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DISCUSSION PAPER SERIES

IZA DP No. 12045

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Insurance and Short-Time Work in the XXI  
Century**

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DECEMBER 2018

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**Pierre Cahuc**

*Sciences Po, IZA and CEPR*

DECEMBER 2018

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## ABSTRACT

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# Wage Insurance, Part-Time Unemployment Insurance and Short-Time Work in the XXI Century

At the start of the XXI century, characterized by the rise of new forms of employment and of skills requirements, many countries need to adapt their labor market institutions to accompany technological changes and globalization. In this context, unemployment insurance is an essential tool to foster and smooth career paths. Its core components comprise unemployment benefits paid to full-time unemployed workers, monitoring, and counseling. But it is clear that they are not sufficient to cover all risks properly. To deal with this issue, part-time unemployment insurance, short-time work and wage insurance have been tried, at different scales, in several countries over the last decades. This paper surveys the evaluations of these schemes and draws lessons from their results for future research and for labor market institutions.

**JEL Classification:** H5, J6

**Keywords:** part-time unemployment insurance, wage insurance, short-time work

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## Introduction<sup>2</sup>

The reallocation of jobs is a huge process in all countries. In advanced economies, about 15% of jobs are destroyed every year and about the same proportion is created. The reallocation of jobs is accompanied by an even more important reallocation of manpower across jobs. This phenomenon is an essential ingredient of productivity growth. It is linked to globalization and technological progress, which create new products and new business models, likely to foster growth and improve well-being for all. But this structural change also has social costs. It is well established that job loss can have significant detrimental effects on the earnings of individuals for decades, especially for long-tenured workers who are then dislocated. This is observed in the US, where earning inequalities are drastic and where the welfare state is limited, but also in European countries, where the social safety net is tighter and earnings inequalities are more compressed.<sup>3</sup> Technological progress changes the nature of jobs too. With the automation of tasks and the spread of online platforms, the new economy reshapes workplaces, inducing a substantial rise in the incidence of such alternative work arrangements as temporary work, part-time work, self-employment, and the new kinds of work relationship emerging in the “online gig economy”.<sup>4</sup> These changes offer a host of opportunities for more employee-friendly options such as flexible schedules and working from home, which can favor the entry of persons, in particular women with young children, who might have experienced barriers to entering the traditional workforce.<sup>5</sup> But they also raise concerns about job quality and stability.

With the rise in new forms of employment and in skills requirements, growing numbers of individuals need a system that will provide them with a degree of support in maintaining a flow of income and transitioning between jobs. In this context, unemployment insurance plays a key role. By allowing workers to smooth consumption when they lose their jobs and by providing resources to help them look for jobs and acquire new skills, unemployment insurance can improve the well-being of workers and can facilitate their reallocation towards more productive jobs.

Unemployment insurance provides benefits to unemployed workers providing certain well-known conditions of entitlement are met. The recipient must have paid in contributions for a minimum amount of time while employed. He or she must hunt

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<sup>3</sup> Sullivan et al. (2009), Schmeider et al. (2018).

<sup>4</sup> Katz and Krueger (2018).

<sup>5</sup> Mas and Pallais (2017).

actively for a job while on benefits and this activity may be monitored. The refusal of a job offer or of participation in active labor market policy placement may be sanctioned. These features are easy to interpret when it is easy to distinguish unemployment from employment.

However, in many situations the difference between unemployment and employment is not clear. For instance, with the rise in alternative work arrangements, more and more people entitled to unemployment benefits are finding temporary jobs of very short duration. This means that many people are likely to enter and exit unemployment with high frequency. At the limit, unemployed persons may have paid work one day, but have an entitlement to the dole for the next day; and this state of alternation may persist. In this situation, what should be the entitlement conditions of an efficient insurance? To deal with this type of situation, many unemployment insurance systems use *part-time unemployment benefits*, which enable claimants to keep part of their unemployment benefits while earning low income (paying less than the unemployment benefits) from work. In several countries, the unemployment benefits which are not paid to the claimant while she is working create the right to extend the potential duration of unemployment benefits. Part-time unemployment insurance induces unemployed workers to accept part-time jobs, or jobs of short duration, that they might have had to refuse if the unemployment benefits eligibility rules required that recipients have zero labor earnings. *Wage insurance* programs, which provide a temporary wage supplement that partially reduces the wage loss experienced by newly reemployed workers also aim at inducing unemployed workers to accept low-paid jobs.

Wage insurance differs from part-time unemployment insurance because individuals are no longer recipients of unemployment benefits once they have been reemployed in wage insurance programs, whereas part-time unemployment insurance allows unemployment benefits recipients to earn income from work without losing their benefits. In practice, wage insurance is generally targeted at permanently long-tenured workers who find themselves displaced. For instance, in 2016, President Obama proposed wage insurance as a program for helping all dislocated workers as they recover from the permanent loss of a job. He argued that if a “hardworking American loses his job—we shouldn’t just make sure that he can get unemployment insurance; we should make sure that program encourages him to retrain for a business that’s ready to hire him. If that new job doesn’t pay as much, there should be a system of wage insurance in place so that he can still pay his bills”.<sup>6</sup>

The case for wage insurance is motivated by the large wage losses of long-tenured displaced workers. *Short-time work* programs can also mitigate such losses. Short-time work is a temporary reduction in working time intended to maintain an existing employer/employee relationship. It involves a reduction in the normal hours worked for a limited period of time. Many unemployment insurance systems provide short-time

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<sup>6</sup> Barack Obama, State of the Union address, January 12, 2016, quoted by Wandner (2016).

work compensation to employees whose hours of work are reduced to avoid job destruction and the subsequent wage losses of displaced workers.

Part-time unemployment insurance, wage insurance and short-time work can be complementary schemes useful to efficiently insure workers against uncertainty. However, designing effective schemes of these types is not an easy task because there are important selection and moral hazard issues, as in all insurance systems.

Moral hazard implies that it is efficient to provide only partial compensations for income drops associated with job losses in order to create incentives to look for other jobs. More generally, moral hazard limits the possibility of insuring against income losses. This implies that it is important to adapt the eligibility for unemployment benefits to the diverse forms of work arrangements. For instance, it is very difficult to qualify platform workers for unemployment insurance benefits, given the discretion they have to choose whether to work or not. This should require to define their eligibility for unemployment benefits on the basis of specific criteria.<sup>7</sup>

Adverse selection implies that insurance attracts individuals with high unemployment risk. This high risk may be external and objective, arising out of the strong instability of jobs, but it may also be internal, arising out of human subjectivity and creating moral hazard issues. For instance, the creation of unemployment insurance for platform workers may make this form of work arrangement more attractive. If unemployment insurance provides high replacement incomes and loose entitlement conditions to platform workers, the platform economy may become inefficiently large, because it would in effect be receiving a subsidy from the unemployment insurance system. This could become a significant problem if platform workers were to mobilize collectively to defend their interests once this inefficient system is in place. We will see that this scenario is not pure science fiction, insofar as it illustrates the situation of artists and technicians of the entertainment sector in France.

Beyond these general considerations, one needs to know in detail how systems work and how people behave in order to understand systemic impacts and thus be in a position to evaluate the effectiveness of policies. The aim of this paper is to survey the available information on these issues. It reviews how part-time unemployment benefits, short-time work and wage insurance function in different OECD countries and what is known about their impact, both from a theoretical and an empirical perspective. The paper is organized as follows. The first section is devoted to the description of part-time unemployment insurance, wage insurance, and short-time work in the OECD countries. The consequences of these schemes are discussed from a theoretical and empirical perspective in section 2 and 3 respectively. Section 4 supplies concluding comments.

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<sup>7</sup> Harris and Krueger (2015).

## **1. Part-time unemployment benefits, wage insurance and short-time work in the OECD countries**

This section presents the institutional features of part-time unemployment insurance, wage insurance, and short-time work in the OECD countries. For each national scheme, it contrasts features that are common across countries to features that are idiosyncratic.

### **1.1. Part-time unemployment insurance regulations**

Part-time unemployment insurance refers to benefits paid to persons working part time who have lost a full-time job or an additional part-time one, and are seeking a new job in order to work more hours. This scheme is different from short-time work, which refers to benefits compensating for the loss of wage or salary due to short-time working arrangements, and/or intermittent work schedules, where the employer/employee relationship continues.<sup>8</sup> Part-time unemployment benefits exist in many European countries and in North-America. However, their design is very heterogeneous across countries.

#### *The coverage of part-time unemployment insurance*

Table 1 reports the share of the labor force covered by public schemes organized to provide part-time unemployment benefits in OECD countries in 2015. It also reports the public expenditure on part-time unemployment benefits. The coverage and expenditure on public schemes providing part-time unemployment benefits are positive in only four countries: Belgium, Finland, Portugal and Sweden. However, this information yields no more than a partial view of the importance of part-time unemployment insurance, for in many countries unemployment insurance is managed by social partners relying on semi-public or private organizations. In order to provide complementary information, Figure 1 reports the share of the labor force employed and registered at a public employment office and receiving benefit or assistance, in European countries. This is an extensive definition of part-time unemployment insurance, to the extent that some employees on

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<sup>8</sup> There are some variations in the terminology concerning these schemes. According to the OECD statistical web site, « Partial unemployment benefits » refers to benefits compensating for the loss of wage or salary due to short-time working arrangements, and/or intermittent work schedules, where the employer/employee relationship continues. Nevertheless, this type of scheme is usually called « short-time work » or « short-time compensation ». In this paper, we adopt the terminology « Short-time work » to designate this type of scheme. According to the OECD statistical web site, « Part-time unemployment benefits » refers to benefits paid to persons working part-time who have lost a full-time job or an additional part-time one, and are seeking to work more hours. We keep this terminology in this paper. It should be remarked that some papers call this type of scheme « partial unemployment benefits ».



short or part-time jobs may receive assistance but not unemployment benefits. But this is likely a small fraction of all part-time unemployed workers registered at public employment services. Using this definition of part-time unemployment insurance, we see that part-time unemployment insurance is in fact present in many countries where there is no specific scheme for public expenditure on part-time unemployment benefits. Nevertheless, its importance is limited. It covers less than one percent of the labor force in all countries, except in Belgium (3.6%), France (2.5%) , Finland (1.8%), Austria (1.4%) and Germany (1.1%).

**Table 1 Short-time work and part-time unemployment benefits in 2015. These data cover schemes funded by public expenditure. Some schemes funded by unemployment insurance systems are not accounted for by these data. Source : OECD.**

| Country         | Short-time work benefits (% of the labor force) | Part-time unemployment benefits (% of the labor force) | Public expenditures for short-time work (% of GDP) | Public expenditures for part-time unemployment (% of GDP) |
|-----------------|---|--|--|---|
| Australia       | 0   | 0  | 0  | 0   |
| Austria         | .07   | 0  | .01  | 0   |
| Belgium         | 2.47  | .87  | .12  | .05   |
| Canada          | 0   | 0  | 0  | 0   |
| Chile           | 0   | 0  | 0  | 0   |
| Czech Republic  | 0   | 0  | 0  | 0   |
| Denmark         | 0   | 0  | 0  | 0   |
| Estonia         |   |  |  |   |
| Finland         | .07   | 1.6  | .01  | .18   |
| France          | .19   | 0  | .01  | 0   |
| Germany         | .18   | 0  | .02  | 0   |
| Greece          | .02   | 0  | 0  | 0   |
| Hungary         | 0   | 0  | 0  | 0   |
| Ireland         | .06   | 0  | 0  | 0   |
| Israel          | 0   | 0  | 0  | 0   |
| Italy           | .57   | 0  | .28  | 0   |
| Japan           |   |  | 0  | 0   |
| Korea           |   |  | 0  | 0   |
| Latvia          | 0   | 0  | 0  | 0   |
| Lithuania       | 0   | 0  | 0  | 0   |
| Luxembourg      | .82   | 0  | .04  | 0   |
| Mexico          |   |  | 0  | 0   |
| Netherlands     | 0   | 0  | 0  | 0   |
| New Zealand     |   |  |  |   |
| Norway          |   |  | .04  | .07   |
| OECD            |   |  | .02  | .01   |
| Poland          | 0   | 0  | 0  | 0   |
| Portugal        | .02   | .28  | 0  | .02   |
| Slovak Republic | 0   | 0  | 0  | 0   |
| Slovenia        | 0   | 0  | 0  | 0   |
| Spain           | .05   | 0  | .02  | 0   |
| Sweden          | 0   | .89  | 0  | .03   |
| Switzerland     | .17   | 0  | .02  | 0   |
| United Kingdom  | 0   | 0  |  |   |
| United States   | 0   | 0  | 0  | 0   |

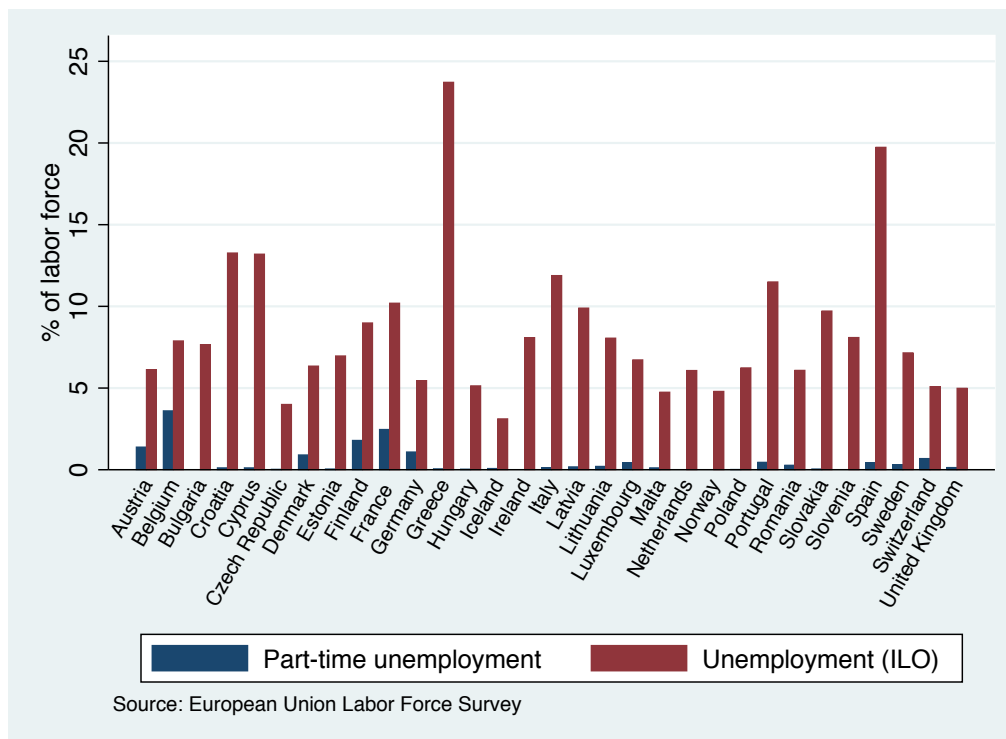


Figure 1: Part-time unemployment and unemployment rates in European countries where part-time unemployment exists. Part-time unemployed persons are employed and registered at a public employment office and are receiving benefit or assistance. Year 2016, except 2013 for Germany .

### *Strong heterogeneity of programs across countries*

The design of part-time unemployment benefits is very heterogeneous across the OECD countries. There is a great diversity of rules concerning the relation between the current earnings of individuals from short or part-time employment and current unemployment benefits, about the implications of current part-time unemployment on future unemployment benefits entitlement, and about the duration of part-time unemployment benefits.

### *Earnings and part-time benefits*

Two types of rules can be distinguished concerning the relation between labor earnings of unemployed workers from short or part-time jobs and part-time unemployment benefits.

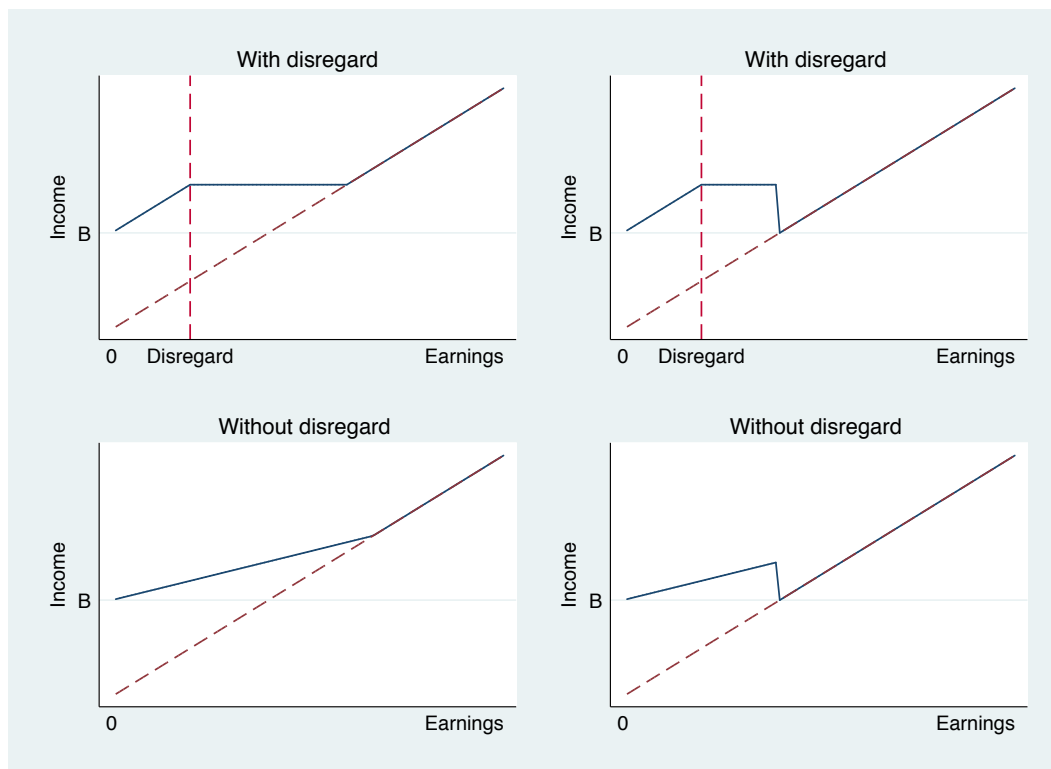
According to the first type of rule, recipients accepting part-time jobs can earn up to a specific amount, called the “disregard”, with no reduction in benefits during the reference period, which can be the week or the month. Above the disregard, the current benefits are reduced in proportion to the labor earnings. The benefit-reduction rate can

be very high, up to 100%. There is a disregard in Australia, Austria, Belgium, Canada, Czech Republic, Germany, Luxembourg, Poland, the U.K. and in several U.S. states.

According to the second type of rule, unemployment benefits are reduced in proportion to all labor earnings, or hours worked (in Denmark, the Netherlands and Norway), during the reference period, without any level of disregard. The benefit-reduction rate is generally smaller than 100% as long as labor earnings are below the previous monthly or weekly wage. Above this threshold, the benefit reduction rate is equal to 100%, meaning that no unemployment benefits are paid during the reference period. There is no disregard in Denmark, Finland, France, Greece, Hungary, Ireland, Israel, Italy, Japan, the Netherlands, Norway, Portugal, Slovak Republic, Spain, Sweden, Switzerland and in several U.S. states.

Figure 2 displays examples of the relation between income and labor earnings in part-time unemployment benefits systems with and without disregard. The benefit-reduction rate is equal to zero below the disregard. In the absence of disregard, the benefit-reduction rate is positive, hence individuals have less incentive to work for these earnings levels, than in systems with disregard. However, in general, the situation is reversed for earnings above the disregard: the benefit-reduction rate is generally larger (it is equal to 100% in our example, as this is the case in several countries) compared to systems without disregard. This means that individuals have less incentive to increase labor earnings at earnings levels above the disregards than they do in systems without disregards.

In several part-time unemployment benefits systems, no benefits are paid if the earnings of an individual are above the reference income used to compute unemployment benefits. In this case, the income of an individual can drop when earnings increase above this level as shown by the right-hand side graphs of figure 2.

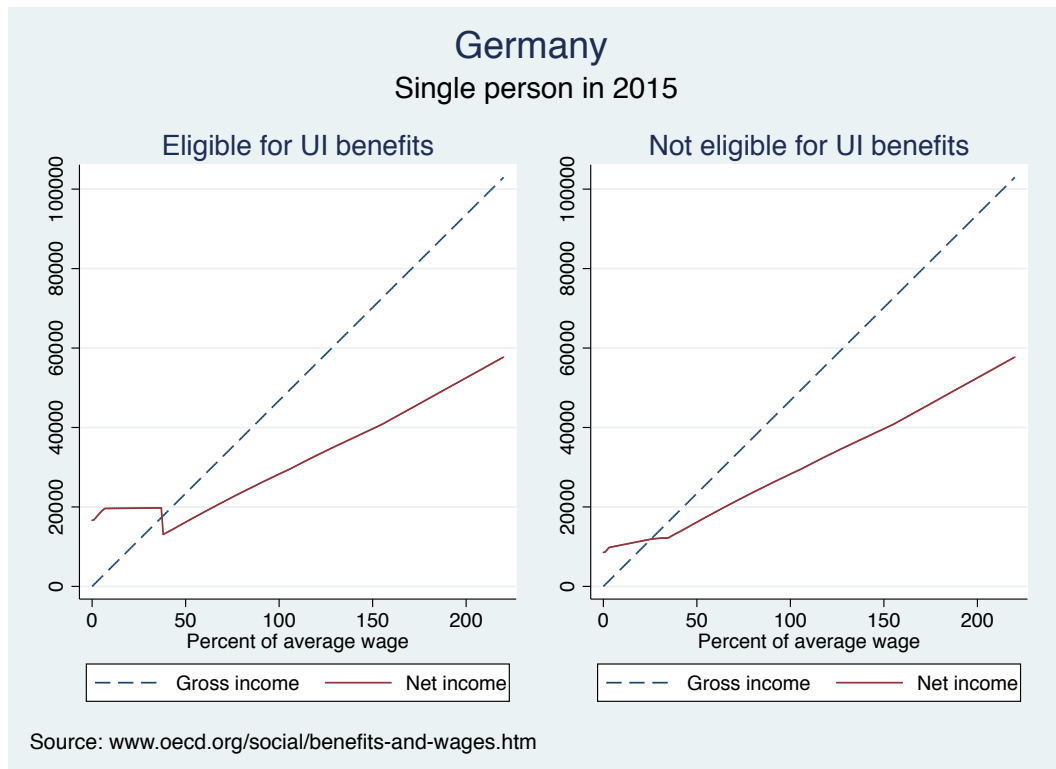


**Figure 2 : The relation between earnings and income in part-time unemployment benefits system with and without disregard.**

In most countries, the disposable income of part-time workers depends not just on unemployment benefits, but also on income taxes, social security contributions, social assistance or minimum income benefits, housing-related cash benefits, family benefits, and in-work or employment-conditional benefits (like the Earning Income Tax Credit in the U.S. or the Working Family Tax Credit in the U.K.). Therefore, it is important to account for all these features of the tax and transfer systems in order to evaluate the effects of part-time unemployment benefits on disposable income.

The case of Germany, displayed in Figure 3, illustrates this remark. In Germany, the unemployment benefits of single individuals are based on previous average earnings with a replacement rate of 60% of net earnings. Recipients of unemployment benefits are allowed to keep 165€ of additional earnings with no reduction in benefits as long as their working time does not exceed 15 hours per week. Earnings above this threshold reduce unemployment benefits by the same amount. As shown by Figure 3, this implies that the disposable income of part-time workers paid the average hourly wage does not depend on earnings for all annual earnings above about 8600€ and below 20,000€ for part-time unemployment insurance benefits recipients. However, the situation is different for those who are not entitled to unemployment insurance benefits. Their disposable income rises continuously over this earnings interval. This means that the difference between the disposable income of part-time unemployment insurance benefit

recipients and that of non-recipients decreases with the income level in this earnings interval.



**Figure 3 : Annual net income and gross income for single wage-earners paid the hourly average wage in Germany and eligible for unemployment insurance benefits (left graph) ; and for workers not eligible for unemployment insurance benefits (right graph). The difference between the net income and the gross income takes into account income taxes, social security contributions, social assistance or minimum income benefits, housing-related cash benefits, family benefits, and in-work or employment-conditional benefits.**

### *Implications for unemployment benefits entitlement*

In some countries, the savings on benefits, which are not paid to claimants for periods in which they work, are carried forward and made available to these claimants at the end of the period of benefit entitlement. This is the case in Canada, Finland, France, Israel, Norway, Poland, Sweden and the U.S. In some systems (e.g. Finland, France) all unpaid benefits are carried forward. In other systems, benefits are carried forward only for periods (week or month) when the individual claimed no benefits at all because he or she had enough work (e.g. Canada). In addition to lengthening the potential duration of the current period of benefit entitlement, the income earned by part-time unemployed workers allows them to gain eligibility to new periods of benefit entitlement. This is the case in France, for instance, where every day of work lengthens the current period of benefit entitlement by one day and generates one day of further benefit entitlement

once the current period is exhausted, provided that at least 610 hours have been worked over the last 28 months (36 months for individuals over 53 years old). This means that one day of work can yield entitlement to two days of unemployment benefits.

In other countries (e.g. Germany, Hungary, Portugal), unpaid benefits are not carried forward to the end of the period of benefit entitlement. However, the income earned by part-time unemployed workers does allow them to get eligibility for new periods of benefit entitlement.

### *Duration of part-time unemployment benefits*

Part-time unemployment benefits could induce unemployed workers to remain in short or part-time jobs instead of striving to access regular employment. In general, the duration of part-time unemployment benefits is limited by the potential duration of unemployment benefit entitlement. But this potential duration can be extended by part-time unemployment if the benefits which are not paid to claimants for periods in which they work are carried forward to the end of the period of benefit entitlement. In this case, the periods of part-time unemployment benefit entitlement can be significantly lengthened. It is possible to lengthen these periods even more if the income earned by part-time unemployed workers allows them to start new periods of benefit entitlement.

In order to limit the possibility that individuals remain entitled to part-time unemployment benefits for long periods, several systems limit their potential duration. For instance, in Denmark, the right to supplementary unemployment benefits is limited to 30 weeks within the last 104 weeks. However, these limitations are not always effective. For instance, in France, the duration of part-time unemployment was limited to 15 months until 2014. This threshold applied to the current unemployment benefit entitlement, meaning that unemployed workers could not be in part-time unemployment more than 15 months within one period of unemployment benefit entitlement. But as the previous periods of part-time unemployment were not taken into account when new periods of benefits entitlement were started, the 15 months threshold was not very effective. More precisely, thanks to the possibility of commencing new periods of entitlement with a clean slate, working at least one out of two days on average opened the possibility of remaining entitled to part-time unemployment benefits indefinitely. It turns out that around 760,000 people — corresponding to about one fourth of unemployment insurance benefit recipients — who alternate between jobs and periods receiving unemployment benefit, have on average spent five years entitled to part-time unemployment benefits in 2015. These recurrent claimants work one out of two days on average. Each of these 760,000 claimants costs around 6,300 euros per year to the unemployment insurance system.<sup>9</sup>

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<sup>9</sup> Cahuc and Prost (2015).

## 1.2. Wage insurance regulations

Wage insurance provides partial replacement of lost wages to displaced workers who accept pay cuts. Wage insurance benefits are temporary and are reserved for workers who face wage losses when they change jobs. Wage insurance differs from part-time unemployment insurance insofar as it provides compensation not only for short or part-time jobs, but also for full-time jobs if the remuneration of the new job is smaller than that of the previous job.

As shown above, part-time unemployment insurance exists in many countries. Many countries also use permanent in-work benefits to incentivize unemployed workers to accept low paid jobs. Time-limited in-work benefits are more scarce.<sup>10</sup> Most of them are targeted at unemployed welfare recipients. Wage insurance schemes are even more scarce.<sup>11</sup> Their size is generally very small and they can be part of programs which include other components, especially job search assistance and training.

The US Trade Adjustment Assistance (TAA) is a federal transfer program established under the 1962 Trade Expansion Act which provides assistance to workers permanently separated from their jobs due to international trade. The program aimed at coupling trade liberalization with insurance for adversely affected workers. The TAA was amended several times. However, since 2002, TAA expenditure on wage insurance benefits has remained relatively stable. To receive TAA benefits workers must file petitions at the Department of Labor. TAA eligibility is granted by the US Department of Labor, which applies statutory criteria to determine whether foreign trade was an important cause of the threatened or actual job loss or wage reduction. TAA contains several program components. It provides benefits up to \$10,000 for workers enrolled in training programs, up to a maximum of three years. Recipients are also entitled to expended unemployment insurance benefits while training. In the interest of promoting rapid re-employment, and because training may not pay off for older workers, the Trade Act of 2002 established a wage insurance program, called the Alternative Trade Adjustment Assistance for Older Workers (ATAA). TAA-certified workers age 50 or older can get ATAA wage subsidies if they obtain full-time jobs that pay no more than \$50,000, earn less than they did in their prior jobs, and find employment within 26 weeks of becoming unemployed. The subsidy is equal to 50 percent of the wage drop for up to

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<sup>10</sup> Van der Linden (2016)

<sup>11</sup> Information is gathered from labor market researchers in Austria, Belgium, Denmark, France, Germany, Italy, the Netherlands, Portugal, Spain, Sweden, Switzerland, United Kingdom and from the OECD publication series, "Back to work", which identifies wage insurance programs in Canada and in the United States only, among nine countries: Australia, Canada, Denmark, Finland, Japan, Korea, New Zealand, Sweden and the United States.



two years. It is capped at \$10,000. The ATAA program is small: less than 100,000 workers begin receiving income support each year.<sup>12</sup>

In Japan, the “Employment Continuation Benefits for Older Workers” program, compensates workers from age 60 to 65 whose wage drops by at least 25%. The compensation goes up to 15% of their current wage until they reach age 65. This program is limited in size. About 190,000 workers were enrolled in 2012.<sup>13</sup>

In Germany, the “Remuneration for older workers” program<sup>14</sup> introduced in 2003 is targeted at workers aged above 50. Workers finding a new job paying less than their previous jobs are eligible for a compensation of 50% of the earnings drop in the first year and 30% in the second year. The compensation is proportional to hours worked. For instance, if 40 hours per week were worked on the previous job and 20 in the new job, the earnings difference was computed using  $\frac{1}{2}$  of the previous earnings. The program was limited in size. It had less than 10,000 participants until 2006 and about 20,000 when it was cancelled in 2011.

In France, since 2011, companies with fewer than 1,000 employees and companies of all sizes engaged in reorganization or liquidation proceedings, which dismiss employees for economic reasons, must offer them the option of joining the “Job security contract”<sup>15</sup> program. This program sets them on a return-to-work path including support for the professional goals of the individual, as well as training and work periods. Workers finding a new job paying less than their previous jobs are eligible to have their drop in earnings fully offset for a period that may not exceed 12 months, and within a maximum amount of up to 50% of their residual rights to unemployment insurance benefits. Unlike the US, Japanese and German wage insurance programs, the French job security contract is not reserved for the elderly. Nevertheless, its size remains small. About 80,000 workers were enrolled in 2016 and most of them were involved in training programs.

The Earnings Supplement Project implemented in Canada in 1995-96 was a demonstration project aimed at testing the effects of a financial incentive designed to stimulate the re-employment of displaced workers and repeat users of unemployment insurance.<sup>16</sup> The program offered payments of 75 percent of the earnings loss for up to two years, for workers working at least 32 hours per week within 26 weeks of the offer date.

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<sup>12</sup> Schochet et al. (2012) and Wandner (2016) provide extensive surveys of wage insurance in the US.

<sup>13</sup> OECD (2015), p 120.

<sup>14</sup> Entgeltsicherung für ältere Arbeitnehmer, see Steiner (2017) and van der Berg et al. (2017).

<sup>15</sup> Contrat de sécurisation professionnelle, see Boum Galiana et al. (2016).

<sup>16</sup> Bloom et al. (1999).

### **1.3. Short-time work regulations**

Also called short-time compensation, short-time work is a public program intended to preserve jobs in firms experiencing temporarily low revenue by providing income support to employees whose hours of work are reduced. Short-time work schemes provide additional funds so that employees can reduce their hours of work without a proportional reduction in their take-home pay. In general, the employees earn less than they do when they work usual hours, but more than they would receive in unemployment benefits. The cost of supplementing the employee's income is typically shared by the employer and the state.

#### *The design of short-time work schemes*

The design and regulation of short-time work schemes vary greatly across countries.<sup>17</sup>

Firms are usually required to meet a number of eligibility criteria to enter into short-time work arrangements. These criteria include evidence of slowdown in their economic activity, the existence of collective agreements which allow take-up of short-time work, and consultation with employees or individual agreements. In some countries, only workers eligible for unemployment insurance benefits can take up short-time work compensation.

Short-time work schemes are often conditional on actions to be taken by firms or employees. These include the commitment not to dismiss employees for a certain period after short-time work compensation comes to an end, job search requirements, the design of a recovery plan, and training of employees.

Working-time reduction can be either total or partial, depending on the size of the economic slowdown. A maximum duration of compensation prevails in all countries, notably because short-time work must be temporary by nature. In most countries, income falls progressively as hours fall further below their usual level. In a majority of countries, employers bear a share of the total cost of compensation for each reduced hour. This is a way to incentivize firms and employees not to abuse the system.

#### *The coverage of short-time work*

The fraction of the labor force using short-time work under normal circumstances is low in most OECD countries. Table 1 shows that this fraction varies in 2015 from zero in

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<sup>17</sup> Hijzen and Venn, (2010), Cahuc and Carcillo, (2011).

many countries to 2.5% in Belgium, which is an outlier. This low coverage is associated with a low share of public expenditure, which varies from zero to 0.28% of GDP.

Short-time work use is countercyclical. In most countries where short-time work schemes existed prior to the last great recession (see Table 2), participation in short-time work arrangements increased dramatically during the recession. In 2009, take-up rates were above 1% of the labor force in Belgium, Germany, Italy, Luxembourg, Slovenia and Switzerland (Figure 4). The countries of Northern Europe (except Finland) either exhibit low take-up rates (such as Denmark and Norway, below 1%), or no short-time work scheme at all (such as Iceland and Sweden) during this period. The pattern is similar in English-speaking countries (except Ireland), with take-up below 0.2% in Canada, New Zealand and the U.S. (no scheme in Australia and the U.K).

**Table 2 : Short-time work (STW) compensation schemes in 19 OECD countries before and during the 2008-2009 recession. Source: Hijzen and Venn (2011)**

| <b>Country</b>  | <b>Existence of Short-time work</b> |
|-----------------|-------------------------------------|
| Austria         | Existed before 2008                 |
| Belgium         | Existed before 2008                 |
| Czech Republic  | Introduced during the crisis        |
| Denmark         | Existed before 2008                 |
| Finland         | Existed before 2008                 |
| France          | Existed before 2008                 |
| Germany         | Existed before 2008                 |
| Greece          | No STW                              |
| Hungary         | Introduced during the crisis        |
| Italy           | Existed before 2008                 |
| Japan           | Existed before 2008                 |
| Netherlands     | Introduced during the crisis        |
| Norway          | Existed before 2008                 |
| Poland          | Introduced during the crisis        |
| Portugal        | Existed before 2008                 |
| Slovak Republic | Introduced during the crisis        |
| Spain           | Existed before 2008                 |
| Sweden          | No Short-time work                  |
| United Kingdom  | No Short-time work                  |

The dispersion of take-up across countries is clearly related to differences in short-time work schemes.<sup>18</sup> The take-up is positively correlated with the permissible reductions in weekly working hours that can be compensated, with the maximum duration of the scheme and with the share of labor cost of reduced hours which is subsidized. Surprisingly, take-up rates do not appear to be related to such stringencies in the conditions required to benefit from short-time compensation as the commitment to not dismiss employees for a certain period after the end of short-time work compensation, the job search requirements, the design of a recovery plan, or the training of employees. It might be that these conditions do not play an important role because their enforcement is difficult.

Short-time work schemes also tend to be more developed in countries with stricter employment protection rules, measured by the OECD employment protection indicator, notably in Belgium, Germany, Italy and Luxemburg.<sup>19</sup> This positive relation between short-time work and job protection reflects a trade-off in regulations affecting internal and external flexibility. Countries which favor internal flexibility combine stringent employment protection regulations and generous short-time work schemes while external flexibility is associated with weak employment protection and no or very little

<sup>18</sup> Hijzen and Venn (2011), Cahuc and Carcillo (2011).

<sup>19</sup> Hijzen and Venn (2011), Cahuc and Carcillo (2011).

short-time work use. At first sight, internal flexibility might seem preferable, insofar as it reduces job destruction during recessions. However, it is important to keep in mind that internal flexibility also has disadvantages. First, internal flexibility does not benefit all workers. It is clearly beneficial to workers in permanent jobs, but it can be detrimental to outsiders, whose access to employment can be more difficult if short-time work reduces job turnover. This disadvantage of short-time work is potentially important in strongly segmented labor markets. Second, short-time work may dampen the reallocation of workers towards more productive jobs.



Figure 4 : Short time work take-up rates in the OECD countries 2000-2015 as share of the labor force for countries with positive take-up at least once over 2010-2015.

## 2. The economics of part-time unemployment insurance, wage insurance and short-time work

This section presents the theoretical results of the economic literature on part-time unemployment insurance, wage insurance and short-time work.

### 2.1. Part-time unemployment insurance

Part-time unemployment benefits aim to make part-time jobs and temporary jobs of short duration more attractive for job seekers who have no work at all, in order to raise

employment and production and to reduce the cost of unemployment insurance. Nevertheless, part-time unemployment insurance can lock workers into part-time or temporary jobs, thereby reducing the total number of hours worked.

### *The potential effects of part-time unemployment insurance*

Part-time unemployment insurance supplies incentives to job seekers who are looking for stable full-time jobs to accept part-time jobs or short full-time jobs in the mean time.

Accepting part-time or short full-time jobs can have several advantages. Non-regular jobs can favor access to regular and more stable jobs if employers use non-regular jobs to screen workers.<sup>20</sup> Accessing non-regular jobs can allow workers to enlarge their job search network. Working instead of remaining on the dole maintains existing skills and enables the acquisition of valuable new skills which raise the individual's ability to compete for regular jobs. Finally, while working on non-regular jobs, unemployed workers generally pay taxes and get lower unemployment benefits and social transfers, which improves public finances.

Promoting non-regular jobs may also have disadvantages. Many people who work on non-regular jobs would like to get regular jobs. But significant shares of workers on non-regular jobs do not want to work more hours. Therefore, the promotion of non-regular employment may be detrimental to regular employment.<sup>21</sup> This is likely to be the case if part-time unemployment benefits provide income for non-regular employment at levels close to that of regular employment for long periods of time. In that case, non-regular employment can become attractive as it allows individuals to get an income close to that of full-time workers while working fewer hours. The development of non-regular employment at the expenses of regular employment has many negative effects. It raises income uncertainty, it reduces the incentives to invest in human capital, it impedes career prospects and long-term earning opportunities, it reduces the ability to obtain credit, it makes child care arrangements more complicated and it degrades the state of public finances.

### *The design of part-time unemployment insurance*

Economic analysis provides limited guidance when it comes to the optimal design of part-time unemployment insurance. The canonical analysis of optimal unemployment

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<sup>20</sup> Neugart and Storrie, (2002); Houseman et al., (2003).

<sup>21</sup> Eck and Holmlund (2015).

insurance overlooks the choice of number of hours of work and the possibility of part-time unemployment.<sup>22</sup> It assumes that individuals can be in only two states: either full-time unemployed or full-time employed. In this framework, the optimal level of unemployment benefits increases with risk aversion and decreases with the elasticity of unemployment duration with respect to unemployment benefits. Introducing part-time unemployment insurance in this framework is not an easy conceptual task. One needs to account for labor supply at the extensive (working or not working) and at the intensive margin (choice of the number of hours worked conditional on working) in a dynamic and stochastic context. This type of problem has been studied by the literature on optimal taxation and optimal insurance. This literature shows that it is essential to coordinate the tax system with unemployment insurance. It suggests that the optimal level of part-time unemployment benefit should depend on the inter-temporal elasticity of labor supply and on labor market frictions which limit the adjustment of hours worked.<sup>23</sup> Beyond these results, no simple conclusion providing clear guidance to designing optimal partial unemployment insurance has emerged so far. Much remains to be done on this issue.

From this perspective, the contribution of Le Barbanchon (2017), focusing on part-time unemployment insurance in the United States, is particularly interesting. In the United States systems analyzed by Le Barbanchon, insurance recipients accepting part-time jobs can earn up to a specific amount, the “disregard” mentioned above (see Figure 2), with no reduction in benefits. For every dollar earned above the disregard, current benefits are reduced on a dollar-per-dollar basis: the static marginal benefit-reduction rate is 100%. However, the reduction in benefits is not lost, it can be paid in a later week. The corresponding benefit transfer delays the potential benefit exhaustion date. Accordingly, forward-looking recipients make decisions based on a dynamic marginal tax rate, which is lower than the static benefit-reduction rate. Le Barbanchon analyzes the consequences of changes in the benefit-reduction rate. He finds that setting the benefit-reduction rate at 80% instead of 100% would be welfare-improving. Moreover, he shows that the optimal benefit-reduction rate should vary over the unemployment spell and should depend on the arrival rate of job offers.

## **2.2. Wage insurance**

Wage insurance aims to compensate displaced workers for wage losses. It has pros and cons. Its proponents argue that it improves labor market equity for workers adversely affected by economic restructuring. They also argue that wage insurance would reduce the periods of unemployment and increase employment and earnings. Its opponents

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<sup>22</sup> Baily (1978), Chetty (2006).

<sup>23</sup> Fahri and Werning (2013), Werquin, (2016).

question its equity and raise concerns about its negative impact on the career prospects of recipients of wage insurance.

### *Equitable sharing of the gains from jobs reallocation*

A substantial body of empirical contributions has shown that long-tenured displaced workers face significant and persistent problems, including unemployment, earning losses, and health problems, which affect not only themselves, but also their children.<sup>24</sup> Wage insurance can help in solving these problems insofar as it compensates individuals affected by significant persistent negative shocks. By smoothing the social costs of job reallocation, wage insurance can help improve the level of public support for international trade, and more widely, public acceptance of technological changes. This idea was an important motivation for the implementation of wage insurance in the United States at a time of great fear of the adverse impact of international trade on American jobs.<sup>25</sup>

Although it is obvious that wage insurance can compensate long-tenured displaced workers, the question is whether these long-tenured workers should benefit from special treatment. Empirical studies show that cross-worker wage differentials are explained by characteristics of workers and firms. The importance of labor market frictions implies that the firm fixed effects explain a significant share of the wage distribution, meaning that workers identically motivated and productive can be paid very differently.<sup>26</sup> In this context, lucky workers are matched with successful firms, in which they can win long and satisfying career paths. Less lucky workers find jobs in less successful firms. These jobs offer lower wages and are less stable. From this perspective, compensation for the wage losses of long-tenured displaced workers may do no more than help to reproduce and prolong the inequality between those workers who have been lucky at the start of their career, and those who have been less lucky. Designing an equitable insurance system requires precise information about the process that governs wage dynamics over the life cycle of all workers, and not just those who lose their job after a long career in the same firm. In the current state of knowledge, there is no strong argument on grounds of equity in favor of compensating long tenured workers specifically for wage losses.

A related issue concerns the definition of the beneficiaries of wage insurance. For instance, in the United States, only earning losses related to international trade are offset, while those induced by technological shocks are not. This creates differences of treatment that are also difficult to justify on equity grounds.

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<sup>24</sup> Oreopoulos et al. (2008).

<sup>25</sup> Wandner (2016).

<sup>26</sup> Abowd et al (2013), Song et al (2016).



### *Incentive for reemployment*

An important argument in favor of wage insurance is that it provides incentives for finding jobs. The literature on optimal unemployment insurance does suggest that in-work benefits can be desirable.<sup>27</sup> This literature analyzes the optimal profile of unemployment benefits over a course of unemployment spells and the impact of in-work benefits. It shows, in a simple framework where individuals can be either unemployed or employed in regular jobs, that in-work benefits can be desirable because they supply incentives to look for and to accept job offers. The use of in-work benefits may allow the unemployment insurance system to set more generous benefits over longer spells in optimal fashion and to improve the welfare of workers.

However, in the real world, the design of in-work benefits in unemployment insurance systems has to depend on many parameters, which implies that they are difficult to implement. In particular, optimal in-work benefits should be temporary to avoid excessive costs and lock-in effects in low-productivity subsidized jobs. But if in-work benefits are temporary, workers may have incentives to go back to unemployment once they stop getting them. From this perspective, time-limited in-work benefits are fully justified if they do function as stepping stones toward stable employment. We will see that empirical evidence provides very little support for this assumption. For these reasons, in-work benefits are seldom used in unemployment insurance systems and there is no reason to assess the situation of recipients of wage insurance differently from that of other unemployed workers. This means that there are no strong arguments justifying wage insurance by its positive impact on reemployment.

### *Job quality and career prospects*

Wage insurance can induce workers to accept low quality jobs and to remain in these jobs as long they are getting compensated for their wage loss. Hence wage insurance can create disincentives to building human capital and looking for better jobs. This is detrimental to the career path of wage insurance recipients and to the overall efficiency of the labor market.<sup>28</sup> But these disadvantages may be mitigated by monitoring and training programs provided to wage insurance recipients. Actually, there are complementarities between financial incentives to finding jobs, and training and monitoring programs. In any case, this suggests that wage insurance should not be isolated from other active labor market policies. The French “Job security contract” program, which includes training, job search counseling and monitoring together with compensation for earnings drops, relies on such premises.

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<sup>27</sup> Hopenhayn and Nicolini (1997, 2009).

<sup>28</sup> Michau (2017)

By reducing uncertainty in the returns on investment in human capital, wage insurance can also have direct positive effects on human capital accumulation. If access to potentially long-tenured jobs requires employees to make important investments in specific human capital that cannot be valorized in other jobs, there can be room for wage insurance for long-tenured displaced workers. However, insofar as employees have limited incentives to invest in specific human capital,<sup>29</sup> it is likely that the impact of wage insurance in this area is limited.

All in all, the most solid justification of wage insurance relies on its potential positive impact on the reemployment prospects of long-tenured displaced workers. Determining whether compensation for the wage losses of long-tenured displaced workers does in fact yield strong incentives to find jobs is an empirical issue that will be surveyed in the next section.

### 2.3. Short-time work

The rationale for short-time work is that firms may dismiss workers *inefficiently* when their revenue drops. From this perspective, it can be appropriate to use short-time work to allow firms facing temporary drops in their activity to retain their employees. However, short-time work may also induce inefficient reductions in hours worked and may prevent the reallocation of labor toward more productive firms.

#### *Reducing layoffs*

The introduction of short-time work arrangements is often seen as a means to avoid drastic layoffs.<sup>30</sup> In general, employers have limited incentives to take into account the social costs of their dismissal decisions. These social costs are numerous: they include the unemployment benefits, the social transfers paid to unemployed workers, and the drop in taxes and social contributions induced by the removal of their jobs. To these costs we may add the increase in health expenditure and the rise in criminality<sup>31</sup> induced by unemployment.

Experience-rating systems, where employers' social contributions depend on the induced social costs of their firing decisions, can be used to reduce excess layoffs.<sup>32</sup> These inefficient layoffs can be completely eliminated when there is full experience-rating, i.e. when each firm fully covers the induced social cost of its firing decisions. However, there are limits to experience-rating. Notably, many firms may face financial constraints which can prevent them from keeping their employees even if the system is

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<sup>29</sup> Becker (1964), Acemoglu and Pischke (1999).

<sup>30</sup> Fitzroy and Hart (1985), Burdett and Wright (1989).

<sup>31</sup> Fougère et al. (2009).

<sup>32</sup> Feldstein (1976), Blanchard and Tirole (2007), Cahuc and Zylberberg (2008),

fully experience-rated. Recent evidence on employment adjustment during the last great recession in the US shows that more highly leveraged firms experienced significantly larger employment losses in response to declines in local demand.<sup>33</sup> These highly leveraged firms were not less productive. Nevertheless, their high leverage implied that they were less able to raise additional short and long-term debt in response to a decline in local demand. As a consequence, they experienced more layoffs and were more likely to close down. For these reasons, full experience-rating is unlikely to be fully efficient. In these circumstances, short-time work arrangements may avoid inefficient job destructions due to capital market imperfections.<sup>34</sup>

Short-time work may also be an effective means to subsidize employment compared to other policies like wage or hiring subsidies, the reason being that, in contrast to wage or hiring subsidies, short-time work can directly target those firms with jobs at risk of being destroyed, and even more precisely the most fragile jobs within those firms. Other policies have no such possibility. To put it differently, because it is more profitable for firms to reduce the hours worked of temporarily low-productive workers, short-time work induces firms to target (i.e. retain) low-productivity jobs that may need financial support to survive during recessions much more precisely than most other policies such as wage or hiring subsidies. Hence, short-time work can help sustain employment in recessions at a small cost, relative to other policies providing financial supports to firms.

It has also been argued that short-time work is more equitable because it distributes the adjustment burden of hours of work over a large number of workers, who reduce their hours of work, compared to a situation where some workers are dismissed outright.<sup>35</sup>

### *Limits to short-time work*

Although short-time work can be useful to avoid inefficient job destructions, it also has some disadvantages.

First, short-time work distorts downwards the number of hours worked per employee. This is hardly surprising insofar as short-time work is a subsidy to non-worked hours. This implies that short-time work may be used to reduce the hours of work of workers who would not have not been dismissed in the absence of the short-time work option. In this case, short-time work induces inefficient reductions in hours worked. This phenomenon can be particularly important if short-time work is strongly subsidized, meaning that non-worked hours impose little cost on employers. In such situations, there are strong incentives to use short-time work when the firm's activity slows down. This can lead to recurrent use of short-time work by firms facing seasonal activity

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<sup>33</sup> Giroud and Mueller (2017).

<sup>34</sup> Burdett and Wright (1989)

<sup>35</sup> Abraham and Houseman, (1994), Walsh et al., (1997); Vroman and Brusentev, (2009)

fluctuations.<sup>36</sup> These firms benefit from cross-subsidies, which reduce aggregate production. To limit these cross-subsidies, it is desirable to rely on experience rated systems, where employers have to pay back a fraction of the short-time work cost through higher social contributions in the future. This system allows firms facing short-term financial constraints to sustain employment without inducing cross-subsidies which reduce aggregate production.

Second, short-time work may dampen the reallocation of jobs toward the most productive firms. Inasmuch as short-time work causes fewer workers to be released into the unemployment pool from incumbent firms, new firms find it more costly to hire labor. In this context, short-time work may prevent labor from flowing towards the most productive firms, and generate adverse effects on global production.<sup>37</sup>

Third, as short-time work mostly benefits permanent workers, it may accentuate the labor market segmentation between stable and unstable jobs. The complementarity between short-time work arrangements and the stringency of employment protection legislation across OECD countries suggests that this phenomenon is potentially important. Indeed, empirical research<sup>38</sup> finds that short time work saves permanent jobs but has no effects on temporary jobs.

All in all, the lessons of economic analysis are quite clear: there are strong arguments for using part-time unemployment benefits, short-time work arrangements and wage insurance to insure workers against career disruptions. But these schemes are not panaceas: they all have disadvantages which can make them non-desirable. Finally, the relative weight of advantages and disadvantages of these schemes depends on the behavior of workers and firms. This is an empirical issue which is covered in the next section.

### **3. The empirics of part-time unemployment insurance, wage insurance and short-time work**

#### **3.1. The empirics of part-time unemployment insurance**

The main issue addressed by the empirical literature on part-time unemployment insurance is the impact of part-time unemployment benefits on access to non-regular and regular employment. This literature faces important difficulties when it comes to exhibiting causal effects, insofar as non-observable differences between full-time and

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<sup>36</sup> Cahuc and Nevoux (2017).

<sup>37</sup> Cooper, Meyer and Schott (2017).

<sup>38</sup> Hizjen and Martin (2013).

part-time unemployed workers are likely correlated with the possibilities individuals have to access regular jobs. In particular, it may be that people with identical observable characteristics who access non-regular jobs more easily also have easier access to regular jobs. Therefore, if it turns out that recipients of part-time unemployment benefits do find regular jobs faster than full-time unemployed workers, this does not mean that part-time unemployment benefits do per se foster accession to regular employment. Ideally, to deal with this selection issue, researchers need to compare a treated group, which benefits from part-time unemployment benefits, to a control group, which is not entitled to part-time unemployment benefits. Individuals must be randomly allocated into these two groups in sufficient number to be able to detect a causal impact of part-time unemployment benefits. Hitherto, no such randomized controlled trial has been implemented to identify the impact of part-time unemployment insurance. Available studies rely on different empirical approaches to deal with the selection issue.

### *United-States*

A seminal contribution<sup>39</sup> exploits variations in the design of part-time unemployment benefits across U.S. states from 1986 to 1992. In most U.S. states, unemployment insurance recipients accepting part-time jobs can earn income up to the level of the disregard, with no reduction in benefits. Above the disregard, current benefits are generally reduced on a dollar-per-dollar basis. The disregard varies across states and within states over time. A 10% increase in the disregard is estimated to raise the probability of part-time re-employment for UI recipients from 3.9 to 5.7% in the first three months of unemployment. Moreover, a 10% increase in the disregard is found to reduce expected joblessness durations by an amount ranging from 0.3 to 0.9%. A complementary contribution<sup>40</sup> finds that the effects of part-time unemployment benefits are heterogeneous across demographic groups. An increase in the disregard is found to significantly raise the probability of part-time re-employment for blue-collar youth during the first three months of joblessness. However, no significant impact on the re-employment behavior of white-collar youth is detected.

It has also been shown that the design of part-time unemployment insurance has a significant impact on the behavior of unemployed workers.<sup>41</sup> It is clear that unemployment benefits recipients bunch at the disregard, meaning that they avoid working hours for which their earnings are offset by a dollar-per-dollar drop in their current unemployment benefits. Nevertheless, despite such bunching at the disregard, it is estimated that part-time unemployment benefits do increase labor supply.

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<sup>39</sup> McCall (1996).

<sup>40</sup> McCall (1998).

<sup>41</sup> Le Barbanchon (2017).

### *European countries*

Several recent studies focused on European countries rely on a timing-of-events<sup>42</sup> approach to separate the causal effects from the selection effects of entries by individuals into part-time unemployment. This approach compares the behavior of groups of individuals who differ in the timing of the transition from full-time unemployment to part-time unemployment, assuming that this timing is random during their unemployment spell. In this set-up, individuals who take up part-time unemployment benefits earlier in their unemployment spell belong to the treatment group, which is compared to the (control) group of individuals who take up these benefits later in their unemployment spell.

Relying on this approach, researchers have found that part-time unemployment speeds up the access to regular employment in Finland.<sup>43</sup> The impact of part-time unemployment on access to regular jobs is large and significant: when the applicant takes up a short full-time job that qualifies for part-time benefits, the hazard rate to regular employment increases almost by one-half. It turns out that subsidized part-time jobs are less effective than short full-time jobs in improving the chances of finding a regular job. Moreover, women working part-time and benefiting from part-time benefits do not exit unemployment faster than full-time unemployed women and may even remain in part-time unemployment longer in some cases.

Still relying on the timing-of-events approach, another contribution highlights the importance of the design of part-time unemployment insurance in Denmark.<sup>44</sup> Receiving part-time unemployment benefits and working part-time reduce unemployment durations on average. However, the sign and magnitude of the impact of part-time unemployment benefits vary with individual characteristics and with the timing and length of the part-time unemployment benefit period. Longer spells of part-time unemployment benefit tend to prolong unemployment duration, in particular for married women, white collar workers and manufacturing workers. The effects are much less detrimental for young workers and immigrants with short supplementary benefit periods.

Part-time unemployment benefits are also estimated to foster access to regular employment for young women in Belgium.<sup>45</sup> The survivor rate in unemployment of part-time unemployed workers is reduced by 27 percentage points one year after the start of receipt of part-time unemployment benefits, compared to that of full-time unemployed

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<sup>42</sup> Abbring and Van den Berg (2003).

<sup>43</sup> Kyyrä (2010).

<sup>44</sup> Kyyrä et al (2013).

<sup>45</sup> Cox et al, (2012). This contribution uses the 'timing of events' method.

workers.<sup>46</sup>

It is also found that part-time unemployment benefits exert a positive impact on entries into regular employment in Switzerland.<sup>47</sup> The chances that participants in part-time unemployment benefits programs will get a regular job 15 months after the start of the program are about 7–9 percentage points better than those of non-participants. The effects are heterogeneous across workers. Part-time unemployment benefits are ineffective for unemployed persons who can find jobs easily anyway, or are having a short unemployment spell. Nevertheless, it is estimated that part-time unemployment insurance is cost effective for the unemployment insurance system overall. The impact of part-time unemployment insurance has also been compared with that of non-profit employment programs. The finding is that part-time unemployment benefits are much more effective than non-profit employment programs, because non-profit employment programs do not improve access to regular non-subsidized employment.

Part-time unemployment insurance seems to be much less effective in France than in other European countries. There is a negative lock-in effect of part-time unemployment insurance when individuals are eligible for part-time unemployment benefits and an increased transition rate to regular jobs once unemployed workers are no longer eligible.<sup>48</sup> These effects are significantly less important for low-skilled and low-experience unemployed workers, who face greater difficulties in finding jobs. This suggests that part-time unemployment insurance creates incentives to remain longer in part-time unemployment, and then seek regular jobs once the opportunity to get part-time unemployment benefits is exhausted. This situation is likely the consequence of a badly designed scheme, which favors locking-in effects.

From this perspective, it is particularly interesting to examine the part-time unemployment insurance system for artists and technicians employed in the entertainment sector in France. Many artists and technicians in the entertainment sector have several employers for limited periods of time. France has implemented a system to cope with these specificities, which resemble those of the platform economy that is likely to develop in future years.

### *Part-time unemployment insurance for artists and technicians of the entertainment sector*

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<sup>46</sup> Contrary to the finding of Kyrya et al. (2013) described above, Cox et al. do not find that the spell of unemployment benefit affects the transition to regular employment. These results should be interpreted with caution since many transitions are missing in the data of Cox et al. Since the information on the labor market status is only available at the end of each quarter in their dataset, the timing of events method requires the assumption that at most one labor market transition may occur within a quarter. This assumption is very questionable for part-time unemployed workers frequently employed on very short temporary jobs, shorter than one month.

<sup>47</sup> Gerfin et al. (2004) analyze the impact of partial unemployment benefits on the chance of getting a job of duration of at least 3 months with earnings of at least 90% of those in the previous job.

<sup>48</sup> Fremigacci and Terracol (2013). This contribution uses the ‘timing of events’ method.

*in France*

In order to deal with the succession of fixed-term contracts, with alternating periods of employment and unemployment, France has created a specific part-time unemployment benefit system for artists and technicians in the entertainment industry, who are known as *intermittents du spectacle* (show-business intermittents).<sup>49</sup> This system, instituted in 1936 for visual technicians and filmmakers, was integrated into the general unemployment insurance system in 1965 and progressively extended to audio technicians, the whole audio-visual sector, and the performers and technicians of the “live” performing arts.

Show-business intermittents must be either performing artists on a fixed-term contract or blue-collar workers or technicians in the entertainment industry working on a fixed-term contract, with both their occupations and their hiring firm’s activities specified by collective agreement. To be entitled to unemployment benefits the *intermittent* employee must have worked a certain number of hours in a given period. The minimum period is 507 hours (or 43 days if the contract stipulates days of work instead of hours, in which case, one day is equal to 12 hours) during the last 319 days for the artists or the last 304 days for the blue-collar workers and technicians.

The level of benefits is calculated at the time of registration on the basis of reported hours and reported earnings during the 12-month base period. The net replacement rate, calculated on the basis of the daily wage, is about 85% at the level of the minimum wage and 70% at twice the minimum wage. If claimants are totally unemployed all along their claim and receive their unemployment benefits each month, the potential duration of benefits is 243 days (8 months).

Claiming *intermittent* workers are allowed to work, including with their past employers. In this case, the level of unemployment benefits is reduced, and depends, each month, on reported hours of work while on claim. However, the reduction in benefits delays the potential benefit exhaustion date. At the exhaustion date, the eligibility condition is reassessed. If claimants have worked 507 hours over the 12-month period preceding the exhaustion date, they remain eligible for unemployment benefits, and so on.

The *intermittent du spectacle* scheme is a striking example of the detrimental effects of a badly designed part-time unemployment insurance. It provides little incentive to work beyond the minimum number of hours required to be entitled to unemployment benefits. It allows show-business workers to combine earned income with unemployment benefits indefinitely, if they work at least 2 months over any 10-month period. This scheme is very attractive. Figure 5 shows that the number of show-business workers has been multiplied by 5 between 1980 and 2015, while the number of show-

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<sup>49</sup> See Cahuc (2018) for more details.



business workers claiming unemployment benefits jumped from 7000 to 113,000. In 2015, about 40% of show-business workers claimed unemployment benefits thanks to the *intermittent* scheme. Moreover, a significant number of *intermittent* show-business workers quit whatever job they are in once they have acquired their eligibility for unemployment benefits, and only resume their activity when these are exhausted. This phenomenon is also fueled by employers' practices. A large proportion of compensated unemployment spells are attributable to comings and goings within the same company. This recurrence suggests that many companies have adapted their workforce management in order to take maximum advantage of the facilities provided by unemployment insurance.

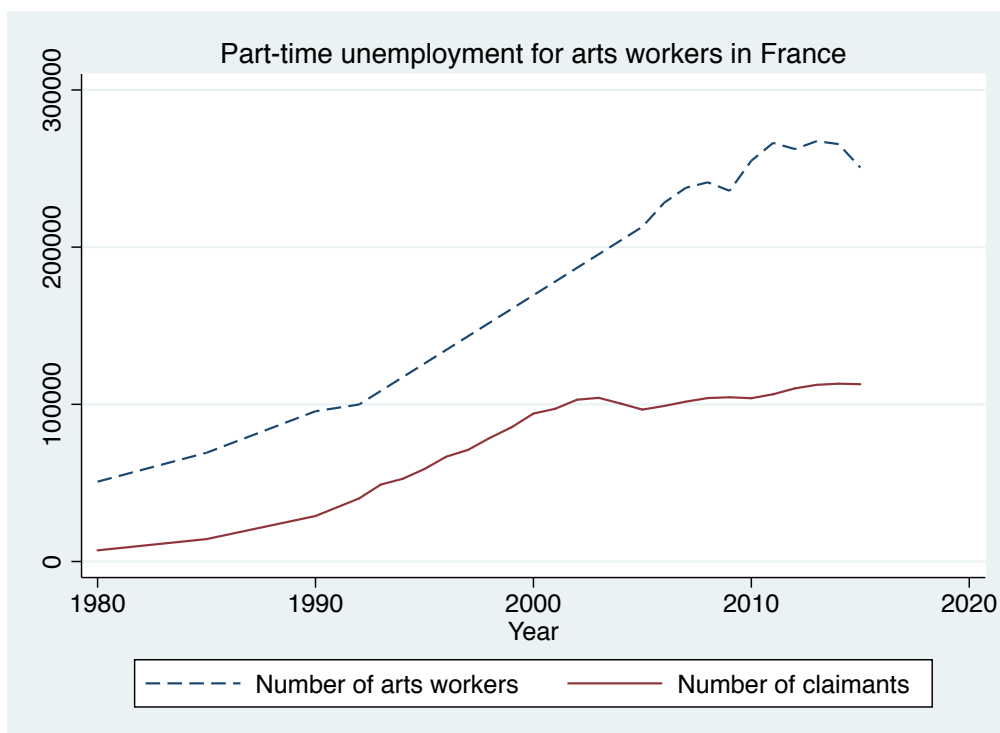


Figure 5 : The steady increase in the number of arts workers and number of claiming arts workers from 1980 to 2015. Source: Data on claimants and non claimants over the 1980-1992 period are taken from Menger and Gurgand (2011). Data on the total number of arts workers over the 2005-2015 period are computed from an administrative database on arts workers' contracts (*Attestation Employeur Mensuelle*). Data on claiming arts workers over the 1993-2015 period are computed from an administrative database on unemployment spells (*Fichier National des Allocataires*). Note: linear extrapolation for the number of arts workers from 1993 to 2004.

Accordingly, the show-business workers are much more costly to the French unemployment insurance system than other workers employed on unstable jobs who do not benefit from the *intermittent* scheme. Temporary agency workers are paid 2.5 times more allowances than their contributions; this ratio increases to 3.6 for employees on fixed-term contracts and reaches 5.2 for *intermittent* show-business workers. The financial transfers are clearly higher for *intermittent* show-business workers than for other types of fixed-term contracts.

The high cost of the intermittent scheme is clearly the consequence of very generous part-time unemployment benefits. It has provoked many attempts at reform. But the strong opposition of show-business workers, who organize numerous demonstrations when their scheme is threatened, have blocked important changes so far.

### *Lessons from the empirical literature on part-time unemployment benefits*

The empirical literature indicates that part-time unemployment benefits can facilitate not only part-time work but also re-employment in regular jobs. Part-time unemployed workers are matched with employers more frequently, and have more chances to maintain their skills and to enlarge their job network than full-time unemployed workers. This allows part-time unemployed workers to access regular jobs faster. All in all, the empirical literature suggests that part-time unemployment insurance benefit is desirable, and indeed that it must play a key and increasing role to support the development of new forms of employment.

However, part-time unemployment benefits may favor short and part-time jobs at the expense of regular employment. The part-time unemployment insurance benefit for show-business workers in France shows that badly designed systems can have important detrimental effects, which are difficult to modify once in place.

This means that the adaptation of unemployment insurance to the development of new forms of employment, more unstable and more often part-time, has to be undertaken cautiously. To limit the substitution of non-regular employment for regular employment, the contributions of non-standard workers should balance the benefits they receive. This requirement implies that their contributions to unemployment insurance could be substantial, as for standard employees. Several countries have introduced voluntary schemes for non-standard workers to avoid raising contributions for non-standard workers.<sup>50</sup> However the take-up to these voluntary schemes is low and suffers from selection issues, insofar as workers with the highest risks of unemployment have more incentives to participate. From this perspective, it is desirable to implement equal mandatory contributions for standard and non-standard workers and to adjust the eligibility conditions for each type of worker to ensure that their contributions balance their benefits. This framework presents the advantage to avoid the selection issue and to facilitate transitions between standard and non-standard employment.

It is also important to counsel and monitor part-time unemployed workers to help them in finding full-time jobs.

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<sup>50</sup> OECD (2018)

### 3.2. Wage insurance

The scarcity of wage insurance programs entails that very few evaluations are available.<sup>51</sup> Nevertheless, evaluations of in-work benefits programs, and in particular time-limited in-work benefits programs, are useful inasmuch as the potential effectiveness of wage insurance relies on its impact on the reemployment prospects of its recipients.

#### *Evaluations of time-limited in-work benefits programs*

Several empirical studies have shown that time-limited in-work benefits can promote employment among low-wage workers. Four trials in Canada and in the United-States have randomly assigned people either to a program group which was eligible for earnings supplements, or to a control group that was not. Their findings are consistent.<sup>52</sup> These programs all increased employment, earnings, and income. However, their effects diminished over time. The effects on employment and earnings were larger and more persistent for long-term welfare recipients with limited education and work experience. The combination of time-limited earnings supplements with employment-related services aimed at helping those eligible to find and keep jobs has effects that exceed those from earnings supplements alone.<sup>53</sup> Evidence from an experimental program for unemployed welfare recipients in the UK is in line with these findings.<sup>54</sup> It found that time-limited in-work benefits combined with post-employment services raised employment. Furthermore, positive but non-significant effects on employment retention are observed. These results suggest that time-limited in-work benefits have temporary positive employment effects, which vanish when the benefits stop being paid.

#### *Evaluations of wage insurance programs*

In 1995 and 1996, the Canadian government tried out an experimental time-limited in-work benefits program called the Earnings Supplement Project.<sup>55</sup> Eligibility was limited to workers who experienced a permanent job separation after at least three years of continuous employment. Participants were offered payments of 75% of their earnings

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<sup>51</sup> Schochet et al. (2012) and Hyman (2018) evaluate the impact of the Trade Adjustment Act in the United-States, but their evaluations are not focused on the wage insurance component of this scheme.

<sup>52</sup> Michalopoulos (2005), Card and Hyslop (2005).

<sup>53</sup> Robins et al. (2008).

<sup>54</sup> Dorsett (2014).

<sup>55</sup> Bloom et al. (1999).

loss for up to two years. They received a payment only if they became employed in a nearly full-time job (32 hours per week) within 26 weeks of the offer date. The program was tested on two groups comprising a total of 5,912 individuals in 1995 and 1996. The program had a small positive and short-lived impact on reemployment and negative effects on wages. It had almost no effect on the amount or duration of unemployment benefits.

The effects of the wage insurance program for older workers in place in Germany during the period 2003–2011 have been evaluated by a field experiment. This experiment involves an information treatment which consists in sending information about the program to 2,328 eligible persons. Then, this treatment is used as an instrument to estimate the effects of the program. Receipt of this information increased the share of individuals informed about the program by around 20 percentage points. A survey shows that more than 70% of workers think that this program is suited to bring older unemployed individuals back into jobs. Only around 20% answered that in-work benefits stigmatize workers and around two-thirds that they are preferable to wage subsidies to employers. Nevertheless, the employment impact of the in-work benefits are mixed. For workers aged from 50 to 54 and 60 to 64, receiving the information has no significant effect on employment. There is a small positive impact on employment of individuals aged from 55 to 59. Moreover, there are small negative effects on the earnings of those aged from 50 to 54.

All in all, current evaluations do not provide much support for the effectiveness of wage insurance to boost employment. The employment impact of time-limited in-work benefits seems to be smaller for displaced workers than for welfare recipients, perhaps because they have higher reservation wages and need time to revise their expectations about their career prospects. It is possible that combining wage insurance with counseling and employment-related services could make wage insurance more effective. Much research is needed before convincing lessons can be drawn in this realm.

### **3.3. Short-time work**

Empirical evaluations of short-time work can be classified in two broad categories. The first category relies on country-level or cross-sector-level data, while the second category relies on firm-level data.

### *Macroeconomic evaluations*

Macroeconomic evaluations, using cross-country data,<sup>56</sup> or cross-state data in the United States,<sup>57</sup> have generally identified a positive impact of short-time work on employment. Their conclusions are mostly drawn from a small number of observations, limiting their ability to identify a causal relation between short-time work and employment.

This being said, it has been found that short-time work did stabilize employment and reduced unemployment during the 2008–2009 recession.<sup>58</sup> A one percentage point increase in short-time work compensation take-up rates is associated with a decrease of one percentage point in unemployment and an increase of one percentage point in employment. Overall, these evaluations suggest that short-time work compensation programs had an important impact on preserving permanent jobs during the economic downturn. The largest impacts were in Germany and Japan, where 0.7–0.8% of jobs were saved. In contrast, short-time work compensation seemed to have no significant impact on either the employment or the average hours of work of temporary workers. So macroeconomic evaluations suggest that the positive effect on permanent jobs is not countered by a negative effect on temporary jobs.

### *Microeconomic evaluations*

Microeconomic evaluations are scarce and mostly use firm level sources in Germany and France. In Germany, all analyses rely on the IAB Establishment Panel, an annual survey with approximately 16,000 firms, representing 1% of all firms and 7% of all employees, interrogated in 2003, 2006 and 2009. Resulting estimates depend heavily on the method used to correct for selection into short-time work, with no obvious lesson.<sup>59</sup> The main reason for the lack of consensus on the impact of short-time work in Germany seems to be the inadequacy of data to deal with the selection issue. This literature analyzes the impact of short-time work on employment by running regressions where employment growth is explained by short-time work use and by a set of control variables including the revenue growth of the firm. But it has long been acknowledged that the correlation between employment and revenue is very weak overall and heterogeneous across firms. To avoid bias induced by selection of firms with specific adjustment of employment into short-time work, this literature uses the prior experience of firms with the program when trying to instrument short-time work. Using this approach, it is found that each employee on short-time work saved about 0.35 jobs during the great recession in

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<sup>56</sup> Abraham and Houseman (1994), Boeri and Bruecker (2011), Brey and Hertweck (2016), Cahuc and Carcillo (2011), Hijzen and Martin (2013), Hijzen and Venn (2011), Van Audenrode (1994).

<sup>57</sup> Abraham and Houseman (2014).

<sup>58</sup> Boeri and Bruecker (2011), Cahuc and Carcillo (2011), Hijzen and Venn (2011).

<sup>59</sup> Balleer et al. (2016), Boeri and Bruecker (2011), Niedermayer and Tilly (2017) find positive effects of short-time work on employment. Bellmann and Gerner (2011), Bellmann et al. (2015), Kruppe and Scholz (2014) find no effects of short-time work on employment.

Germany -- with a 95% confidence interval equal to [0.04,0.70].<sup>60</sup> However, this result should be interpreted cautiously since empirical evidence shows that firms which use short-time work tend to adjust employment more strongly when output falls than firms which do not use short-time work.<sup>61</sup> This behavior of short-time work users may result from technical constraints: firms have more incentives to use short-time work if features of their production process imply that it is more costly to store production or to find productive activities for incumbent employees when demand drops. Hence, instrumenting program use with prior experience does not fully solve the selection issue and is likely to lead to an underestimate of the potential positive impact of short-time work on employment. This may explain why several contributions using this instrument find no positive effect on employment. Studies using French data face a similar difficulty. Their results tend to show that establishments authorized to use short-time work are more likely to go bankrupt.<sup>62</sup>

More recent studies find positive employment effects of short-time work in France and in Italy. Cahuc et al. (2018) devise a causal identification strategy based on the geography of the program. They find that short-time work saved jobs in firms faced with large drops in their revenues during the Great Recession, in particular when highly levered, but only in these firms. The measured cost per saved job is shown to be very low relative to that of other employment policies because short-time work targets those at risk of being destroyed. The identification of Giupponi and Landais (2018) relies on the interaction between two sources of variation in eligibility in Italy: sector and firm size. They find large and significant negative effects of short-time work on hours worked, but large and positive effects on headcount employment. Contrary to Cahuc et al. for France, employment effects disappear when the program stops. Giupponi and Landais also identify the presence of significant negative reallocation effects of STW on employment growth of untreated firms in the same local labor market.

All in all, empirical evidence suggests that short-time work can be effective at saving jobs in recessions. However, empirical evidence is still scarce and insufficient. Macroeconomic studies tend to find positive effects on permanent jobs, but it cannot be excluded that these results are partly driven by confounding variables. The findings relying on firm data are scarce and have difficulties in identifying a causal impact of short-time work. More research is needed in this area.

#### **4. Concluding remarks**

At the start of the XXI century, characterized by the rise in new forms of employment and in skills requirements, many or most countries need to adapt their labor market

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<sup>60</sup> In line with Boeri and Bruecker (2011)

<sup>61</sup> Bellmann et al. (2015).

<sup>62</sup> Calavrezo et al. (2010) rely on propensity score matching to deal with the selection issue.

institutions to accompany technological changes and globalization. Workers need to be insured against career disruptions, to have a chance to adapt their skills, and to move from job to job smoothly. In this context, unemployment insurance is an essential tool to foster and smooth career paths. Its core components comprise unemployment benefits paid to full-time unemployed workers, monitoring, and counseling. But it is clear that they are not sufficient to cover all risks properly. In particular, the growth of new work arrangements leading to more unstable work relations requires adapting the system to deal with high frequency moves between periods of activity and periods of inactivity. The large losses suffered by long-tenured displaced workers due to globalization and technological change may require specific actions.

Part-time unemployment insurance, short-time work, and wage insurance all aim at dealing with these issues. Over the last decades, they have been tried, at different scales in several countries, and evaluated, to a lesser extent, by economists and social scientists. From our survey of these experiments and evaluations, we can draw the following lessons.

First, part-time unemployment insurance, which exists in many countries, is desirable. It must indeed play a key and increasing role to support the development of new forms of employment. However, the adaptation of unemployment insurance to the development of new forms of employment, more unstable and more often part-time, has to be undertaken cautiously. To limit the substitution of non-regular employment for regular employment, the contributions of non-standard workers should balance the benefits they receive. From this perspective, it is desirable to implement equal mandatory contributions for standard and non-standard workers and to adjust the eligibility conditions for each type of worker to ensure that their contributions balance their benefits. This framework presents the advantage to avoid the selection issue and to facilitate transitions between standard and non-standard employment.

Second, due to capital market imperfections, short-time work can be effective at saving jobs in recessions. It can avoid inefficient job destructions. However, the scarcity of empirical evaluations entails that our knowledge about the effects of short-time work is quite limited. In any case, it is clear that the scope of short-time work should be limited to firms facing genuine difficulties, and time-limited to avoid reducing hours worked excessively and dampening the reallocation of jobs toward productive firms. It should also be experience-rated in order to prevent abusive and repeated use.

Third, to date the rare evaluations we do have of the scarce wage insurance systems that do exist provide little support for the two arguments advanced by the proponents of wage insurance. These arguments were clearly expressed by President Obama when he argued that if a “hardworking American loses his job—we shouldn’t just make sure that he can get unemployment insurance; we should make sure that program encourages him to retrain for a business that’s ready to hire him. If that new job doesn’t pay as

much, there should be a system of wage insurance in place so that he can still pay his bills". Sustaining "hardworking" people can be desirable, but as it is difficult to distinguish them from mere insiders, wage insurance is difficult to justify on equity grounds. Its implementation risks benefiting the insiders to the detriment of outsiders. Moreover, empirical evidence suggests that time-limited in-work benefits provided by wage insurance systems have little incentive effects for individuals to find and keep regular jobs.

These conclusions call for two additional remarks.

First, there is very little empirical evidence about the consequences of large-scale schemes likely to significantly favor sustained and inclusive growth. This is particularly true for short-time work and wage insurance. Given that, it is clear that the conclusions of this paper reflect the current state of our limited knowledge; they are not definitive, they may evolve with the results of future evaluations.

Second, there is a strong demand for insurance expressed by interest groups whose purposes are not necessarily aligned with the general interest. This observation applies to short-time work and wage insurance, which can benefit the insiders at the expenses of the outsiders. It also applies to part-time unemployment insurance, which can benefit professions or sectors facing unstable work relations, at the expenses of other professions or sectors. This means that the implementation of new insurance schemes should be undertaken cautiously, and must rely on empirical evidence demonstrating their effectiveness.



## References

Abraham, K. G. and Houseman, S. N. 1994. Does employment protection inhibit labor market flexibility? lessons from Germany, France, and Belgium. In Blank, R. M., editor, *Social Protection Versus Economic Flexibility? Is There a Trade-Off?*, pages 59--93. University of Chicago Press.

Abraham, K. G. and Houseman, S. N. 2014. Short-time compensation as a tool to mitigate job loss? evidence on the U.S. experience during the recent recession. *Industrial Relations: A Journal of Economy and Society*, 53(4):543--567.

Acemoglu, D. and Pischke, S. 1999. Beyond Becker: Training in Imperfect Labor Markets" *Economic Journal Features* 109, F112-F142.

Balleer, A., Gehrke, B., Lechthaler, W., and Merkl, C. (2016). Does short-time work save jobs? a business cycle analysis. *European Economic Review*, 84:99--122.

Baily, M. 1978. Some aspects of optimal unemployment insurance. *Journal of Public Economics*, 10, 379--402.

Becker, G. 1964, *Human Capital*, New-York, NBER.

Bellmann, L. and Gerner, H.-D. 2011. Reversed roles? wage and employment effects of the current crisis. In Immervoll, H., Peichl, A., and Tatsiramos, K., editors, *Who Loses in the Downturn? Economic Crisis, Employment and Income Distribution*, volume 32 of *Research in Labor Economics*, pages 181--206. Emerald Group.

Bellmann, L., Gerner, H.-D., and Upward, R. 2015. The response of German establishments to the 2008-2009 economic crisis. In Commendatore, P., Kayam, S., and Kubin, I., editors, *Complexity and Geographical Economics: Topics and Tools*, volume 19 of *Dynamic Modeling and Econometrics in Economics and Finance*, pages 165--207. Springer.

Blanchard, O. and J. Tirole, 2007. The Optimal Design of Unemployment Insurance and Employment Protection: A First Pass, *Journal of the European Economic Association*, vol. 6, n°1, p. 45-77.

Bloom, H., S. Schwartz, S. Lui-Gurr, S-W. Lee, J. Peng and W. Bancroft, 1999. Testing a re-employment incentive for displaced workers: The Earnings Supplement Project, Social Research and Demonstration Corporation (SRDC), May

Boeri, T. and Bruecker, H. 2011. Short-time work benefits revisited: some lessons from

the great recession. *Economic Policy*, 26(68):697-765.

Boum Galiana O., Charozé C., Goarant C. 2016, Contrat de sécurisation professionnelle : un accompagnement intensif et personnalisé ?, *Dares Analyses* n° 057, octobre.

Braun, H. and Bruegemann, B. 2017. Welfare effects of short-time compensation. Discussion Paper, Tinbergen Institute.

Brey, B. and Hertweck, M. S. 2016. The extension of short-time work schemes during the great recession: a story of success? Discussion Paper 5, Department of Economics of the University of Konstanz.

Burdett, K. and Wright, R., 1989. Unemployment insurance and short-time compensation: the effects on layoffs, hours per worker, and wages. *Journal of Political Economy*, 97(6):1479--1496.

Cahuc, P. 2018. France: The social protection for self-employed workers, in *The Future of Social Protection: What Works for Non-standard Workers?*, chapter 4, pp 99-122, OECD Publishing, Paris.

Cahuc P, Carcillo, S. 2011. Is short-time work a good method to keep unemployment down?". *Nordic Economic Policy Review*, No. 1, pp. 133–169.

Cahuc, P., Kramarz, F. and Nevoux, S., 2018, When short-time work works IZA Discussion Paper n° 11673.

Cahuc, P. and Nevoux, S., 2017, Inefficient short-time work. IZA Discussion Paper n° 11010.

Cahuc, P. and Prost, C. 2015. Improving the Unemployment Insurance System in Order to Contain Employment Instability, *Les notes du conseil d'analyse économique*, n° 24, September 2015.

Cahuc, P. and A. Zylberberg 2008, Optimum Taxation and Layoff Taxes, *Journal of Public Economics*, 92 (10-11), pp. 2003-2019.

Calavrezo, O., Duhautois, R., and Walkowiak, E. 2010. Short-time compensation and establishment exit: an empirical analysis with French data. Discussion Paper 4989, Institute of Labor Economics (IZA).

Caliendo, M., Kunn, S. and Uhlendorff, A. 2016. Earnings Exemptions for Unemployed Workers: The Relationship between Marginal Employment, Unemployment Duration and Job Quality, *Labour Economics*, 2016, 42, 177-193.

Card, D., and D. R. Hyslop. R.D. 2009. The dynamic effects of an earnings subsidy for long-term welfare recipients: Evidence from the self sufficiency project applicant experiment." *Journal of Econometrics* 153: 1–20.

Chetty, R. 2006. A general formula for the optimal level of social insurance. *Journal of Public Economics*, 90, 1879–1901.

Cockx Bart, Christian Göbel and Stéphane Robin, 2013. Can Income Support for Part-Time Workers Serve as a Stepping Stone to Regular Jobs? An Application to Young Long-Term Unemployed Women, *Empirical Economics*, 44(1), 189-229.

Cooper, R., Meyer, M. and Schott, I. 2017, The employment and output effects of short-time work in Germany. Working Paper 23688, National Bureau of Economic Research (NBER).

Dorsett, R. 2014. The effect of time-limited in-work support on employment retention: Evidence from a field experiment." *Labour Economics* 31: 61–71.

Ek, S., and B. Holmlund, B., 2015. Part-time unemployment and optimal unemployment insurance." *International Tax and Public Finance* 22(2): 201–223.

Farhi, E, and IWerning, I. 2013. Insurance and Taxation over the Life Cycle. *Review of Economic Studies* 810 (2): 596–635.

Farber, H. 1999, Alternative and part-time employment arrangements as a response to job loss." *Journal of Labor Economics* 17:4, 142–169.

Fougère, D. Kramarz, K. Pouget, J. 2009, Youth Unemployment and Crime in France ,» *The Journal of the European Economic Association*, September, 7(5), 909-938.

Fremigacci, F. and Terracol, A. 2013. Subsidized temporary jobs: lock-in and stepping stone effects. *Applied economics*, 45(33):4719–4732.

Gerfin, M, M. Lechner and H. Steiger, 2005. Does Subsidised Temporary Employment bring the Unemployed back to work?, *Labour Economics: An International Journal*, 12, 807-835.

Giroud, X. and Mueller, H., 2017. Firm Leverage, Consumer Demand, and Employment Losses during the Great Recession, *Quarterly Journal of Economics*, 271–316.

Giupponi, G., and Landais, C., 2018. Subsidizing Labor Hoarding in Recessions: The Employment & Welfare Effects of Short Time Work , CEPR Discussion Paper, No. 13310.

Godoy, A. and Roed, K. 2016, Unemployment Insurance and Underemployment, IZA Discussion Papers 7913, Labour, 30 (2) 158–179.

Harris, S, and Krueger, A., 2015. A Proposal for Modernizing Labor Laws for Twenty-First Century Work: The “Independent Worker”. The Hamilton Project Discussion Paper 2015-10.

Hijzen, A. and Martin, S. 2013. The role of short-time work schemes during the global financial crisis and early recovery: a cross-country analysis. IZA Journal of Labor Policy 2013 2:5.

Hijzen, A. and B. Menyhert, 2016. Measuring Labour Market Security and Assessing its Implications for Individual Well- Being, OECD Social, Employment and Migration Working Papers, No. 175, OECD Publishing, Paris.

Hijzen, A. and Venn, D. 2011. The role of short-time work schemes during the 2008-2009 recession. Social, Employment and Migration Working Paper 115, Organization for Economic Cooperation and Development (OECD).

Houseman, S.N., Kalleberg, A.L., Erickcek, G.A., 2003. The role of temporary help employment in tight labour markets. Industrial & Labor Relations Review 57 (1), 105–127.

Hyman, B. G., 2018. Can Displaced Labor Be Retrained? Evidence from Quasi-Random Assignment to Trade Adjustment Assistance. Manuscript, The Wharton School University of Pennsylvania.

Katz LF, Krueger AB. 2018, The Rise and Nature of Alternative Work Arrangements in the United States, 1995-2015, Forthcoming, Industrial and Labor Relations Review.

Kruppe, T. and Scholz, T. 2014. Labour hoarding in Germany: employment effects of short-time work during the crises. Discussion Paper 17, Institute for Employment Research (IAB).

Kyyra , T. 2010. Partial unemployment insurance benefits and the transition rate to regular work. European Economic Review, 54(7):911–930.

Kyyra T., Parrotta, P., and Rosholm, M. 2013. The effect of receiving supplementary ui benefits on unemployment duration. Labour Economics, 21:122–133.

- LaLonde, Robert J. 2007. The Case for Wage Insurance. Council Special Report No. 30. New York: Council on Foreign Relations.
- Le Barbanchon, T. 2016. Partial unemployment insurance. Manuscript, Bocconi University.
- Mas A, and Pallais A. 2017. Valuing Alternative Work Arrangements. *American Economic Review*. 107 (12) : 3722-3759.
- McCall, B. P. 1996. Unemployment insurance rules, joblessness, and part-time work. *Econometrica: Journal of the Econometric Society*, pages 647–682.
- Michau, J.B. 2017. On the Provision of Insurance Against Search-Induced Wage Fluctuations, Manuscript, Ecole Polytechnique.
- Neugart, M., Storrie, D., 2002. Temporary work agencies and equilibrium unemployment. SSRN Working Paper No. 339221. Social Science Research Network.
- OECD, 2015. Back to Work: Japan, Improving the Re-employment Prospects of Displaced Workers, OECD Paris.
- OECD, 2018, The Future of Job Protection: What works for non-standard workers? Policy Brief on the Future of Work, May, [www.oecd.org/employment/future-of-work.htm](http://www.oecd.org/employment/future-of-work.htm).
- Oreopoulos, P., Page, P., and Stevens, A.H. 2008. The Intergenerational Effects of Worker Displacement.” *Journal of Labor Economics* 26 (3): 455–83
- Robins, P.K., Michalopoulos, C., Foley, K., 2008. Are two carrots better than one? The effects of adding employment services to financial incentive programs for welfare recipients. *Ind. Labor Relat. Rev.* 410–423.
- Schmieder, J.F, Till von Wachter, T., Heining, J., 2018. The Costs of Job Displacement over the Business Cycle and Its Sources: Evidence from Germany, Manuscript, UCLA.
- Schochet, P. Z., D’Amico, R., Berk, J., Dolfin, S., and Wozny, N., 2012. Estimated Impacts for Participants in the Trade Adjustment Assistance TAA Program Under the 2002 Amendments, (No. 582d8723f6884d4eb7a3f95a4d5ef086). Mathematica Policy Research.
- Song, J., Price, J.D., Guvenen, F., Bloom, N. and von Wachter, T. 2016. Firming Up Inequality NBER Working Paper No. 21199.

Steiner, V. 2017. The labor market for older workers in Germany Viktor. *Journal of Labor Research*, 50:11-14.

Sullivan, D., von Wachter, T., 2009. Job Displacement and Mortality: An Analysis Using Administrative Data, *The Quarterly Journal of Economics*, 124(3): 1265–1306

Van Audenrode, M. A. 1994. Short-time compensation, job security, and employment contracts: evidence from selected OECD countries. *Journal of Political Economy*, 102(1):76--102.

Van den Berg, G., Homrighausen, P., Stephan, G., 2017, Targeted Wage Support for Older Unemployed Workers: An Evaluation Combining Survey and Register Data from a Randomized Controlled Field Experiment, *LASER Discussion Papers - Paper No. 100* .

Van Ours, J.C. 2004. The locking-in effect of subsidized jobs, *Journal of Comparative Economics*, 32/1, 37-52.

Vroman, W. and V. Brusentsev 2009, Short-Time Compensation as a Policy to Stabilize Employment, University of Delaware, November 2009, mimeo [http://www.urban.org/uploadedpdf/411983\\_stabilize\\_employment.pdf](http://www.urban.org/uploadedpdf/411983_stabilize_employment.pdf)

Walsh, S., London, R., McCanne, D., Needels, K., Nicholson, W. and S. Kerachsky (2007), *Evaluation of Short-Time Compensation Programs*, Berkeley Planning Associates / Mathematica Policy Research Inc., Final Report for the U.S. Department of Labor, March 2007.

Wandner, S, 2016, Wage Insurance as a Policy Option in the United States. Upjohn Institute Working Paper 16-250. Stephen Wandner. W.E. Upjohn Institute for Employment Research. January 18, 2016.

Werquin, N. 2016. Income Taxation with Frictional Labor Supply, working paper, Toulouse School of Economics.