

# The effect of overtime regulations on employment

## Strictly controlling overtime hours and pay does not boost 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.

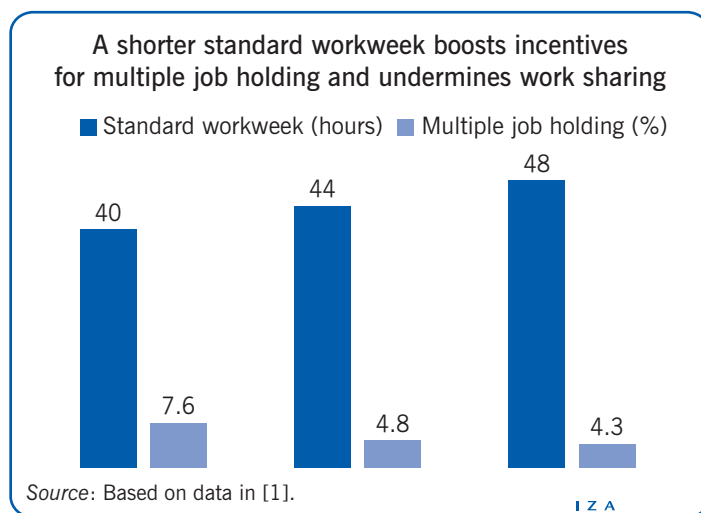
### KEY FINDINGS

#### 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.

#### Cons

- Curbing the use of overtime reduces employment of both skilled and unskilled workers.
- Overtime workers tend to be more skilled—hence unemployed and other workers are not satisfactory substitutes for overtime workers.
- Shortening the legal standard workweek increases the incidence of multiple job holding (“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 and on the weekly overtime hours per worker.
- Shortening the legal standard workweek raises labor costs that 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 of 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 nations 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 are tempted to 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

### Background

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 in national provisions for overtime regulation, most specify a compensatory overtime premium for hours worked in excess of a legally defined workweek, for example, 40 hours per week at time and a half pay. 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—the additional amount of income that would need to be offered—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, in the face of changing economic circumstances firms are confronted with choices pertaining to substitution among various types of workers and between labor and non-labor inputs.

To make things concrete, consider the case in which workers are divided into two general categories: production workers and non-production workers, and in which there are multiple possible combinations of overtime defined over these two categories of labor.

Figure 1. Principal features of overtime schemes as of 2019

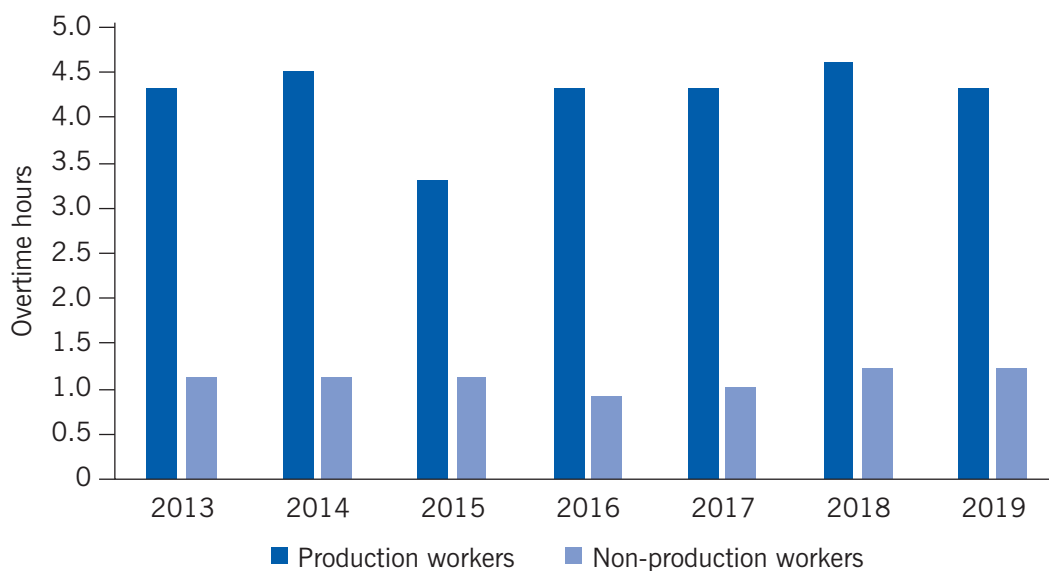
| <i>Country</i> | <i>Threshold level</i>                       | <i>Enhanced pay rate</i>   | <i>Max allowed overtime hours</i>  |
|----------------|--|--|--|
| Australia      | 38 hours a week                              | 50% for the first 3 hours (2 hours in some industries) and 100% time thereafter  | Total working hours no more than 12 hours a day  |
| Canada         | 8 hours per day, 40 hours per week           | 50%  | Total working hours no more than 48 hours per week   |
| France         | 35 hours per week                            | By agreement, min 10%. If no agreement, then 25% for the first 8 overtime hours a week and 50% for every additional hour | 220 overtime hours a year, total working hours no more than 12 hours a day and 48 hours a week |
| Germany        | Varies between sectoral agreements           | By agreement (time off or remuneration)  |  |
| Italy          | 40 hours per week                            | Higher than ordinary working hours, by agreement   | 250 hours a year   |
| Japan          | 8 hours per day, 40 hours per week           | 25% and 50% if overtime exceeds 60 hours a month   | 5 hours a day, 45 hours a month, 360 hours a year  |
| South Korea    | 8 hours per day, 40 hours per week           | 50%  | 12 hours a week  |
| Norway         | 9 hours per 24 hours and 40 hours per 7 days | Min 40%  |  |
| UK             | Varies between agreements, max 48 hours      | By agreement   | 48 hours a week calculated over a 17-week period   |
| US             | 40 hours per week                            | 50%  |  |

Source: Authors' own based on information from Eurofound. Online at: <http://www.eurofound.europa.eu/eiro/2003/02/study/tn0302101s.htm>, additional updates and changes from legislations of the different countries.

A noteworthy combination is one in which production workers work overtime while non-production workers do not. This is very close to the case in US manufacturing. While some non-production workers in manufacturing do engage in overtime, the amount of overtime is very small compared with overtime hours for production workers (Figure 2). Between January 2013 and December 2019, non-production workers who worked

overtime in US manufacturing averaged just 1.1 hours of overtime a week, while their production colleagues averaged 4.2 hours a week of overtime. Non-production workers are more likely to be exempt from overtime provisions and in some cases are in higher-paid occupations that would render overtime pay very costly.

Figure 2. Average weekly overtime hours in US manufacturing



Source: Author's own calculations based on BLS data. Online at: <http://www.bls.gov/data/#employment> [data extracted March 27, 2020].

### The argument for restricting overtime hours

How might overtime regulations increase employment? A tempting line of reasoning is that a sufficiently aggressive overtime premium such as time and a half or double-time will virtually eliminate, or at least severely curtail, overtime work. Somehow, the reduced overtime is expected to be converted into new jobs that will help reduce unemployment. Following this line of reasoning, Congressman John Conyers of the state of Michigan in the US introduced a bill in 1978 to amend the Fair Labor Standards Act so as 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 such a measure would help alleviate unemployment by spreading the work. 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]. The author uses a statistical model 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 consider what the maximum employment effect would be if reduced hours of work could be entirely transformed into new jobs for the workers 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 means 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—the agreed hourly rate for work performed within an employee’s regular established working hours—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 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 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 [2]. This study takes 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.

The evidence from the reduction of the standard workweek from 44 to 40 hours in Japan in April 1994 suggests no significant effects on the percentage of newly hired workers [3]. This study analyzes the heterogeneous effects by firm type. The largest effect was found for firms in which optimal hours initially were below standard hours but exceeded the new standard hours—the four-hour reduction of standard hours reduced the hours worked by 2.8 hours. Firms with optimal hours above the standard workweek—the policy target group—showed no effect on hours worked. The study also finds no decrease in wages, which together with the decrease in hours may explain the absence of any effect on new employment.

A study of US manufacturing examines the short-term effects on the monthly growth rates for employment from reducing the standard workweek to 35 hours [4]. The monthly demand for employment and hours was estimated for four labor inputs: overtime production workers, non-overtime production workers, overtime non-production workers, and non-overtime, non-production workers. Although policy simulations show an increase in the employment growth rate by 2.14 percentage points for overtime production workers, overall industry-wide employment would be negatively affected by the reduction of the standard workweek to 35 hours.

A 2001 decrease of the standard workweek from 48 hours a week to 84 hours over two weeks in Taiwan has shown different effects for men and women with various income levels

[5]. This study employs rich microdata collected by annual surveys. All workers are divided into three groups: income below the legal minimum wage level, income up to 10% higher than the minimum wage level, and income more than 10% higher than the minimum wage level. The results show that higher-income earners experienced decreased working hours over the following three years. However, the working hours crept back up over time. Low-income workers earning above the minimum wage experienced lower reductions in hours of work, but they also experienced an eventual increase in hours in the long term. Another significant finding of this research is a decrease in monthly earnings of high-income women, and no earnings effect for high-income men. Moreover, the hourly wage rate of high-income women is lower compared with the pre-change wage rate, but this decrease in wage rates is lower than the decrease in average wage rates. This finding suggests that high-earning female workers are better off in the short term as a result of the policy change. However, all these effects diminish as time passes which suggests that workers and employers adjust to the new regulations.

One possible positive effect of standard workweek regulation is freed up time that affected workers may allocate to leisure or household production. A study for Japan and Korea examines the time allocation of workers after the imposition of work hours changes [6]. Saturdays were working days before the imposition of new statutory hours for workers in Japan and Korea. The Labor Standards Act implemented a 40 hours per week and five-day workweek in 1997 in Japan and 2003 in Korea. Using the detailed time-diaries that were administered to all adults this study finds that the policy change had the biggest effects on time use on Saturdays. Overall, policy-affected workers in Japan increased their leisure activities, while Korean workers spent more time on home production activities. The analysis of married couples shows some evidence that spouses of affected workers (typically wives) increased their market work time and did not change the allocation of time for leisure or home production.

A study for Portugal examines the impact of the reduction of the maximum standard workweek from 44 to 40 hours in 1996 [7]. The short-term results show that hours of work decreased with the simultaneous increase in overtime hours. Hourly wages of workers who worked overtime before the change increased with relatively unchanged monthly earnings. Interestingly, the job separation rate among affected workers decreased, while workers who worked fewer than 40 hours per week were more likely to experience job losses.

### **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 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 Chilean study investigates the effects of a standard workweek reduction from 48 to 45 hours per week which commenced at the beginning of 2005 [8]. As a result of the policy change workers working overtime before the change experienced a decrease in hours of work and an increase in hourly wages. However, the reduction in the standard workweek had no effect on employment transitions and therefore failed to satisfy the objectives of a job creation strategy.

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 will take on a second job to help offset their lost earnings. To the extent that such multiple job holding (“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 (Illustration on p. 1) [1]. For example, 7.6% of workers hold second jobs in 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 is. 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 cross-country analysis uses labor surveys of nine countries in the OECD, hence exploiting the difference in labor institutions [9]. The results are in line with the Canadian study [1]: the reduction of the standard workweek from 39 to 35 hours increases the probability of holding two jobs by 1.1 percentage points. However, the increase in the overtime premium from 1.25 to 1.5 has no significant effect on moonlighting. This result might be explained by two opposite effects cancelling each other out. An increase in the overtime premium makes additional hours more expensive, thus substituting them with new employment. On the other hand, expensive overtime increases the overall labor cost, thus inducing firms to shift to more capital-intensive technology.

A French study identifies the cross-effects on husbands’ and wives’ labor supply of the 1998 French law that reduced the standard workweek from 39 hours to 35 hours [10]. 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 implies that the workweek reduction led to more time spent on home activities for both husbands and wives.

Another offset to potential job creation arises from the likelihood that the skill sets 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 [11].

Even though the basic overtime premium and definition of the standard workweek have not changed in the US since 1940, a US study exploits 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 [12]. Coverage changes came about as a result of a series of legislative changes and judicial rulings. The analysis controls 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 [11]. A 1 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 [13]. (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 non-managerial 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 [12]. This evidence indicates 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 article 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.

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## Competing interests

The IZA World of Labor project is committed to the IZA Code of Conduct. The authors declare to have observed the principles outlined in the code.

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### Further reading

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