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Work-sharing for a sustainable economy

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Work-sharing for a sustainable economy

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Abstract

Achieving low unemployment in an environment of weak growth is a major policy challenge; a more egalitarian distribution of hours worked could be the key to solving it. Whether work-sharing actually increases employment, however, has been debated controversially. In this article we present stylized facts on the distribution of hours worked and discuss the role of work-sharing for a sustainable economy. Building on recent developments in labor market theory we review the determinants of working long hours and its effect on well-being. Finally, we survey work-sharing reforms in the past. While there seems to be a consensus that work-sharing in the Great Depression in the U.S. and in the Great Recession in Europe was successful in reducing employment losses, perceptions of the work-sharing reforms implemented between the 1980s and early 2000s are more ambivalent. However, even the most critical evaluations of these reforms provide no credible evidence of negative employment effects; instead, the overall success of the policy seems to depend on the economic and institutional setting, as well as the specific details of its implementation.

Keywords

Work-sharing; Working hours; Labor Supply; Labor Demand; Environmental Sustainability

JEL Codes

D1; D3; E24; J08; J2

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1. Introduction

For decades policy makers and labor unions have periodically expressed interest in work-sharing – the redistribution of working hours between the employed and unemployed – to increase employment, especially during recessions. The struggle over the length of the work day was already a central topic in Marx’ Capital Vol. I (Marx and Engels 1968), and “three-hour shifts or a fifteen-hour week” were the logical outcome in Keynes’ (1930) vision of saturated capitalism.² In Europe’s post-war societies trade unions heavily advocated general working time reductions, which were in part subsequently implemented by law or in bargaining processes with employers. The latest revival of work-sharing policies took place in the aftermath of the Great Recession in many European countries. However, many of these work-sharing programs were designed as short-term crisis measures and have already expired.

While growth and correspondingly demand for labor are still low in the aftermath of the Great Recession, there is increasing concern that higher growth might be environmentally harmful. Leading earth system and environmental scientists repeatedly warn that the scale and intensity of current economic activity seriously threatens the “safe operating space of humanity” (Rockström et al., 2009, Steffen et al. 2015). Solving the social problems arising from the current economic recession without fueling the ecological crisis poses a novel policy challenge. Traditional policies to increase employment and equity have relied on economic growth. There is a well-documented short-run (Ball et al. 2013a, Okun 1962) and long-run (e.g. Blanchard 1997, Ball 1999, Karanassou et al. 2008, Stockhammer and Klär 2011, Sturn 2013) relationship between growth and aggregate employment. However, at a given level of aggregate labor demand, the employment rate might be increased through re-distributing hours and jobs more equally within the labor force, making work-sharing an important economic policy tool in a low-growth economy. In recent years work-sharing has therefore received increased attention from ecological economists (Antal 2014, Kallis et al. 2013, Pullinger 2014, Schor 2005, Jackson 2009, Victor 2008).

² Keynes (1930) predicted that productivity would increase strongly in the next century. Over time, this would more and more translate into shorter work-days instead of income growth: “[T]he economic problem may be solved, or be at least within sight of solution, within a hundred years [...]. Thus for the first time since his creation man will be faced with his real, his permanent problem – how to use his freedom from pressing economic cares, how to occupy the leisure, which science and compound interest will have won for him, to live wisely and agreeably and well.” While Keynes’ predictions about productivity growth were accurate, he clearly overestimated the extent to which this would be used to shorten working time.

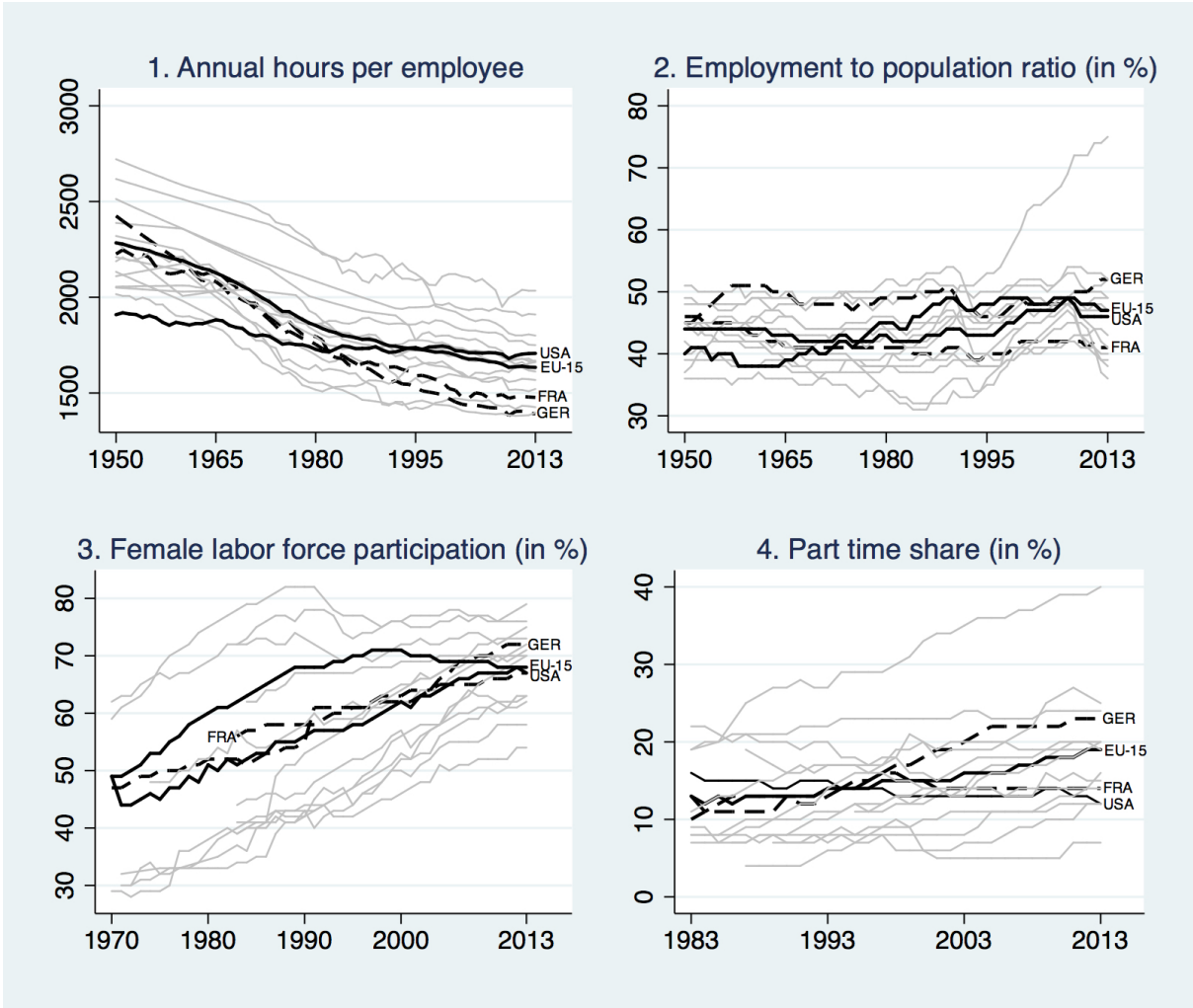
Since an unequal distribution of hours and jobs also has other negative economic and social consequences, such as an unequal distribution of wages and reduced well-being due to un- and under-employment for some workers and burnout and stress for others, work-sharing might have additional positive externalities. Nevertheless, the success of work-sharing is debated controversially amongst economists. The standard neoclassical argument is that work-sharing reforms backfire because they increase labor costs per unit of output, which induces a substitution from labor to capital and hereby lowers aggregate employment. While neoclassical models therefore predict negative macroeconomic effects, the empirical evidence seems to allow for a much broader variety of possible outcomes. In a review of the literature we show that even the most prominent studies that are often cited to argue against work-sharing, can provide no credible evidence of negative employment effects.

This article is structured as follows: Section 2 presents stylized facts on the evolution of working hours since the 1950s as well as the cross-country relationship between average working hours and the distribution of working hours. In section 3 we discuss the question of what determines the number of hours people work, in section 4 we address the consequences of unequal working hours on well-being and equity. Section 5 gives an overview of work-sharing reforms from the Great Depression to the Great Recession, and discusses empirical studies evaluating these reforms. Section 6 concludes.

2. Stylized facts on working time

In most industrialized countries average annual hours worked per employee have noticeably declined since the 1950's (plot 1 in figure 1), while the employment to population ratio has slightly increased (plot 2). Behind this rather stable employment to population ratio, lies on the one hand the rising female labor force participation (plot 3), which is partially offset by the shorter number of years spent in the labor market due to trend increases in average years of schooling on the one hand, and earlier retirement and population aging on the other.

Figure 1: Labor market trends in industrialized countries

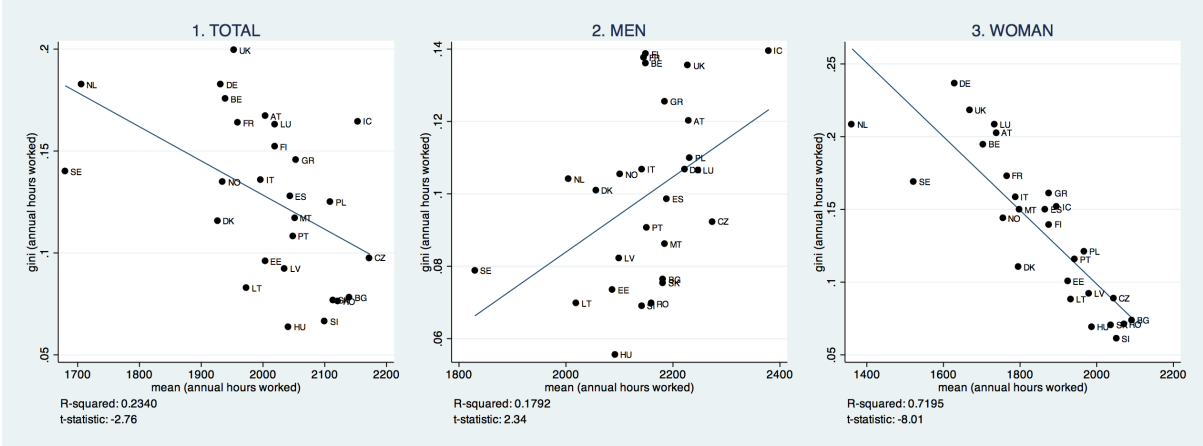


Source: Plot 1 and 2: The Conference Board total Economy Database 2015, annual hours include paid overtime and exclude paid hours that are not worked due to sickness, holidays. Employment to population ratio: persons employed/midyear population. Plot 3 and 4: OECD Labor Force Statistics 2015. Part-time employment is defined as people in employment (employees and self-employed) who usually work less than 30 hours per week in their main job.

The trend-decline in hours worked per employee since the 1950’s (plot 1) captures two rather different episodes. While in the first decades after World War II it was driven by the reduction in the workweek and increases in paid vacation, especially since the 1990’s the increased part-time share (plot 4) is responsible for lower average hours worked; the large majority of these part-time jobs are performed by women (Tijdens 2002). At the same time, however, the hours of (male) full-time workers have increased in some countries, especially in the US (Prescott et al. 2004, Rogerson 2006). This suggests that while average hours have fallen, labor markets have become more segmented and the distribution of hours worked has become more unequal (Jacobs and Gerson 2005, Lee et al. 2007).

Part-time shares as defined in plot 4, the share of workers working below 30 hours per week, strongly underestimate the dispersion of hours across countries and time, since there is a lot of variation within the group of part-time workers, ranging from jobs with very low hours to almost full-time jobs, and a concentration of very long hours amongst the full-time workers. This emphasizes the importance of alternative measures of working time inequality and their relationship to average hours. Against this background, the cross-sectional analysis of working hour inequality – measured by Gini coefficients of annual hours worked – by Salverda and Checchi (2015) is of great interest. Using EU SILC data for 2010, we replicate their results for the EU, and additionally also differentiate by gender.

Figure 2: Average hours worked and inequality in hours worked in the EU



Source: Own calculations using EU SILC 2010. The Ginis were calculated using Stata’s ineqdeco package. Following Salverda and Checchi (2015) we restricted the sample to the population in the relevant working age (20-64 years old) and to the labor force (employed and unemployed by self-definition). Yearly hours worked were computed by multiplying the reported number of weekly hours worked (PL060 – numbers of hours usually worked per week in main job) with the months spent in the labor market (PL073-74-74-76-80 – number of months spent at full-time/part-time work as employee/self-employed/unemployed).

Figure 2 shows the relationship between hours inequality and average annual hours. We find a considerable variation in working hours inequality across European countries, ranging from 0.05 to 0.2 in plot 1 of figure 2 (for men and women combined). Average working hours are negatively correlated with hours inequality. This suggests that shorter average hours are not driven by overall trends to work less, but instead an increasingly heterogeneous workforce. This finding is demonstrated more explicitly in plots 2 and 3, which show the same relationship for men and women separately. We find a positive relationship between hours inequality and average hours worked across countries for men, and a negative even steeper

relationship for women. This suggests that working hours inequality for males is driven by some men working very long hours. For women, however, a high working time Gini is driven by some women working very few hours. Overall, analyzing the relationship between average hours and hours inequality for both genders combined might result in misleading conclusions, given that low average hours across countries are caused by different developments for men and women.

3. What explains hours worked?

The popularity of working time reductions for both employers and employees has varied strongly throughout history. To understand these fluctuations, it is important to investigate the drivers of changes in both annual hours worked as well as the distribution of working time within the labor force. This section gives an overview of different theoretical explanations of working time, starting with the standard theory of labor markets and its limits, and extending it with a Keynesian analysis of labor demand, and a behavioral analysis of labor supply. The latter two have only been brought together recently in the literature on the structural causes of the Great Recession and the role of rising income inequality (for a review see Van Treeck 2014).

3.1. Neoclassical labor market theory

In neoclassical labor market theory, labor supply is determined by wages and non-wage income; individuals derive utility from the consumption of goods and leisure and face a labor-leisure trade-off. Increases in wages lead to both an income and a substitution effect; increases in non-wage income, such as unemployment benefits and other social transfers have an unambiguously negative effect on labor supply. In this framework, cross-country differences in hours worked – such as the diverging trends in working hours of full-time workers observed between the U.S. and several European countries since the 1970s – are largely explained by differences in tax rates (Davis et al. 2004, Prescott et al. 2004), labor market institutions, labor unions and household preferences (Alesina et al. 2005), or technology (Rogerson 2006).

In the neoclassical theory of the labor market, labor supply and demand generally adapt, except when market imperfections – such as labor market institutions or labor unions –

increase wages above the market-clearing level or reduce the incentive to work at the market clearing wage, in which case unemployment is possible (Friedman 1968, Johnson et al. 1986, Nickell et al. 2005, Siebert 1997). The origins of the problem is not insufficient labor demand, though, but the unwillingness of workers to work for a given wage, thus unemployment is voluntary. Moreover, since this theory relies on the representative household in its micro-foundation of households' labor supply decisions, inequality in working hours cannot be investigated systematically.

3.2. Keynesian theory of labor demand

In the Keynesian theory of the labor market, labor demand, which is driven by (expected) effective demand, plays the crucial role. The fact that effective demand can be at a level below the full-employment equilibrium makes involuntary unemployment possible (Keynes 1936, Rowthorn 1995, Stockhammer 2011). Monetary and fiscal policy can increase employment through stimulating aggregate demand and economic growth (Ball 1999, Ball et al. 2013b, Eggertsson and Krugman 2012, Reifschneider et al. 2013, Stockhammer and Sturn 2012, Sturn 2014). Note, however, that the demand constrained variable is aggregate employment, and not the employment rate; the latter also depends on the distribution of working hours within the labor force. This raises the importance of work-sharing under a low-growth scenario.

While the Keynesian literature has emphasized the importance of aggregate demand in explaining changes in the labor market, including changes in average hours, it has not paid much attention to individual labor supply decisions and thus the distribution of hours.

3.3 Behavioral theories of labor supply

Behavioral economists criticize the neoclassical labor market theory for ignoring non-material considerations of individual labor supply and for neglecting positional considerations and peer effects, both of which are important for explaining trends in employment, average hours and the distribution of hours.³

³ For a review and criticism of the theory of 'voluntary unemployment' from a behavioral economics perspective, see also Frey and Stutzer (2002).

A wide range of behavioral studies document the importance of non-material factors for overall well-being and happiness (for an overview see Frey and Stutzer 2002 and Easterlin 1974). Non-material factors – such as appreciation and recognition in the work-place – have also been found to play an important role for labor supply decisions (Ellingsen and Johannesson 2007) and unemployment has been found to reduce happiness and well-being (Clark and Oswald 1994, Knabe et al. 2010, Krueger and Mueller 2012, McKee-Ryan et al. 2005). As pointed out by Clark and Oswald (1994), though, the magnitude of the adverse effect of unemployment on happiness depends on the social context: Workers in areas with higher levels of unemployment, and workers in social groups where unemployment is more acceptable (such as the youth) experience less declines in happiness. In a follow-up study Clark (2003) also finds that the well-being of unemployed is strongly correlated with the level of unemployment in regions and households. Related to this, Topa (2001) finds that the duration of unemployment depends on neighborhood characteristics. This links non-material factors of labor supply to positional considerations and peer-effects.

There exists wide evidence that labor supply decisions are dependent on the social and economic context. In recent years, labor supply decisions have especially been discussed in the context of rising income and wealth inequality. Inequality increases the social distance in society, which has been found to be adversely related to happiness and well-being, since people care more for their relative incomes – compared to a peer group – than the absolute income (Duesenberry 1949, Clark and Oswald 1996). At the firm level, inequality in wage raises among peers has been found to strongly increase quits among those with lower raises (Dube et al. 2015), and access to information on the relative position in the earnings distribution has been found to reduce job satisfaction and increase the willingness to search for a new job, especially for workers paid below the median wage of the organizational unit and occupation (Card et al. 2012). An general increasing concentration of top incomes in the society, as it could be observed over the last decades in many industrialized countries (Atkinson et al. 2011, Piketty 2014) has been found to increase conspicuous consumption of the top incomes with behavioral spill-over effects to lower income groups, leading to consumption emulation by the less affluent (Bertrand and Morse 2013, Veblen 1899). Since income growth of lower income households stagnated or declined, these households extended their labor supply (and reduced savings, and increased debt) in an attempt to “keep up with the Joneses” (Reich 2010, van Treeck 2014). This can partly explain the relationship between income inequality and labor supply across countries and over time (Bowles and Park 2005, Oh et al. 2012).

However conspicuous consumption is not the only positional effect on labor supply. Collewet et al. (2015) distinguish between conspicuous consumption, conspicuous work, and conspicuous leisure, whereby the first two lead to an increase in labor supply through peer-effects, whereas the latter leads to an increase in leisure. In the case of conspicuous consumption, rising labor supply is a “coping-mechanism” (Reich 2010) to increase consumption. Conspicuous work and leisure lead to imitative behavior and therefore convergence in labor supply and effort, for which Clark and Oswald (1998), Vendrik (1998) and Collewet et al. (2015) provide theoretical and empirical evidence. While it is possible, and in fact likely, that all three effects – conspicuous consumption, work, and leisure – are present at the same time, Frank (2008) suggests that especially in the US, where labor supply increased strongly, conspicuous leisure played a minor role. Therefore positional considerations and peer-effects have led to the desire to work longer hours; however only some workers were successful in extending their labor supply, while the incomes and hours of others lagged behind.

4. The consequences of unequal hours worked

In an economy operating below the full-employment equilibrium, longer working hours of some will *ceteris paribus* reduce the employment opportunities of others. Moreover, if longer working hours are viewed as a positional externality where workers increasingly compete over longer hours beyond their initially desired levels (Neumark and Postlewaite 1998, Bowles and Park 2005, Goerke and Hillesheim 2013), public policy aimed at reducing this externality could be welfare-enhancing (Frank 2005, Frank 2008). This is even more the case if longer working hours also have negative environmental and health effects. Knight et al. (2013) suggest negative environmental effects of longer working hours in OECD countries across time, however the scale effect of work hours (volume of production and consumption) was found to be much larger than the compositional effect (spending income or time budgets).

Longer working hours have also been associated with adverse health effects and increased injuries from work accidents (Caruso 2006, Pencavel 2014). Moreover, a mismatch between the actual and preferred hours has been found to reduce life satisfaction (Wooden et al. 2009), and self-perceived health (Bell, et al. 2012). While life satisfaction is reduced if the mismatch results in over- and underemployment, the adverse health effect is especially strong for those working longer hours than desired.

Unequal working hours also translate into unequal hourly wages. Bell and Freeman (2001) argue that individual longer working hours lead to job promotions and reduce the likelihood of job loss in recessions. Inversely, shorter working hours are often associated with lower hourly earnings as emphasized especially by the feminist economics literature on the ‘part time wage penalty’ (Bardasi and Gornick 2008, McGinnity and McManus 2007). In addition, the feminist economics literature emphasizes the adverse effects of an unequal distribution of paid employment on gender equality in the division of household tasks (Rubery et al. 1998, Sirianni et al. 2000).

The negative effects of long and unequal working hours on the environment, health, happiness, well-being, earnings, and gender equality, make a strong case for re-distributing hours more equally through work-sharing policies. Whether work-sharing works, however, is subject to controversy.

5. Has work-sharing worked? Empirical evidence from history

The perception of work-sharing among economists, and in the public discourse, is ambivalent. The standard argument put forward by critics is that the hiring of additional workers in response to work-sharing reforms is associated with administrative and other fixed costs of employment, which will increase costs per unit of output, reduce productivity, and ultimately even reduce employment (Hunt 1999). Moreover, the higher marginal costs of labor will lead to a substitution from labor to capital and thus even lower employment (Hunt and Katz 1998). In this framework, the negative employment effect is even stronger, if the work time reduction is associated with an increase in hourly earnings (Hunt 1999). Another argument that could limit the success of work-sharing is that differences in skills between the employed and unemployed could constrain the hiring of new workers in response to shorter working hours (Freeman 1998). This suggests that the success of work-sharing depends on the overall economic environment, i.e. the tightness of the labor market, and education of the (underutilized) labor force. The most skeptical argument against work-sharing has been known as the “lump-of-output fallacy”. Pointing to the negative relationship between unemployment and inflation, this argument suggests that to the extent that unemployment will be reduced by work-sharing initially, this will lead to an increased wage-bargaining power of workers and subsequently to wage inflation, which will have to be addressed by tight

economic policy to increase unemployment and restore the balance in wage-bargaining power (Layard et al. 1991).

Closer inspection of theoretical studies shows that the employment effects of work-sharing depend on specific assumptions. For example, in the frequently cited theoretical model by Calmfors and Hoel (1988) the employment effect of a working time reduction critically depends on whether the overtime premium is constant or progressive; negative employment effects are only found with a constant premium. Dominguez et al. (2011) show that the macroeconomic effects of work-sharing depend on the extent to which reduced working hours are accompanied by productivity increases from shorter work days that offset the adjustment costs. Marimon and Zilibotti (2000) argue that the employment effects of work time reductions depend on the labor market institutions of a country and that moderate and gradual working time reductions are more likely to increase employment than strong cuts in hours.

Empirically, the employment effects of work-sharing seem to depend strongly on the institutional setting (Bosch and Lehndorff 2001, Freeman 1998, Kapteyn et al. 2004). The following section will review the empirical literature on work-sharing since the 1930s, and discuss which institutional backgrounds led to its success or failure.

5.1 Work-Sharing during the Great Depression in the U.S.

While work-sharing is mostly associated with labor market policy debates in the 1980s or short-time work policies in the recent Great Recession in Europe, its first prominent application goes back to the Great Depression and the New Deal Era in the United States. Historically, weekly working hours in the manufacturing sector in the United States have declined steadily from 70 hours in 1830 to 55 hours in 1890 and 48 hours in 1929.⁴ In the following Great Depression and New Deal, working hours further decreased to 34 hours within only 5 years (Whaples 1991, 2001). The reduction of weekly working hours was strongly supported by both the Hoover and the Roosevelt administrations. Using the slogan ‘Job Security by Job Sharing’, president Hoover’s ‘share-the-work’ committee encouraged industrial leaders to reduce working hours instead of employment. Shortly after the beginning

⁴ Historical working time data for the US are most reliable for the manufacturing sector, collected by the Census of Manufacturers. Compared to mining and construction, manufacturing workers had the longest average hours; comparisons with the agricultural sector are difficult due to data limitations (Whaples 2001).

of his presidency, Roosevelt implemented the ‘President’s Reemployment Act’ in 1933, under which firms were encouraged to sign an agreement consisting of (1) limiting the work-week to 35 hours maximum, (2) raising hourly minimum wages, while not reducing any wages of workers earning higher wages, and (3) recognizing workers’ rights to collective bargaining (Taylor 2011). While the program was voluntary, compliance of both firms and consumers was strongly advertised by the Roosevelt administration. Complying firms were listed at the local post offices, and were rewarded with permission to use the ‘Blue Eagle’ in their company logos and advertisements, while consumers were encouraged to support products of participating firms in a ‘Statement of Cooperation’ (Neumann et al. 2013). Firms’ compliance to both Hoovers ‘share-the-work’ committee guidelines, as well as Roosevelt’s ‘President’s Reemployment Act’ was very high. Already in early 1933 a survey conducted by the Commerce Department found that 80 percent of employers had implemented some form of work-sharing, while one fourth of jobs were owed to this policy (Bernstein 2010, p.479).

The employment effects of work-sharing in the Great Depression are widely acknowledged. The fall in industrial production in the Great Depression strongly reduced aggregate employment; however “variations in the work week contributed nearly as much as did changes in employment to the overall variance in labor input during this period” (Bernanke 1986, p. 82; see also Bernanke and Powell 1984, and Neumann et al. 2013). Or to put it differently, without the reduction in working hours, *ceteris paribus*, unemployment would have increased much more.

While there seems to be an almost consensus view that work-sharing was essential for the economic recovery in the 1930s in the US, there are many divergent criticisms of its implementation. On the one hand, standard economic approaches criticize that the hourly wage increases that accompanied the working time reductions offset part of the employment benefit. For example Taylor (2011) estimates that the employment effects would have been twice as strong if they had not been accompanied by such strong hourly wage increases. On the other hand, labor historians criticize that Roosevelt’s ‘President’s Reemployment Act’ did not promote a sustainable working time reduction, but just implemented work-sharing as a short-term measure in the crisis. In the early 1930s, the movement for shorter working hours was so strong that the 30-hours work-week was discussed as a serious policy option in U.S. Congress. After his election, but before taking over office, Roosevelt supported the ‘Black-Connery 30-Hours Bill’ to reduce working hours to thirty hours, and to limit the import of goods produced by workers with longer working hours; the bill was even passed in Senate in

April 1933. However, after becoming president, Roosevelt stopped to support the bill, and presented the ‘President’s Reemployment Act’ as an alternative (Whaples 1991). In the economic recovery after the end of the depression, average weekly work hours slowly increased from their low in 1934, and with Roosevelt’s Reemployment Act “the momentum toward the thirty-hour week had dissipated” (Whaples 1991). Eighty years later, the thirty-hour work-week in the U.S. sounds like an utopia.

5.2 Work-Sharing in the 1980s-2000s

Average hours per worker slowly but gradually declined in the prosperous post-war era, which was characterized by strong productivity growth, rising real wages and (almost) full-employment in many industrialized countries. In the 1970s this so called ‘Golden Age of Capitalism’ came to a sudden end, triggered by the collapse of the Bretton Woods system, the oil crisis, as well as a stock market crash (Bowles et al. 1983, Glyn 2006, Marglin and Schor 1992). Struck by rising unemployment as a consequence of the economic slowdown (Stockhammer 2004), in the 1980s several European countries started implementing work-sharing policies (for an overview, see Bosch and Lehndorff 2001).

In the mid-1980s, labor unions in West Germany started negotiating reductions in weekly working hours at the industry level. The first two industries were the metal and the printing sector, where weekly hours were gradually reduced from 40 to 36 hours between 1984 and 1994; in exchange employers were guaranteed higher flexibility in hours as well as flexibility in the distribution of hours between workers (only the average working hours had to average to the agreed weekly hours Hunt 1999). The economic and public perception of this work-sharing policy is ambivalent; but even the most critical prominent study by Hunt (1999) does not provide convincing, robust empirical evidence for negative employment effects. Using data from the German Socio-Economic Panel from 1984 to 1994 and exploring industry-level variation in work hour reductions, Hunt (1999) analyzes the consequences of work-sharing in three steps. First, she compares the development of actual hours and standard hours to examine the effect of a reduction in the work-week on the extent of overtime work. She finds that for blue-collar full-time workers in manufacturing, standard hours fell almost concomitantly with actual hours, indicating that overtime work did not offset the reduction in working hours. In a second step, she analyzes the development of hourly wages after working time reductions and finds that the increases were generally high enough to offset the reduction

in earnings due to lower hours, so the unions' goal of full wage compensation was met. Finally, she investigates the employment effects and finds almost no statistically significant effects. This stands in contrast to her theoretical predictions of especially strong negative employment effects when working time reductions are associated with hourly wage increases (Hunt 1999).⁵

In France, President Mitterrand increased the minimum wage after his election in 1981, and soon after passed a working time reduction from 40 to 39 hours, while only slightly adapting overtime pay legislation. Whereas minimum wage workers who were employed during the working time reduction were additionally guaranteed full wage compensation, newly hired minimum wage workers received less than full wage compensation and were thus relatively cheaper to hire for companies. Using data from the French Labor Force Surveys from 1977-1987, Crépon and Kramarz (2002) conduct a difference-in-difference analysis for the immediate and medium-term employment effects of this working time reform, comparing workers directly affected by the reform to workers not-affected because they already worked 36-39 hours a week before. They generally find that workers affected by the reform were more likely to be fired than those not affected, both immediately and over the following years; however many of their estimates are not statistically significant, which can partly be explained by the small control group (of observationally identical workers not affected by the reform). While – based on these imprecise estimates – Crépon and Kramarz (2002) conclude that the reform generated a “two tiered-wage system ... that induced firms to both hire and fire”, they provide no convincing evidence for overall negative employment effects. Moreover, they acknowledge the difficult economic situation France was facing in the early 1980s, compared to other European countries. Against that background, they can provide no credible counterfactual estimates of overall employment trends in absence of the working time reform.

The most well-known and substantial European work-sharing reform was implemented in France in 2000. After a voluntary incentive-based working time reduction in 1996, in 1998 an act was passed to reduce the standard weekly hours from 39 to 35. The act became effective for most firms in 2000, and for small firms in 2002, and provided incentives to firms for faster implementation (Logeay and Schreiber 2006). Moreover, a follow-up act was passed to

⁵ Based on Hunt's (1999) empirical findings, the narrative could also be: Work-sharing was successful in actually reducing hours (that were not compensated by an increase in overtime as sometimes argued); it increased hourly wages; and it had no short-term or medium-term negative employment effects.

increase flexibility in working hours for the transition period and to temporarily reduce the overtime premium. Firms were also granted subsidies in social security contributions. The large majority of workers initially received a full wage compensation, however around half of all workers had to accept stagnating or only moderately growing wages in the following years (Logeay and Schreiber 2006). Using aggregate time-series data for France, Logeay and Schreiber (2006) estimate a vector error correction model to generate out-of-sample forecasts for labor market variables, inflation, and output for 2000-2001 and compare them to the realized values. They find that the policy mix – the work time reduction, in combination with social security subsidies, and initial wage compensation – had beneficial employment effects, that remain significant when accounting for forecasting uncertainty. Other variables, such as output, productivity, or hourly labor costs, by contrast, were only affected temporarily. They conclude that this specific work-time reform was a success (Logeay and Schreiber 2006). The positive employment and overall effects of the French work-sharing reform are also suggested in more descriptive studies (Askenazy 2013, Hayden 2006, Pisani-Ferry 2003).

The Canadian province of Quebec reduced hours from 44 to 40 between 1997-2000 for around 30% of Quebec workers (paid on an hourly basis and not covered by a union contract). In contrast to the European work-sharing reforms, this policy was not accompanied by any form of wage-compensation. To evaluate its effects on actual hours, employment, and wages, Skuterud (2007) conducts a triple-difference analysis comparing hourly paid non-unionized workers in Quebec, with observationally identical workers in Ontario, and with salaried workers in Quebec. They use data from the Canadian Labour Force Survey from 1996-2002, and analyze effects of the reform on hours worked, employment, and wages. While they find that hours worked were reduced by around 15-25% in the treatment group (which suggests that the reduction was not offset by an increase in overtime work), they find no overall employment effects from the policy. If anything, employment effects were slightly negative for men, and slightly positive for women. They also find very small to zero wage effects on the policy; which is consistent with the policy's design of not including any form of wage-compensation. While the authors conclude that this provides credible evidence of the limits of work-sharing to increase employment – even in the absence of wage increases, such as in Europe, it is important to remember that the policy only includes 30% of workers, so there could be some spill-overs from hourly workers to salaried workers – a concern also mentioned by the authors. Moreover, their analysis only includes the immediate employment effects of the reform, while the medium to long-run effects could be substantially different.

5.3. Work-Sharing in the Great Recession

The strong drop in output in 2008 – that marked the beginning of the Great Recession – led to a re-emergence of work-sharing as a labor market policy tool in many European countries (Messenger et al. 2013). While in some countries existing short-time work arrangements were reformed by extending coverage, duration, and compensation, other countries introduced new programs in the recession (for an overview of the programs in the EU see Arpaia et al. 2010, as well as Boeri and Bruecker 2011).

In general, these short-time work arrangements were designed as follows: Companies hit by the recession got incentives to temporarily reduce working hours of the existing employees, rather than fire a part of the work-force. In several countries (amongst them Austria, Belgium, Germany, France, Spain) participating employers were granted cuts in social security contributions. Employees were partially compensated for the loss in monthly earnings by government transfers, either paid out by the firm (such as in Austria, Germany, France and Italy) or by the unemployment insurance system (such as in Denmark, Spain, or the UK). In many countries, short-time work was linked to incentives to training for short-time workers, in some countries this was even compulsory. The duration of the program varied strongly, from two years in Spain or one year in Italy, to only six consecutive weeks in France. In some countries, such as Belgium, the initial duration was short, but could be renewed several times (Arpaia et al. 2010). Covering almost 5% of employees, the percentage of the labor force participating in short-time work arrangements was highest in Belgium, where already in the years before the crisis between 2-4 % were in such programs (Cahuc et al. 2011); followed by Germany with around 3% (Arpaia et al. 2010). While in some countries short-time work policies are still in place, others have reduced eligibility or duration in 2010 when the economies recovered.

An interesting country for analyzing the success of work-sharing to avoid job-losses is Germany, where output dropped stronger in the Great Recession than in the US or the average European country, while employment even slightly increased in the same period (Herzog-Stein et al. 2013). Whereas some authors highlight the crucial role of short-time work to explain this exceptionally stable development in the labor market (e.g. Boeri and Bruecker 2011, Brenke et al. 2013, Balleer et al. 2013), others stress that two newly implemented working time instruments, working time accounts and discretionary variations in regular working time are equally or more important (Möller 2010, Herzog-Stein et al. 2013). The first instrument allows to accumulate overtime-hours on a working time account, and to consume

it in a later point in time. The second instrument resembles a working time reduction negotiated at the firm level between employers and trade unions. Working time reductions are therefore a crucial cause of the stability of the German labor market in the Great Recession.

Despite high institutional variety, a unifying feature of the work-sharing policies implemented in the Great Recession is that they were designed specifically as short-run crisis measures – to preserve existing jobs in an economic downturn – and thus unlike the reforms of the 1980s they did not aim at reducing working time permanently. In the short-run, however, they successfully (partially) insulated labor markets from the Great Recession, illustrating the potential of work-sharing to keep employment high in an environment of low labor demand.

6. Conclusion

In this paper, we discuss the role of work-sharing for a sustainable economy. Work-sharing potentially allows for high employment in an environment of low growth, due to a long-lasting stagnation or environmental constraints to growth. A more equitable distribution of hours worked additionally might come with several positive side-effects, like increased happiness and health among those working too long or too short hours, or a narrowed gender wage gap. It might also tackle the widening wage and income inequality in recent decades. However, many behavioral studies show that income inequality leads to consumption emulation and fuels the willingness to work long hours. High income inequality consequently might be seen as an obstacle to build public support for work-sharing (e.g. Stiglitz 2008).

While work-sharing so far has not been implemented for environmental reasons, it has been frequently used as a policy tool to maintain or increase employment in recessions. A review of the empirical literature on work-sharing suggests that work-sharing was successful in the Great Depression in the U.S. and in the Great Recession in Germany, while the results for the work-sharing reforms of the 1980s in several European countries are more mixed. However, there exists little empirical evidence for negative employment effects of any work-sharing reform, whereas several studies point in the opposite direction. We thus conclude that work-sharing promises to mitigate one of the most pressing issues of our times: How to achieve low unemployment in an environment of low growth.

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