by-industry data shows that the policy may have reduced employment rather than increasing it.

Offsets to job creation

While the impact of overtime regulations on employment and unemployment can be nuanced, there are some general considerations that should temper optimism for overtime regulation as an effective employment policy. An increase in the overtime premium raises labor costs for employers who had previously used overtime hours, even if the employers respond by completely eliminating overtime [1]. The reason for this counterintuitive outcome is that if it had been efficient to eliminate overtime and increase employment before the regulatory change that raised the overtime premium, employers would have already done so. Instead, they had chosen the overtime schedule for their workforce, indicating that this was the least costly alternative. Consequently, the higher overtime premium induces employers to use the more costly alternative of reducing overtime hours and incurring the expense of added employment as the best that they can do under the new overtime regime. One casualty of higher labor costs is employment.

A study in France examines the efficacy of an effort by the French government in 2007 to increase (rather than decrease) the overtime hours of labor supplied by French workers by exempting overtime compensation from income taxes and social security contributions [7]. In the end, the policy had no significant effect on hours worked. Also, there is evidence that some types of workers overstated the overtime component of their work hours in order to take advantage of the special tax treatment.

If overtime regulation succeeds in eliminating overtime, how are overtime workers likely to respond to the loss of overtime earnings? One plausible response is that some of these workers would take on a second job to help offset their lost earnings. To the extent that such moonlighting occurs, these workers will be competing with unemployed workers for jobs.

A Canadian study reveals that the share of workers moonlighting is larger where the standard workweek is shorter [1]. For example, 7.5% of workers hold second jobs in the 40-hour workweek jurisdictions compared with 4.8% in 44-hour workweek jurisdictions and 4.3% in 48-hour jurisdictions. Furthermore, in a 40-hour standard workweek environment, the probability that a worker will hold a second job is significantly greater if the worker is covered by overtime regulations than if the worker is not. The probability of moonlighting declines for covered workers the longer the standard workweek. For a covered worker, reducing the standard workweek from 44 to 40 hours would raise the probability of moonlighting an estimated 1.1 percentage points. This effect nearly triples to 3.2 percentage points for a covered worker whose standard workweek is reduced from 48 hours to 40 hours. The incentives for multiple job holding that are induced by binding constraints on the standard workweek undermine the objective of spreading employment through work sharing.

A French study identified the cross-effects on husband-wife labor supply of the 1998 French law that reduced the standard workweek from 39 hours to 35 hours [8]. When husbands' hours were reduced as a result of the new standard workweek policy, there was little or no labor supply response from their wives. But when wives' hours were reduced, husbands reduced their weekly labor supply by about 30 minutes. The effect of reductions in wives' hours on husbands' labor supply was especially high among men in professional occupations or with young children. This would imply that the workweek reduction led to more time spent on home activities for both husband and wife.

Another offset to potential job creation arises from the likelihood that the skill set of overtime workers and the unemployed might be quite different. In that case the skill requirements for the jobs freed up by the reduction in overtime hours might not match the skills of unemployed workers. Thus, the potential for reducing unemployment by raising the overtime premium in order to discourage overtime work would be considerably diminished.

Several studies find that overtime work increases with a worker's skills. The empirical evidence suggests that workers who work overtime have much higher skills than those who do not, although this may not be a universal pattern. The clear implication is that skilled and unskilled workers are less substitutable and more complementary in the production process.

A German study reveals that the probability of working overtime and the number of overtime hours worked rise with the following factors: age until about 44 and declining

thereafter, married workers (8.9% increase in overtime hours), more experienced workers, workers employed in firms with fewer than 200 employees (10.7% increase in overtime hours), workers with higher standard workweeks, workers with job tenure, and workers employed in sectors with positive real output growth [9].

Even though the basic overtime premium and definition of the standard workweek have not changed in the US since 1940, a US study exploited changes in the coverage of overtime regulations over nearly 20 years to examine the impacts of overtime regulations on weekly work schedules in 11 major industry groupings [10]. Coverage changes came about as a result of a series of legislative changes and judicial rulings. The analysis controlled for industry, national business cycle effects, and average worker demographics in each industry (age, education, marital status, gender, and race). The US study documents the positive effect of skill level on the proportion of workers in an industry in any given year who work overtime and on the amount of overtime hours worked per worker. Increases in the proportions of prime-age workers (relative to younger and older workers) and in average education are associated with more overtime work.

The study of German workers also sheds light on the extent to which changes in overtime work represent adjustments to temporary economic fluctuations [9]. A one percentage point increase in output growth during an economic boom raises overtime hours an estimated 2.4%, of which 1.7% is attributable to increasing the hours of those already working overtime and 0.7% to increasing the probability of working overtime. These findings show that firms largely adjust overtime in response to cyclical economic fluctuations. Taken in total, this study shows that legislation directed at curbing the use of overtime reduces employment among both skilled and unskilled workers for two reasons: creating an induced skill shortage will reduce the employment of complementary unskilled workers, while impeding the ability of firms to buffer economic fluctuations with overtime will have a negative impact on total employment.

A British study examines the relationship between wages, hours of work, and overtime premia in the UK in the absence of national legislation that sets an overtime premium for hours worked in excess of a legislated standard workweek [11]. (Subsequent to the time period examined in this study, legislation specified a maximum 48-hour workweek but workers could opt out or waive this requirement.) Since the terms governing the workweek and overtime are set by agreement at the company level, the setting for this study roughly approximates what can emerge in a free market.

The study examines 24,000 nonmanagerial male workers, nearly two-thirds of whom worked some overtime and averaged nine hours of overtime a week. The overtime premium varied very little from its average of 1.28 times the standard hourly wage across different amounts of overtime hours worked. This outcome would be expected when the overtime premium is set by legislation, but that was not the case here. Also, the average standard hourly wage did not differ significantly between overtime workers and workers who did not work overtime. Indeed, the relationship between standard hourly wages and the overtime premium was negative. Overall, the average hourly earnings of these overtime workers (averaged over standard and overtime hours) was independent of the amount of overtime hours worked.

These results are consistent with the view that workers and employers bargain explicitly or implicitly over a long-term arrangement that covers compensation and hours of work. So that employers do not incur added costs above competitive wage levels

from an overtime premium when they offer more hours of work, the standard hourly wage is correspondingly lower. In this setting, there would be no reason to expect any employment effects.

A robust finding from the US study is that after taking into account industry-specific trends in overtime that are unrelated to changes in overtime regulation, the effect of increased coverage of overtime regulation has no statistically significant effect on the proportion of workers who work overtime or on the weekly overtime hours per worker [10]. This evidence would indicate that the market adjustment to overtime regulation neutralizes its employment effects. Thus, in the absence of reductions in overtime hours, there is no prospect for employment creation through regulation of overtime hours.

LIMITATIONS AND GAPS

The central focus of this paper is the employment effects of overtime regulations, a topic of broad interest because of the ubiquitousness of overtime policy and regulation. Without strong evidence on the economic consequences of overtime regulation, there is a substantial risk that, in a rush to craft a seemingly simple job creation scheme, policymakers could overlook the myriad economic forces at work. However, data limitations restrict good research and thus, in turn, impede good overtime and employment policies.

Directly studying the employment effects of overtime regulation requires not only readily available data on employment but also abundant information on varying hourly labor costs and on quasi-fixed labor costs that do not vary with hours but do vary with employment (overhead labor costs, such as some forms of fringe benefits).

Furthermore, these data need to be matched with data on output, output prices, hours of straight-time work, and hours of overtime work. It is a challenge to find data that meet all of these requirements simultaneously. With the growing number of databases that merge worker characteristics with firm characteristics, the prospects for future research on overtime regulation and employment are growing brighter.

Given the diversity of national economies and political, economic, and social institutions, one size does not fit all. This basic point is recognized by the theoretical literature that examines both the labor demand approach to overtime and the explicit and implicit bargaining approach to overtime in the context of employment, wage, and hours packages. Fortunately, a great deal of indirect inference can be drawn about the employment effects of overtime regulation using the data that are available for many countries.

SUMMARY AND POLICY ADVICE

The belief or speculation that regulating overtime will boost employment—and reduce unemployment—springs from the notion that a sufficiently aggressive regulatory approach will reduce or eliminate overtime work and that the overtime hours freed up can be shared across more workers. Basic economic principles would predict that increases in the overtime premium would cause some substitution of new employment for overtime hours, holding total production constant.

For analytical purposes, the empirical calculations of the upper bounds on any potential employment effect assume that total hours worked remain unchanged. The evidence shows that even under such a flawed assumption for policy purposes, the maximum employment increase would be very modest.

The prospects for raising employment through work sharing are further eroded by several empirical findings. Studies document that workers who work overtime tend to be more skilled than workers who do not. Thus, the hours vacated by the elimination of overtime could not be readily filled by unemployed workers.

Another unintended consequence of overtime restrictions is the finding of increased moonlighting in more restricted statutory workweek environments, especially among workers covered by the overtime restrictions. This means that reducing overtime hours induces workers to take second jobs, thereby competing with those who are already unemployed. Although the number of jobs held might rise, the number of people holding the jobs would not change.

Evidence points to a neutralizing of the overtime premium in some cases by a lowering of the straight-time hourly wage. Therefore, the hoped-for conversion of eliminated overtime hours into new employment would not take place. In other institutional settings, the empirical evidence shows that more restrictive statutory workweeks are associated with higher straight-time wages for covered workers. This favors employment reductions because of the increased labor costs.

The empirical evidence offers no support for expecting that reduced workweeks and higher overtime premia would lead to increased employment and decreased unemployment. To the contrary, the preponderance of empirical evidence would lead one to expect that if there is any effect of overtime regulation, it would be in the direction of lowering employment. In addition, there is no credible evidence of market failures serious enough to justify aggressive overtime regulations.

In the absence of any credible evidence that points to job creation through overtime regulation, caution is warranted in attempting to craft policies for creating employment through increased stringency in overtime regulations. The specter of unintended consequences looms large.

Acknowledgments

The author thanks an anonymous referee and the IZA World of Labor editors for many helpful suggestions on earlier drafts. The author also gratefully acknowledges the capable assistance of Galiya Sagyndykova.

Competing interests

The IZA World of Labor project is committed to the *IZA Guiding Principles of Research Integrity*. The author declares to have observed these principles.

© Ronald L. Oaxaca

REFERENCES

Further reading

- Hart, R. *The Economics of Overtime Working*. Cambridge, MA: Cambridge University Press, 2004.
- Calmfors, L., and M. Hoel. "Work sharing and overtime." *The Scandinavian Journal of Economics* 90:1 (1988): 45–62.
- Ehrenberg, R., and P. Schumann. *Longer Hours or More Jobs?: An Investigation of Amending Hours Legislation to Create Employment*. Cornell University Studies in Industrial and Labor Relations, 1982.
- Ehrenberg, R. *Fringe Benefits and Overtime Behavior: Theoretical and Econometric Analysis*. Lexington, MA: Heath Lexington Books, 1971.

Key references

- [1] Friesen, J. "Overtime pay regulation and weekly hours of work in Canada." *Labour Economics* 8 (2002): 691–720.
- [2] Cahuc, P., and A. Zylberberg. *Labor Economics*. Cambridge, MA: MIT Press, 2004.
- [3] Skuterud, M. "Identifying the potential of work-sharing as a job-creation strategy." *Journal of Labor Economics* 25:2 (2007): 265–287.
- [4] Crépon, B., and F. Kramarz. "Employed 40 hours or not employed 39: Lessons from the 1982 mandatory reduction of the workweek." *Journal of Political Economy* 110:6 (2002): 1355–1389.
- [5] Chemin, M., and E. Wasmer. "Using Alsace-Moselle local laws to build a difference-in-differences estimation strategy of the employment effects of the 35-hour workweek regulation in France." *Journal of Labor Economics* 27:4 (2009): 487–524.
- [6] Hunt, J. "Has work-sharing worked in Germany?" *The Quarterly Journal of Economics* 114:1 (1999): 117–148.
- [7] Cahuc, P., and S. Carcillo. "The detaxation of overtime hours: Lessons from the French experiment." *Journal of Labor Economics* 32:2 (2014): 361–400.
- [8] Goux, D., E. Maurin, and B. Petrongolo. "Working regulations and spousal labor supply." *American Economic Review* 104:1 (2014): 252–276.
- [9] Bauer, T., and K. Zimmermann. "Overtime work and overtime compensation in Germany." *Scottish Journal of Political Economy* 46:4 (1999): 419–436.
- [10] Trejo, S. "Does the statutory overtime premium discourage long workweeks?" *Industrial and Labor Relations Review* 56:3 (2003): 530–551.
- [11] Bell, D., and R. Hart. "Wages, hours, and overtime premia: Evidence from the British labor market." *Industrial and Labor Relations Review* 56:3 (2003): 470–480.

The full reference list for this article is available from the IZA World of Labor website (<http://wol.iza.org/articles/effect-of-overtime-regulations-on-employment>).