JOBLESS RECOVERIES AFTER FINANCIAL CRISES (AND THE KEY ROLE OF THE EXTENSIVE MARGIN OF EMPLOYMENT)

Françoise Delmez

UCLouvain

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Jobless recoveries after financial crises (and the key role of the extensive margin of employment)

Françoise Delmez[1]

University of Namur
Center for Research in Development, Finance and Public Policies (DeFiPP)
Rue Rempart de la Vierge 8, 5000 Namur, Belgium

francoise.delmez@unamur.be

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Abstract

Using an dynamic panel of 15 developed countries over the 1960-2010 period, this paper compares employment and hours recovery paths after financial vs. non-financial crises. We show that post financial crises recoveries display a stronger uplift of individual hours and a weaker one of the employment rate. The results are robust to controlling for the strength of the recovery in terms of GDP growth per capita, the depth of the preceeding recession, labour-market institutions differences potentially correlated with financial vs non-financial crises and for dynamic panel bias. In conclusion, we argue that considering both margins of employment, in particular the role of extended hours in coping with rising output, improves our understanding of financial crises as a source of jobless recoveries.

Keywords: *Financial crises, jobless recoveries, employment, working time.*

1 Introduction

Bad news regarding employment have received large and continuous media coverage ever since the recent recession episodes of 2008 and 2012. Reports of sluggish employment growth kept coming even when gross domestic product and other indicators, such as investments, displayed signs of recovery. This phenomenon where an economy GDP experiences growth while maintaining or decreasing its level of employment has been coined "jobless recovery" in the literature since it was first documented in the US the early 1990's. A jobless recovery is usually defined as a recovery displaying a slower growth of employment than would be predicted by historical data. Specifically, during jobless recoveries, the growth of the employment rate is delayed with respect to the growth of GDP, beyond the mere lag attributable to frictions on the labour market.

Economists still debate to determine whether (and why) recoveries in the US are more prone to joblessness than in the past (Graetz & Michaels, 2017). What motivates this paper is that there is international evidence of large variability in the paths of employment recovery after recession episodes. For example, Figure 1 presents the recovery path (growth rate since the trough) of the employment rate (share of people who declare holding a job among the 16-64 population) after each recession episode in the period from 1960 to 2010 for the US, Germany and Sweden. While some recoveries display a strong rebound of the employment rate, in other cases it keeps plummeting for many quarters after the GDP starts picking up. In this paper, the timing of the economic cycle always refers to the GDP growth rate per capita: peaks and troughs refer to the GDP such that the term "recovery" always refers to the period after the trough and before the next peak and the term "recession" refers to the period from after the peak until the through.

The determinants of the path of recovery of the employment rate have been studied by a broad literature in the past. In particular, the role of financial crises in determining the speed of recovery of employment relative to GDP has attracted a lot of attention. While some authors conclude that financial crises negatively impact the growth of employment, other reach the opposite conclusion. For instance, the direct dependance of employment on credit through the cost of opening a vacancy or the need for working capital is documented by Boustanifar (2014), Pagano & Pica (2012), Dromel *et al.* (2010), Wasmer & Weil (2004)). Amplification of labour market variations by agency costs on credit markets are documented by Petrosky-Nadeau (2014)) and the absence of collateral on employment is the cornerstone in Calvo *et al.*(2012). All these studies conclude to a negative impact of financial frictions on employment. On the opposite, Gali, Smets and Wouters (2007) conclude that financial crises do not cause total hours (the sum of individual hours) to grow significantly more slowly. They show that in the United States, total hours worked do not behave differently accross recoveries taking the usual control variables into account, especially output growth.
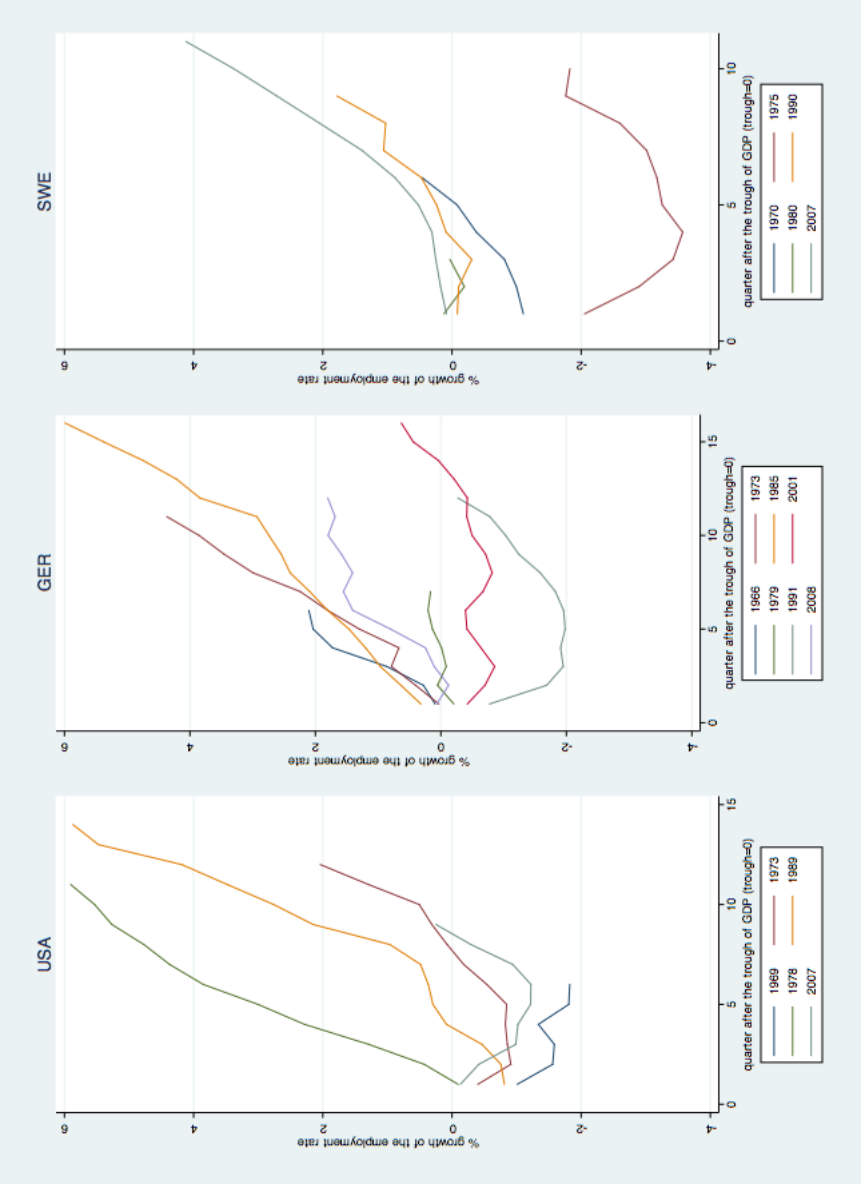
Figure 1: Joblessness in the data: growth rate of the employment rate in the quarters following a through, normalized to 0 at the through, for the USA, Germany and Sweden.

It can be noticed that all papers concluding that financial crises signfcantly impact employment use an extensive margin definition (jobs created), whereas Gali, Smets and Wouters, who obtain opposite conclusions, use the total number of hours worked. The contribution of this paper is to study both margins in parallel. The option taken in this research is to simultaneoulsy explore the employment rate and the individual hours of work. The database of Ohanian and Raffo is well suited to this approach, as it comprises two separately estimated series for the employment rate and for individual hours of work (total hours worked are also available in their dataset and are computed by combining both the employment rate and individual hours). Importantly, the measure of individual hours is based on surveys and therefore allows to capture unpaid overtime. We suspect that financial crises do not impact the extensive and in the intensive margin of labour in the same way. In particular, we expect recessions caused by financial crises to translate into a lower propensity of firms to recruit and an overall tendency to raise hours. For instance, looking at two recessions take in our dataset, we present in Figure 2 the recovery path of both the employment rate and individual hours for the USA in 1973 and Sweden in 1990. The relatively weak job recovery appears to be stronlgy compensated by a strong recovery in individual hours.

A careful disctinction between the behaviour of the employment rate of the labour force (extensive margin) and the behaviour of the individual hours of the workers (intensive margin) in a recovery generates two types of consequences. First, the existence of different types of recoveries has important welfare and policy implications for workers. Divergences in hours and employment across recoveries and across countries are likely to affect the distribution of income and as well as the activation of unemployment benefits and other social expenditure schemes. Second, empirically, this distinction creates room for a better understanding of the relation between output growth and labour inputs. Showing how hours diverge from employment helps solve the paradox of labour productivity differentials observed across recoveries. Previously, work by Petrosky-Nadeau (2013) and Berger (2012) pointed to productivity-enhancing restructuring during recoveries. Jobless recoveries, they point out, tend to display a higher level of productivity per worker. They argue that this is due to the less capable workers being fired, the less productive plants closing, or a higher productivity level needed to launch a new business. These mechanisms are able to explain (and link) the higher productivity and lower employment rate observed together in some jobless recoveries. We argue that besides those previously highlighted mechanisms, it could also be the case that more hours per worker, that can at least partially consist in unpaid overtime, raise the observed productivity per worker and at the same time generate joblessness, as more individual hours substitute in for hiring new workers. Evidences of a stronger individual effort during bad times have been measured at the firm level by Lazear *et al.* (2016). As our series on individual working time is based on surveys, we are confident that it will capture unpaid overtime that can be considered as effort put on by the worker to avoid loosing their job. Our measure of the intensive margin (individual hours of work) thus captures parlty worker-level productivity. We are also convinced that in the quarters following

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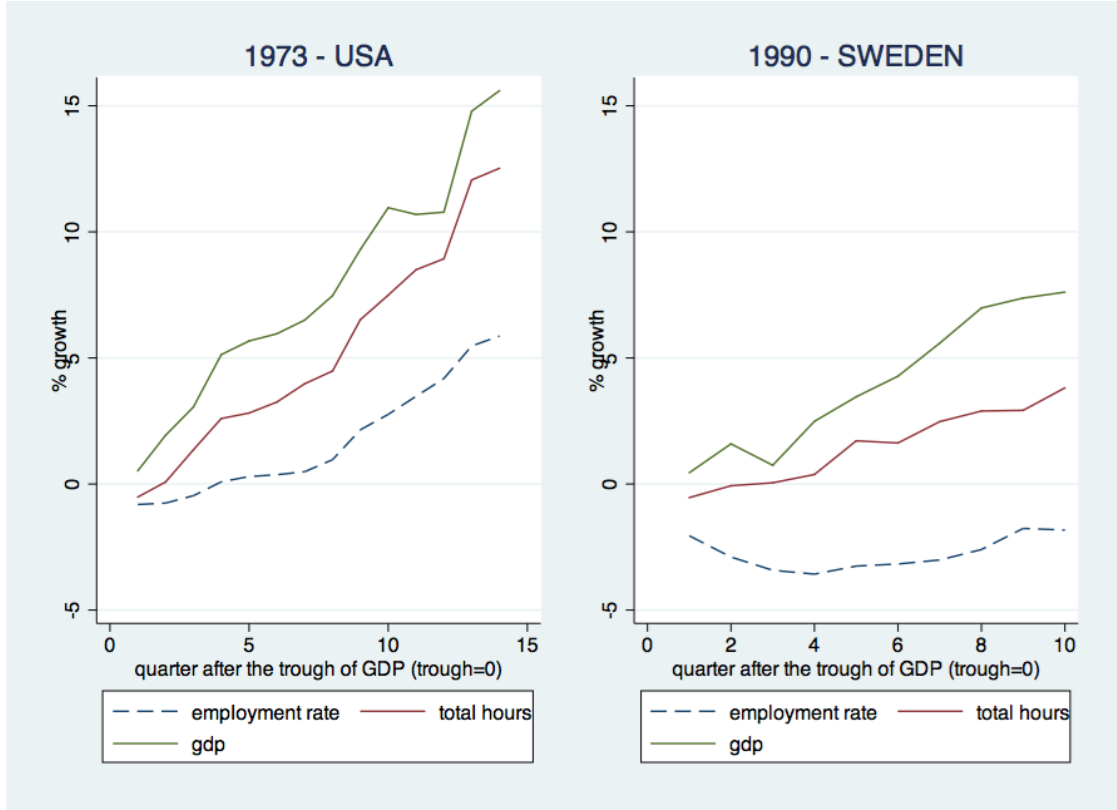
Figure 2: Joblessness in the data: growth rate of the employment rate and of individual hours of work in the quarters following the through, normalized to 0 at the through, for recession episodes in the USA-1973 and Sweden-1990.

the trough of GDP, high unemployment rates maintain the incentive needed for the extra effort. In fact, during recoveries that display high unemployment and low job creation, the incentives to put on extra effort to avoid loosing one's job, as in Lazear's story, are still very high.

This paper thus adresses the question of whether financial crises are a significant determinant of the recovery of the employment rate and in parallel whether they have a similar impact on individual hours of work. Let us therefore call recoveries following financial crises "jobless" if they display a weaker growth of the employment rate than recoveries following non-financial crises. Specifically, this paper uses the comparison between financial and non-financial crises to assess the hypothesis that financial constraints, during the early stages of a recovery may lead firms to favour longer hours over recruitment; and thus explain why financial crises are followed by jobless recoveries. Obviously, financial crises are different from non-financial crises regarding many other aspects than the employment rate and individual hours of work. We develop different strategies to control for all other aspects of the economy (length, size and other charac-

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teristics of the recession, timing, strength and other characteristics of the recovery and structural characteristics (labour market institutions, . . .) of the economy). We present what we believe is a new stylized fact regarding jobless recoveries and financial crises: while we confirm previous findings that financial crises tend to delay the rebound of the employment rate, we also find that individual hours of work tend to grow at a stronger pace following financial crises. This new stylized fact is based on all economic cycles observed in 15 developed countries from 1960 to 2010.

The paper is then organized as follows. Section 2 presents the dataset. It describes the length and size of GDP cycles, the employment and hours data of Ohanian and Raffo (2012), financial vs. non-financial crises (relying on the data and classification of Reinhart and Rogoff (2009) and of Laeven and Valencia (2012)) and other determinants of labour market outcomes. Section 3 explains the empirical strategy, a dynamic panel estimation that takes into account the timing of the events within the cycle. Section 4 presents the estimation results of the behaviours of employment rate and individual hours of work during 140 episodes of economic recovery experienced by 15 advanced economies between 1960 and 2010. Section 5 concludes.

2   Data

Cycles and GDP   The evidence presented in this paper is based on quarterly time series for 15 countries[1] over 50 years (1960 to 2010) leading to a total of 2462 observations (the dataset is mainly restricted by the availability of harmonized hours of work series) constituting 140 distinct cycles. Each cycle is made of a recession (or contraction) and of a recovery period that will form the focal point of this paper. For simplicity of exposure, we always refer to the period between peak and through as "the recession", even when the GDP growth rate only slows down and generates a mere "contraction" instead of a true "recession". Among the 140 cycles, 63 display a true recession (GDP (per capita) decreases from peak to trough) and 77 display a contraction (GDP (per capita) grows at a slower rate). Summary statistics on cycles are given in Tables 1 and 2 where the recession's length counts the number of quarters from peak to trough and the recession's depth measures the growth rate of GDP from peak to trough. Peaks and throughs dates are extracted from the cycle dating series of the OECD.

Employment and hours   The employment rate measures the share of employed people (headcount of people reporting having worked during the quarter) among the population aged 16 to 64. As mentioned, the dataset uses the quarterly hours worked per worker series from the Ohanian and Raffo database. The hours worked series is composed of the number of hours worked by individual worker as reported in surveys and harmonized over time and countries for the period 1960-2010. It takes into account the

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[1] Australia, Austria, Canada, Finland, France, Germany, Ireland, Italy, Japan, Korea, Norway, Spain, Sweden, UK and USA

	mean	sd	min	max
Annual individual hours worked	1,876	290.5	1,314	2,845
Employment rate	63.53	15.33	55.6	83.11
GDP per capita peak to trough growth rate (recession size)	0.469	4.761	-14.54	23.01
Number of quarter from peak to trough (recession length)	7.828	3.905	2	19

Table 1: Descriptive statistics over all observations.

	1960's	1970's	1980's	1990's	2000-2005's	2006-2010's
Average recession depth	6%	1%	0.9%	0.6%	2,3%	-3%

Table 2: Average recession depth (peak to trough growth rate of
GDP per capita) over time

number of days that are not worked (offical holidays, ...). The level of hours worked
individually varies over time with a decreasing long-term trend but it especially varies
a lot across countries, from an all-period average around 1500 annual hours in Nor-
way and Sweden to above 2200 in Ireland, Japan and Korea. The rest of the data are
standard country time series extracted from the OECD database and Bassanini & Duval
database on labour market institutions as well as labour market characteristics data from
the ICTWSS[2] that ranks countries each year on a scale from 1 (no wage coordination)
to 5 (fully centralized wage-setting). All levels of wage coordination are well represented
in the database as can be seen in Table 3. This measure of wage coordination will be
our preferred control measure for labour market institutions. To our knowledge, other,
more often used, measures of labour market institutions do not cover the whole period
of interest in this paper[3] or do not vary overtime within some countries[4].

Wage coordination:	level 1	level 2	level 3	level 4	level 5
Share of all observations	17%	12%	22%	30%	20%

Table 3: Distribution observations regarding wage coordination

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[2]database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and
Social Pacts, 1960-2011

[3]For example the employment protection indicator (EPI) of the OECD starts in 1980/

[4]For example the strength of wage coordination from the ICTWSS does not vary overtime in some
countries of our sample

Financial crises They play a key role in our research. We use the fact that the observed recovery episode follows a financial crisis to infer the presence of financial restrictions affecting firms' men-hours tradeoff. We rely on the identification of financial crises made by Reinhart and Rogoff (2009) who identify 29 financial crises in our sample and define a financial crisis as:

> "Bank runs that lead to the closure, merging, or takeover by the pulic sector of one or more financial institutions; and if there are no runs, the closure, merging, takeover or large-scale governement assistance of an important financial institution (or group of institutions), that mark the start of a string of similar outcomes for other financial institutions." (Reinhart & Rogoff (2009))

As a robustness check, we will use the alternative definition of financial crises by Laeven and Valencia (2012) who define financial crises as follows: *"A banking crisis is defined as systemic if two conditions are met: 1) Significant signs of financial distress in the banking system (as indicated by significant bank runs, losses in the banking system, and/or bank liquidations) 2) Significant banking policy intervention measures in response to significant losses in the banking system"*. The main difference with the definition by Reinhart and Rogoff is the necessary public intervention. As expected following many previous studies, the average output fall (measured as the sum of quarterly growth rate of GDP per capita from peak to trough) is much higher in financial crises (-4,6%) than in non financial crises (-2,56%). The length of crises (number of quarters from peak to trough) is not very different in financial crises and non-financial crises (6,15 versus 6,33 quarters). Also, financial recessions display significantly larger decline in the employment rate (in coherence with Calvo *et al*'s (2012) results regarding the unemployment rate)[5]. However, the presence of a financial crisis during the recession makes no strong difference for hours worked. More precisely, hours worked per worker are globally not strongly affected during recessions, even though this apparent absence of variation is an average and could hide large differences between jobs or sectors, with some workers reducing their paid hours and other working unpaid overtime for example. The dataset available does not allow to identify heterogeneity among workers.

Figure 3 shows the average recovery path, with and without financial crisis, of both the employment rate and the number of hours worked per worker over the years following a trough (in $t = 0$, all cumulative growth rate are thus equal to zero). The graphs correpond to an average, over all countries and cycles, of the recovery paths presented in Figure 1 and 2. The detailed computation methodology is presented in the next section. It clearly appears in Figure 3 that in the presence of a financial crisis, the employment rate is recovering more weakly and the opposite is true for hours worked per worker.

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[5]Calvo *et al.*, and other studies, often look at the unemployment rate. We prefer employment to unemployment measures because it carries more information, especially in the cases where discouraged job-seekers drop from unemployment statistics or when students defer their entry on the labour market waiting for more favourable conditions.

The objective of the paper is to assess econometrically the magnitude and the statistical significativity of the difference on display on Figure 3.
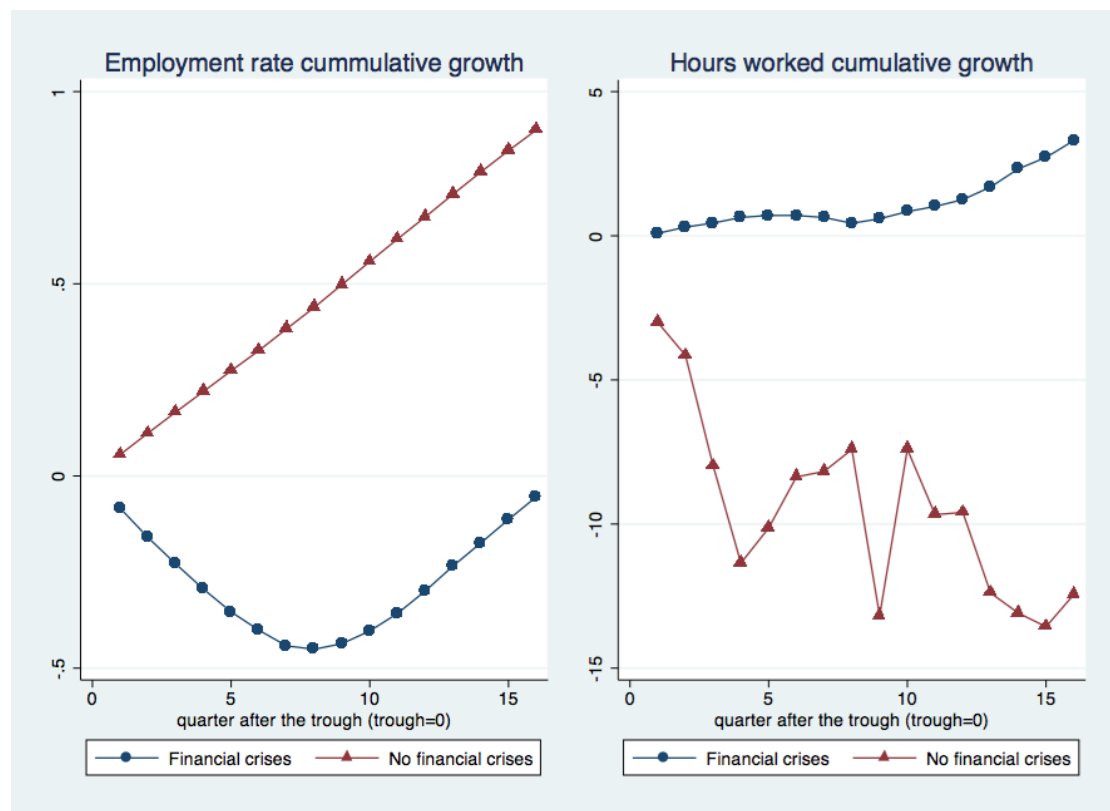
Figure 3: Average cumulative growth of employment rate and hours worked growth following the trough.

3 Empirical strategy

The objective is to determine, using non-financial crises as a reference, whether financial crises significantly affects the growth rate of the employment rate (and/or the growth rate of individual hours) during the recovery, that is to say in the period directly following a trough. At this point, it should be noted that three different time dimensions interfere with each other. First, an observation in our country-level panel data correspond to a country (c) and a quarter (t). For example, $t = 1980 - 1$ means that the observation was made during the first quarter of the year 1980. This first time dimension is thus an absolute one. The second time dimension, r, is relative: each observation belongs to one, and only one, cycle and we can measure the number of quarters, r, elapsed since the trough. For example, an observation that lies two quarters before the trough (during

the recession phase thus) will have $r = -2$ and an observation lying 4 quarters after the trough will have $r = 4$. Each observation is thus associated to a unique value pair of values t and r. Finally, the third dimension (q) is the horizon over which the growth rate is computed. For example, it is possible to compute the growth rate of the employment rate over one quarter, generating the quarter-on-quarter growth rate. It is also possible to compute the growth rate over, for example, four quarters, which yields the year-on-year growth rate. For each unique observation, measured in t and located r quarters after the trough, we compute the cumulative growth since $t - q$. We do so over 16 different time horizons q, generating 16 new variables. For one of these we have the specific case where $r = q$, for example if an observation t is located 5 quarters after the trough ($r = 5$), then when $q = 5$, we compute precisely the cumulative growth rate since the trough. For the needs of the estimation of the model, we build a (dummy) variable Q that relates the horizon over which the growth rate is computed to the number of quarters elapsed since the trough. Formally, $Q_t^q = 0$ if $r \neq q$, $Q_t^q = 1$ if $r = q$; $q = 1, \ldots .16$.

The first step is thus to compute the cumulative growth rate of the variable of interest for horizons q, ranging from 1 to 16 quarters, for our two variables of interest, the employment rate and individual hours worked, denoted E and H. Ignoring the country dimension, the cumulative growth rate of the employment rate over the last q quarters at any time t is then given by $\Delta E_{t,q} = \frac{E_t - E_{t-q}}{E_{t-q}}$. Similarly, the cumulative growth rate of individual hours over the last q quarters at any time t is given by $\Delta H_{t,q} = \frac{H_t - H_{t-q}}{H_{t-q}}$. We compute these variables $\Delta E_{t,q}$ and $\Delta H_{t,q}$ for q going from 1 to 16, for all t (quarters from 1960 tp 2010).

We then apply a methodology borrowed from local projection methods (Jordà, 2005). The objective is to have a separate regression for each time horizon (q) over which we compute the growth rate. Local projections represent an now well-established alternative to VARs in empirical macroeconomic research. One of their great strengths is that they can be estimated by simple regression techniques and, what is more, that they impose almost no restrictions on the data due to a very flexible specification that consists of a series of dummies. We can then easily allow financial crises to have a different impact at different points in the recovery. The advantage of local projections over VARs is best understood by reading the words of Jordà:

> "The central idea consists in estimating local projections at each period of interest rather than extrapolating into increasingly distant horizons from a given model, as it is done with vector autoregressions (VAR)". (Jordà, 2005)[6]

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[6]The equivalence between Local Projects (LP) and VARs is presented by Plagborg-Moller and Wolf (2019). In the case of infinite lags, any VAR can be re-written as a LP by using the appropriate control variables and any LP model can be written in the form of a VAR with the appropriate variable ordering. In cases whitout infinite lags, no method is proved to dominate the other under all circumstances and the choice of method amounts to a bias/variance arbitrage.

The consequence of using local projections instead of a single VAR is that we will have as many regressions as the number of horizons considered (horizons q over which we compute the growth rate of the employment rate and of the indvidual hours of work). In each regression, q is fixed to a value comprised between 1 and 16. The estimated models are the following, for the employment rate first, for $\{q = 1, 2, ...16\}$:

$$\frac{E_{t,c} - E_{t-q,c}}{E_{t-q,c}} = \Delta E_{t,q,c} = \lambda_A^q (\textit{financial crisis dummy})_{t,c} \quad (A)$$
$$+ \lambda_B^q (\textit{dummy } Q_{t,c}^q \textit{ equal to 1 if q=r})_{t,c} \quad (B)$$
$$+ \lambda_{AB}^q [(A) * (B)]$$
$$+ \lambda_C^q E_{t-q,c}$$
$$+ \lambda_D^q (\textit{GDP growth over the last q quarters})_{t-2,c}$$
$$+ \lambda_E^q (\textit{level of wage coordination})_{t,c}$$
$$+ \lambda_{F-J}^q (\textit{dummies: 1960, 1970, 1980, 1990, 2000, 2006})_{t,c}$$
$$+ constant^q$$
$$+ u_c^q (\text{country fixed effect}) + \epsilon_{c,t}^q \quad (1)$$

And then similarly for individual hours of work, for $\{q = 1, 2, ...16\}$:

$$\frac{H_{t,c} - H_{t-q,c}}{H_{t-q,c}} = \Delta H_{t,q,c} = \mu_A^q (\textit{financial crisis dummy})_{t,c} \quad (A)$$
$$+ \mu_B^q (\textit{dummy } Q_{t,c}^q = 1 \textit{ if q=r})_{t,c} \quad (B)$$
$$+ \mu_{AB}^q [(A) * (B)]$$
$$+ \mu_C^q H_{t-q,c}$$
$$+ \mu_D^q (\textit{GDP growth over the last q quarters})_{t-2,c}$$
$$+ \mu_E^q (\textit{level of wage coordination})_{t,c}$$
$$+ \mu_{F-J}^q (\textit{dummies: 1960, 1970, 1980, 1990, 2000, 2006})_{t,c}$$
$$+ constant^q$$
$$+ u_c^q (\text{country fixed effect}) + \epsilon_{c,t}^q \quad (2)$$

Note that, in what follows, the above equations are estimated using only recovery quarters. Coefficients λ_A^q and μ_A^q measure the average outcome difference between financial vs non-financial crisis at any time of the recovery[7]. In fact, the dummy $(\textit{financial crisis})_{t,c}$ accounts for the presence of a financial crisis during the observed cycle. This financial

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[7]except the quarter that is exactly q quarters after the trough

crisis variable refers to the definition made by Reinhart and Rogoff and is equal to one if at least one quarter during the cycle is reported as a financial crisis episode. Coefficients λ_B^q and μ_B^q measure how much, in the case of a non-financial crisis, being q quarters after the trough makes a difference in terms of employment/hours compare to the other quarters of the recovery. Precisely, $Q_{t,c}^q$ is equal to 1 when $q = r$, that is to say when the time horizon considered for computing the growth rate (ie the dependent variable), q, is equal to the time elapsed since the last trough, r. For example, in the regression where $q = 3$, the dummy ($Q_{t,c}^q$) is worth 1 for observations that lie exactly 3 quarters after the trough. In other words, observations associated to a value $r = 3$. Within each cycle, there is only one observation such that $q = r$. If we would only keep those observations for the regression analysis, the dummy (B) would always be equal to 1 and we would fall back to an event-study methodology. The results of running such an event study are presented as a robustness check in the appendix.[8] In such an event-study design, we loose many observations, reducing the precision of the estimates.

Coefficients λ_{AB}^q and μ_{AB}^q measure how much, in the case of a financial crisis, being q quarters after the trough makes a difference in terms of employment/hours compare to the other quarters of the (post-financial crisis) recovery. For example, in the regression where q is fixed to 4, the coefficients λ_{AB}^q and μ_{AB}^q measure the extent to which being 1 year after the trough makes a difference in terms of the degree of employment/hours recovery.

Our list of controls comprises: the base level of the dependent variable (with coefficients λ_C^q and μ_C^q), the growth of GDP over the same horizon (with coefficients λ_D^q and μ_D^q), the level of wage coordination (with coefficients λ_E^q and μ_E^q), the decade (dummy per 10-year period, with coefficient λ_F^q to λ_J^q and μ_F^q to μ_J^q) and a country fixed effect (u_c^q).

4 Results

4.1 Employment

Table 4 first line (λ_A^q), contains our estimates of the propensity of post-financial crises episodes to generate employment responses that deviate from those characterising standards recoveries. As exposed above, each column correspond to a different time horizon (of q quarters). We can see a very significant negative impact of the presence of a financial crisis during the cycle on the employment growth even after the growth of GDP, country fixed effects and the level of employment rate[9] are accounted for. In particular,

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[8]Figure 3 is based on this event study methodology where we only keep the observations such that $q = r$. In other words, to compute the average growth rate of employment (resp. hours) $1(q)$ quarters after the trough, we only keep the observations that lie $1(r)$ quarter(s) after the trough. Technically, the difference between the two curves graphed in Figure 3 is thus measured in the event-study model.

[9]As expected, the higher the employment already is, the lower the growth rate, this being partly due to the way growth is computed, a two percentage point increase in employment represent less growth in

the values presented in Table 4 reads as follow: considering the cumulative growth of the employment rate over 4 quarters (column (4)), the employment recovery handicap associated to financial crises is equal to 0.22 percentage point.

The second and third lines (λ_B^q; λ_{AB}^q) suggest that the precise quarter of the recovery calendar (except perhaps the first one) does not matter. Also as expected, the employment positively correlates with the growth of GDP (variable "GDP growth L2" which measure the growth rate of GDP over the same time horizon lagged two periods to mitigate the risk of reverse causality). In other words, the stronger the recovery of GDP, the stronger the recovery of employment. Variables measuring the labour market institutions also play an important role, especially the level at which wages are bargained. The more centralized the bargaining (high values of "coord"), the higher the employment growth. Finally, after controlling for all the above, there also seem to be factors that have increased employment growth over time compared to the 1960's, as all time-period dummies capture positive significant effects.

4.2 Individual Hours

Regarding hours worked (results in Table 5), a significantly positive impact of a financial crisis is found on the growth of hours worked computed starting at 4 quarters of cumulated growth (line 1). This effffect is reinforced when considering longer growth horizons ($q > 4$) (line 5). Combined with those visible on the first line of Table 4, these results support the view that the intensive margin is used a substitute to re-hiring during recoveries following financial crises. Turning to coefficient μ_B^q and μ_{AB}^q, we find no evidence that being exactly q quarters after the trough makes a differences at to the relative intensity of the recovery of hours. As for the employment rate, the higher the number of hours worked already is, the lower the growth rate of hours worked, probably both for computational and human capacity reasons. The GDP growth positively correlates to hours worked as expected.

Like with employment (Table 4), the wage coordination coefficient (μ_E^q) is statistically significant. But is has the opposite sign, suggesting that the more wage bargaining is centralized, the lower is the growth of hours per worker. These results are supportive of the idea that centralized wage bargaining might be a good thing for employment growth during recoveries.

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percentage if the employment rate is higher. It also related to the intuition that the closer a country is to full employment, the less it can still increase its employment rate.

Employment rate growth over q quarters

VARIABLES	(1) 1 quarter	(2) 2 quarters	(3) 3 quarters	(4) 4 quarters	(5) 5 quarters	(6) 6 quarters	(7) 7 quarters	(8) 8 quarters	(9) 9 quarters	(10) 10 quarters	(11) 11 quarters	(12) 12 quarters	(13) 13 quarters	(14) 14 quarters	(15) 15 quarters	(16) 16 quarters
fin crisis (λ_A^q)	-0.0876**	-0.128**	-0.140*	-0.222**	-0.316***	-0.399***	-0.473***	-0.602***	-0.663***	-0.694***	-0.740***	-0.735***	-0.741***	-0.750***	-0.762***	-0.752***
	(0.0377)	(0.0586)	(0.0736)	(0.0901)	(0.107)	(0.123)	(0.136)	(0.150)	(0.162)	(0.173)	(0.183)	(0.192)	(0.203)	(0.212)	(0.220)	(0.226)
Q^q (λ_B^q)	-0.244***	-0.0640	0.165*	0.0506	0.0589	0.0134	0.105	0.0663	0.133	0.149	0.287	0.510	0.404	0.387	0.245	0.495
	(0.0478)	(0.0760)	(0.0939)	(0.116)	(0.140)	(0.165)	(0.194)	(0.241)	(0.272)	(0.309)	(0.343)	(0.409)	(0.459)	(0.518)	(0.584)	(0.638)
Q^q * fin crisis (λ_{AB}^q)	-0.153	-0.133	-0.166	-0.00991	0.0942	0.223	0.284	0.603	1.035*	1.000	1.468*	1.062	1.599	1.790	2.132	2.853
	(0.0988)	(0.153)	(0.192)	(0.236)	(0.293)	(0.345)	(0.425)	(0.505)	(0.596)	(0.740)	(0.888)	(1.055)	(1.432)	(1.514)	(1.585)	(1.860)
GDP (λ_D^q)	0.0689***	0.201***	0.308***	0.354***	0.387***	0.415***	0.431***	0.435***	0.439***	0.435***	0.425***	0.413***	0.396***	0.373***	0.352***	0.336***
	(0.0117)	(0.0128)	(0.0119)	(0.0116)	(0.0118)	(0.0122)	(0.0125)	(0.0128)	(0.0131)	(0.0134)	(0.0135)	(0.0135)	(0.0137)	(0.0138)	(0.0137)	(0.0136)
coord (λ_E^q)	0.0407**	0.0762***	0.104***	0.136***	0.175***	0.211***	0.255***	0.298***	0.342***	0.396***	0.428***	0.461***	0.488***	0.517***	0.536***	0.569***
	(0.0162)	(0.0252)	(0.0316)	(0.0387)	(0.0462)	(0.0531)	(0.0593)	(0.0658)	(0.0716)	(0.0774)	(0.0826)	(0.0874)	(0.0926)	(0.0974)	(0.101)	(0.104)
Constant	0.300	0.288	-0.157	-0.0999	0.0840	0.546	1.305	2.407**	3.601***	5.158***	7.310***	9.460***	11.83***	14.42***	16.81***	18.21***
	(0.269)	(0.424)	(0.542)	(0.672)	(0.811)	(0.944)	(1.064)	(1.188)	(1.301)	(1.415)	(1.516)	(1.609)	(1.713)	(1.809)	(1.888)	(1.964)
Observations	1,663	1,650	1,637	1,627	1,619	1,609	1,600	1,591	1,579	1,565	1,552	1,540	1,530	1,520	1,510	1,499
R-squared	0.084	0.184	0.331	0.405	0.447	0.478	0.500	0.511	0.522	0.527	0.531	0.535	0.527	0.517	0.510	0.505
decade trend	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
base empl rate level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
restrict to recoveries	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4: Explaining the cumulative growth of the employment rate after the trough.

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Hours worked growth over q quarters

VARIABLES	(1) 1 quarter	(2) 2 quarters	(3) 3 quarters	(4) 4 quarters	(5) 5 quarters	(6) 6 quarters	(7) 7 quarters	(8) 8 quarters	(9) 9 quarters	(10) 10 quarters	(11) 11 quarters	(12) 12 quarters	(13) 13 quarters	(14) 14 quarters	(15) 15 quarters	(16) 16 quarters
fin crisis (μ_A^q)	0.0154	0.0478	0.109	0.217**	0.202*	0.221*	0.282**	0.276**	0.330**	0.348***	0.297**	0.322**	0.249*	0.182	0.157	0.126
	(0.0905)	(0.0864)	(0.0924)	(0.106)	(0.106)	(0.115)	(0.120)	(0.128)	(0.129)	(0.134)	(0.139)	(0.139)	(0.147)	(0.148)	(0.151)	(0.159)
Q^q (μ_B^q)	0.0628	-0.0700	0.190*	0.0902	0.0956	0.106	-0.0891	0.116	0.433**	0.293	0.146	0.308	0.153	-0.100	0.659*	0.621
	(0.108)	(0.106)	(0.111)	(0.130)	(0.132)	(0.147)	(0.162)	(0.189)	(0.199)	(0.221)	(0.240)	(0.275)	(0.314)	(0.344)	(0.393)	(0.448)
$Q^q *$ fin crisis (μ_{AB}^q)	-0.0250	-0.119	0.123	-0.126	0.467*	0.735**	0.740**	0.655	-0.0696	0.270	-0.164	-0.164	-0.534	0.00970	-1.154	-1.670
	(0.232)	(0.220)	(0.235)	(0.271)	(0.283)	(0.315)	(0.363)	(0.399)	(0.423)	(0.517)	(0.613)	(0.708)	(1.026)	(1.038)	(1.077)	(1.365)
GDP (μ_D^q)	0.0116	-0.0103	0.0235*	0.0383***	0.0402***	0.0407***	0.0408***	0.0376***	0.0402***	0.0400***	0.0376***	0.0369***	0.0370***	0.0331***	0.0287***	0.0278***
	(0.0263)	(0.0176)	(0.0138)	(0.0126)	(0.0108)	(0.0103)	(0.00993)	(0.00972)	(0.00915)	(0.00907)	(0.00892)	(0.00847)	(0.00860)	(0.00823)	(0.00809)	(0.00825)
coord (μ_E^q)	-0.0349	-0.0511	-0.0852**	-0.0931**	-0.107**	-0.121***	-0.148***	-0.172***	-0.183***	-0.192***	-0.183***	-0.207***	-0.226***	-0.206***	-0.182***	-0.158**
	(0.0363)	(0.0347)	(0.0370)	(0.0424)	(0.0426)	(0.0459)	(0.0483)	(0.0513)	(0.0518)	(0.0546)	(0.0569)	(0.0575)	(0.0612)	(0.0615)	(0.0633)	(0.0668)
Constant	3.660***	4.171***	5.096***	6.444***	6.868***	8.007***	8.478***	9.516***	10.16***	11.36***	12.14***	12.60***	13.93***	14.42***	15.08***	16.36***
	(0.772)	(0.738)	(0.790)	(0.909)	(0.913)	(0.983)	(1.037)	(1.098)	(1.105)	(1.163)	(1.211)	(1.223)	(1.299)	(1.304)	(1.343)	(1.426)
Observations	1,394	1,383	1,372	1,364	1,357	1,350	1,343	1,336	1,327	1,318	1,310	1,301	1,293	1,285	1,277	1,268
R-squared	0.021	0.037	0.057	0.071	0.097	0.118	0.129	0.146	0.174	0.192	0.199	0.220	0.228	0.248	0.259	0.270
decade trend	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
base hour level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
restrict to recoveries	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5: Explaining the cumulative growth of hours worked per worker after the trough.

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4.3 Additional results and robustness analysis

First, we can detail the results obtained regarding the labour market institutions control variable. As exposed above, we find that a higher degree of centralizatio of the wage setting correlates to a stronger employment rate growth as well as a weaker growth of individual hours. Labour-market variables thus appear to play a key role in avoiding ascribing to financial crises an impact that has to do with labour-market institutions.

We then performed a series of robustness checks. First, we use an alternative definition of financial crises, using Laeven and Valencia database. The main difference with the database of Reinhart and Rogoff is that Laeven and Valencia require public intervention to define a financial crisis. This results in slightly less observations of financial crises. Results are presented in Table 6 and 7.

Second, we control for the size of the preceding recession by using the (negative) growth of GDP per capital from peak to trough as well as this measure squared, to capture potential particularities of deep recessions. Results are presented in Tables 8 and 9. We find that deeper recessions, associated with a larger fall of GDP per capita, tend to generate less employment rate growth and stronger growth of individual hours. This effect is non-linear, as is captured by the squared term, meaning that very deep recession are associated with even less employment rate growth and even more individual hours growth. Nevertheless, we still find that financial crises (that tend to be associated with deeper recessions) still impacts negatively (resp. positively) the growth of the employment rate (respec. of individual hours), even if this impact is only visible for growth rate computed over longer horizons. We also present evidences of what happens to the employment rate growth and individual hours growth during the recession. We find that a financial crise depresses both growth rates, as does the fall in GDP (Tables 21 and 22).

Third, we present alternative control strategies for the GDP per capita. In Tables 10 and 11, we present results when the GDP per capita growth rate, used as a control variable, is not lagged. We also present, in Tables 12 and 13 the baseline model without the interact term.

Fourth, in Table 14, we present the results when using total hours of work instead of individual hours. Total hours of work are computed by Ohanian and Raffo by simply multiplying individual hours by the number of workers. This series is the closest to the dataset used by Gali, Smets and Wouters (2012). We find contrasted results, with an average negative impact of financial crises that is counteracted by a positive impact when measuring the growth rate precisely since the trough, as is captured by the interaction term. The tentative conclusion is that in the first year that follows the trough, the negative impact of financial crises dominates, possibly because the low employment rate growth effect dominates. From 6 to 8 quarters after the trough, we find that the positive

interaction term dominates, possibly indicating that the strong growth of individual hours dominates the low growth of the employment rate.

Fifth, the only robustness test that generated important discrepancies was to split the sample into 2 periods, before and after 1990. Our key results hold with statistical significance only for the post 1990 period. It is however the case that the period before 1990 was less prone to financial crises, such that the lack of significant effect is most probably due to the low number of observations displaying financial frictions in that period. Results are presented in Tables 15 to 18.

Finally, we present the results from and event-study exercise where one keeps only one observation per cycle (Tables 19 and 20). Precisely, we retain only observations recorded exactly q quarters after the trough. As we do not exploit the panel dimension of the data, we control for country fixed-effects using a dummy per country, with a reference country. This allows to uncover country-specific trend, mainly that the US, and more generally Anglosaxon countries, tend to experience less joblessness. Their recovery period tend to be more on the extensive margin (new jobs) than intensive (additional individual hours) than european and asian countries.

4.4   Typical dynamic panel issues and stationarity

As equations (1) and (2) contain among their predictors the base level of the dependant variable they can be said to be dynamic panel models. What is more, they contain country fixed effects. In principle, we should thus consider the possibility that our estimates are affected by the dynamic panel bias (also know as the Nickell bias in the econometric literature). But, in our case, the risk of a dynamic panel bias is greatly scaled down by the use of long time series (large T) as confirmed by Judson and Owen (1999) for the case of $T > 30$. In our case, all series cover at least 56 periods such that we are on the safe side regarding dynamic panel bias[10]. It should also be noted that clustering of the standard errors is not recommended for macro panels that typically do not display a large enough number of individuals (here 15 countries).

In fact, dynamic panel with long time series are not plagued by the dynamic panel bias but they may suffer from stationarity issues. In our case this issue is greatly limited as the

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[10]General case:
$$y_{it} = \alpha y_{i,t-1} + \beta x_{i,t} + \mu_i + v_{i,t}$$
Where we have the following variables after fixed-effect transformation (within transformation) to remove unobserved μ_i:
$$y^*_{i,t-1} = y_{i,t-1} - \bar{y}_i$$
$$v^*_{i,t} = v_{i,t} - \bar{v}_i$$
Then the issues arises with the automatic correlation between $\bar{v}_i$ and $y_{i,t-1}$, where $y_{i,t-1}$ is also correlated to $y_{i,t}$ (presence of autocorrelation). However the correlation between $\bar{v}_i$ and $y_{i,t-1}$ is greatly reduced by a large T.

dependend variables are both always expressed in growth rate. The only concern is with the independant variable controlling for the base level of, respectively, the employment rate and the level of individual hours of work. The employment rate is always comprised between 0 and 1 by definition, and is stable of time. Individual hours of work display a decreasing trend over time in all of the countries considered. Both series are stationary when taking into account a drift in the fisher-type tests. As a matter of completeness we present in the annexes the baseline regressions using linearly detrended series (Tables 23 and 24).

5 Conclusion

The key results of this paper are essentially twofold. First, since 1960 and across 15 advanced economies, financial crisis tend to be be followed by recoveries that are jobless. In comparison with recoveries taking place after non-financial crises, they are significantly less prone to employment growth. Second, the opposite results is found when focusing on the number of hours per worker. During the quarters after financial crisis, hours per worker tend to grow more. We posit that these results might be a confirmation of *i)* the key role of firm-level credit constraints in the wake of financial/banking crises, but also *ii)* of that of fixed labour costs in the way employers deal with the men vs. hours tradeoff. If fixed labour costs are financed via credit, restricted access to the later should translate into less recruitment and extended hours of work.

Jobless recoveries have attracted a lot of interest from researchers in the past, with the aim of uncovering the reasons employment would not follow the recovery of the output, generating long-lasting, high unemployment levels. Different studies found different reasons for jobless recoveries, among them demographic changes (Stock & Watson (2012)) and lack of confidence in the sustainability of the recovery (Schreft *et al.*(2005), Schmitt-Grohé & Uribe (2012)). Some papers insisted on the role of productive recessions, either due to sectoral shifts, following the idea of Shumpeterian productive destruction (Jaimovich & Siu (2012), Burger & Schwartz (2014) and Srivastava & Theodore (2005) among others). Other papers focused on productivity-enhancing restructuring at the firm level (mainly Petrosky-Nadeau (2013) and Berger (2012)). Our conclusions are certainly in line with this last strand of the literature, as an increase in individual hours will lead to an apparent increase in individual productivity, measured in output per worker. This mechanism echoes most closely the lasting increase in individual effort observed by Lazear (2013) at the plant level.

Our results also align with those of Gali, Smets and Wouters (2012) who find no trace of joblessness in the US but use total hours of work as their measure of employment. We show that this result is not incompatible with joblessness in terms of the employment rate (the share of people who declare holding a job among the 16-64 years old population). In particular, we show how, when decomposing total hours of work into the intensive and

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the extensive margin of labour, individual hours and the employment rate react with opposite sign after a financial crisis.

In conclusion, our work highlights the importance of considering both the extensive and the intensive margins of employment when studying employment. In particular, what appears as just a jobless recovery might reveal a more complex story once both margins of employment are taken into account.

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Appendix

Employment rate growth over i quarters

VARIABLES	(1) 1 quarter	(2) 2 quarters	(3) 3 quarters	(4) 4 quarters	(5) 5 quarters	(6) 6 quarters	(7) 7 quarters	(8) 8 quarters	(9) 9 quarters	(10) 10 quarters	(11) 11 quarters	(12) 12 quarters	(13) 13 quarters	(14) 14 quarters	(15) 15 quarters	(16) 16 quarters
fin crisis	-0.225***	-0.393***	-0.521***	-0.832***	-1.173***	-1.428***	-1.617***	-1.879***	-2.010***	-2.179***	-2.287***	-2.345***	-2.419***	-2.478***	-2.540***	-2.581***
	(0.0582)	(0.0961)	(0.122)	(0.151)	(0.180)	(0.209)	(0.228)	(0.250)	(0.266)	(0.284)	(0.298)	(0.310)	(0.324)	(0.337)	(0.347)	(0.353)
16 quarters after last trough	-0.281***	-0.107	0.1000	-0.00594	-0.0286	-0.0760	0.0702	0.154	0.301	0.312	0.373	0.541	0.493	0.500	0.435	0.667
	(0.0441)	(0.0727)	(0.0898)	(0.110)	(0.132)	(0.156)	(0.180)	(0.219)	(0.246)	(0.286)	(0.320)	(0.378)	(0.426)	(0.476)	(0.530)	(0.584)
1.trough_#1.fin_crisis_cycle_lv		-0.00175	0.0789	0.581*	1.150***	1.504***	2.006***	1.268	0.550	0.333						
		(0.222)	(0.278)	(0.337)	(0.421)	(0.499)	(0.771)	(1.030)	(2.142)	(2.294)						
GDP = L,	0.0706***	0.198***	0.301***	0.344***	0.374***	0.398***	0.413***	0.416***	0.420***	0.418***	0.411***	0.401***	0.386***	0.366***	0.347***	0.334***
	(0.0119)	(0.0132)	(0.0124)	(0.0122)	(0.0126)	(0.0131)	(0.0135)	(0.0139)	(0.0141)	(0.0143)	(0.0143)	(0.0142)	(0.0143)	(0.0142)	(0.0141)	(0.0140)
coord	0.0373**	0.0695***	0.0952***	0.125***	0.163***	0.202***	0.257***	0.309***	0.370***	0.446***	0.506***	0.574***	0.628***	0.680***	0.719***	0.762***
	(0.0169)	(0.0262)	(0.0330)	(0.0403)	(0.0479)	(0.0551)	(0.0615)	(0.0682)	(0.0741)	(0.0797)	(0.0849)	(0.0895)	(0.0945)	(0.0992)	(0.103)	(0.106)
Constant	0.250	0.159	-0.524	-0.736	-0.655	-0.332	0.417	1.495	2.396*	3.842**	5.796***	7.621***	9.741***	11.98***	13.91***	15.00***
	(0.292)	(0.462)	(0.597)	(0.741)	(0.894)	(1.041)	(1.175)	(1.316)	(1.442)	(1.562)	(1.669)	(1.765)	(1.876)	(1.983)	(2.071)	(2.142)
Observations	1,596	1,583	1,570	1,560	1,552	1,542	1,533	1,525	1,515	1,504	1,494	1,485	1,478	1,470	1,462	1,453
R-squared	0.090	0.197	0.342	0.421	0.467	0.500	0.524	0.534	0.546	0.552	0.558	0.563	0.557	0.548	0.542	0.539
decade trend	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
base empl rate level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
restrict to recoveries	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6: Explaining the cumulative growth of the employment rate after the trough using Laeven and Valencia's financial crisis definition

Hours worked growth over i quarters

VARIABLES	(1) 1 quarter	(2) 2 quarters	(3) 3 quarters	(4) 4 quarters	(5) 5 quarters	(6) 6 quarters	(7) 7 quarters	(8) 8 quarters	(9) 9 quarters	(10) 10 quarters	(11) 11 quarters	(12) 12 quarters	(13) 13 quarters	(14) 14 quarters	(15) 15 quarters	(16) 16 quarters
fin crisis	0.186	0.217	0.377***	0.448***	0.402**	0.450**	0.447**	0.375*	0.439**	0.485**	0.366*	0.457**	0.402*	0.359	0.364	0.310
	(0.140)	(0.133)	(0.143)	(0.167)	(0.168)	(0.184)	(0.189)	(0.200)	(0.200)	(0.211)	(0.217)	(0.216)	(0.228)	(0.227)	(0.231)	(0.241)
16 quarters after last trough	0.0772	-0.101	0.197*	0.0309	0.101	0.170	-0.0222	0.135	0.393**	0.289	0.118	0.289	0.0987	-0.102	0.502	0.429
	(0.105)	(0.102)	(0.106)	(0.123)	(0.125)	(0.139)	(0.151)	(0.172)	(0.181)	(0.207)	(0.228)	(0.260)	(0.299)	(0.324)	(0.366)	(0.424)
1.trough_#1.fin_crisis_cycle_lv	-0.148	-0.0250	0.266	0.351	1.015**	1.083**	1.716***	2.978***	1.999	2.915*						
	(0.338)	(0.317)	(0.335)	(0.385)	(0.395)	(0.441)	(0.643)	(0.867)	(1.470)	(1.548)						
GDP = L,	0.0121	-0.00966	0.0278*	0.0432***	0.0449***	0.0447***	0.0437***	0.0385***	0.0416***	0.0424***	0.0391***	0.0398***	0.0407***	0.0375***	0.0343***	0.0334***
	(0.0271)	(0.0180)	(0.0142)	(0.0132)	(0.0113)	(0.0110)	(0.0106)	(0.0105)	(0.00988)	(0.00979)	(0.00961)	(0.00905)	(0.00915)	(0.00870)	(0.00853)	(0.00865)
coord	-0.0350	-0.0495	-0.0816**	-0.0876**	-0.103**	-0.113**	-0.133***	-0.154***	-0.168***	-0.175***	-0.170***	-0.192***	-0.211***	-0.192***	-0.169***	-0.140**
	(0.0378)	(0.0358)	(0.0381)	(0.0438)	(0.0437)	(0.0470)	(0.0494)	(0.0526)	(0.0535)	(0.0565)	(0.0591)	(0.0595)	(0.0633)	(0.0635)	(0.0654)	(0.0689)
Constant	4.214***	4.859***	6.070***	7.736***	8.233***	9.422***	9.904***	11.04***	11.72***	13.05***	13.83***	14.21***	15.44***	15.92***	16.53***	17.80***
	(0.832)	(0.787)	(0.838)	(0.967)	(0.962)	(1.033)	(1.084)	(1.149)	(1.161)	(1.219)	(1.268)	(1.272)	(1.350)	(1.348)	(1.387)	(1.468)
Observations	1,340	1,329	1,318	1,310	1,303	1,296	1,289	1,282	1,274	1,267	1,261	1,254	1,248	1,242	1,236	1,229
R-squared	0.025	0.044	0.070	0.084	0.113	0.131	0.141	0.161	0.184	0.203	0.208	0.230	0.238	0.261	0.271	0.282
decade trend	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
base hour level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
restrict to recoveries	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7: Explaining the cumulative growth of hours worked per worker after the trough using Laeven and Valencia's financial crisis definition

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Employment rate growth over i quarters

VARIABLES	(1) 1 quarter	(2) 2 quarters	(3) 3 quarters	(4) 4 quarters	(5) 5 quarters	(6) 6 quarters	(7) 7 quarters	(8) 8 quarters	(9) 9 quarters	(10) 10 quarters	(11) 11 quarters	(12) 12 quarters	(13) 13 quarters	(14) 14 quarters	(15) 15 quarters	(16) 16 quarters
fin crisis	-0.0406	-0.0593	-0.0782	-0.147	-0.216**	-0.296**	-0.352***	-0.450***	-0.483***	-0.505***	-0.531***	-0.517***	-0.507***	-0.487**	-0.474**	-0.435**
	(0.0395)	(0.0605)	(0.0758)	(0.0918)	(0.108)	(0.122)	(0.134)	(0.145)	(0.156)	(0.165)	(0.174)	(0.182)	(0.192)	(0.201)	(0.208)	(0.214)
16 quarters after last trough	-0.243***	-0.0661	0.158*	0.0487	0.0521	0.0203	0.108	0.0839	0.151	0.177	0.252	0.452	0.391	0.348	0.178	0.443
	(0.0487)	(0.0768)	(0.0945)	(0.116)	(0.138)	(0.162)	(0.187)	(0.229)	(0.257)	(0.290)	(0.321)	(0.381)	(0.427)	(0.482)	(0.544)	(0.595)
1.trough.#1.fin_crisis.cycle	-0.137	-0.0974	-0.120	0.0532	0.126	0.243	0.248	0.617	0.763	0.816	1.080	0.581	1.013	1.207	1.554	2.015
	(0.0999)	(0.153)	(0.192)	(0.234)	(0.287)	(0.335)	(0.409)	(0.480)	(0.563)	(0.694)	(0.830)	(0.984)	(1.333)	(1.408)	(1.474)	(1.733)
GDP during recession	0.0173***	0.0283***	0.0325***	0.0428***	0.0523***	0.0532***	0.0583***	0.0752***	0.0790***	0.0880***	0.0932***	0.0960***	0.101***	0.110***	0.114***	0.122***
	(0.00400)	(0.00629)	(0.00808)	(0.0100)	(0.0122)	(0.0144)	(0.0164)	(0.0182)	(0.0198)	(0.0212)	(0.0223)	(0.0234)	(0.0246)	(0.0257)	(0.0265)	(0.0270)
GDP during recession, squared	-0.000857***	-0.00199***	-0.00335***	-0.00499***	-0.00711***	-0.00900***	-0.0108***	-0.0130***	-0.0147***	-0.0164***	-0.0178***	-0.0189***	-0.0200***	-0.0209***	-0.0217***	-0.0221***
	(0.000257)	(0.000393)	(0.000492)	(0.000595)	(0.000698)	(0.000793)	(0.000875)	(0.000954)	(0.00103)	(0.00110)	(0.00116)	(0.00122)	(0.00129)	(0.00135)	(0.00140)	(0.00146)
GDP = L,	0.0681***	0.200***	0.303***	0.346***	0.379***	0.410***	0.428***	0.430***	0.437***	0.433***	0.428***	0.419***	0.406***	0.385***	0.367***	0.351***
	(0.0125)	(0.0139)	(0.0132)	(0.0132)	(0.0138)	(0.0148)	(0.0156)	(0.0162)	(0.0167)	(0.0170)	(0.0172)	(0.0171)	(0.0173)	(0.0174)	(0.0173)	(0.0172)
coord	0.0312*	0.0658**	0.102***	0.139***	0.184***	0.231***	0.281***	0.324***	0.377***	0.440***	0.477***	0.510***	0.546***	0.577***	0.597***	0.624***
	(0.0173)	(0.0265)	(0.0332)	(0.0402)	(0.0473)	(0.0538)	(0.0593)	(0.0648)	(0.0696)	(0.0745)	(0.0789)	(0.0829)	(0.0874)	(0.0917)	(0.0952)	(0.0982)
Constant	0.524*	0.711	0.561	0.907	1.214	1.519	2.065*	2.961*	3.685***	4.827***	6.384***	7.927***	9.742***	11.87***	13.80***	15.05***
	(0.297)	(0.459)	(0.583)	(0.711)	(0.845)	(0.972)	(1.082)	(1.191)	(1.292)	(1.394)	(1.485)	(1.570)	(1.666)	(1.755)	(1.827)	(1.901)
Observations	1,559	1,557	1,555	1,553	1,551	1,547	1,544	1,542	1,537	1,530	1,523	1,517	1,512	1,506	1,500	1,492
R-squared	0.094	0.208	0.356	0.436	0.488	0.525	0.553	0.571	0.585	0.593	0.599	0.602	0.596	0.587	0.580	0.573
decade trend	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
base empl rate level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
restrict to recoveries	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 8: Explaining the cumulative growth of the employment rate after the trough controlling for the growth of GDP and its square during the preceding recession

Hours worked growth over i quarters

VARIABLES	(1) 1 quarter	(2) 2 quarters	(3) 3 quarters	(4) 4 quarters	(5) 5 quarters	(6) 6 quarters	(7) 7 quarters	(8) 8 quarters	(9) 9 quarters	(10) 10 quarters	(11) 11 quarters	(12) 12 quarters	(13) 13 quarters	(14) 14 quarters	(15) 15 quarters	(16) 16 quarters
fin crisis	-0.0110	0.0254	0.0474	0.149	0.137	0.164	0.243**	0.259**	0.317**	0.347**	0.293**	0.319**	0.248*	0.195	0.182	0.161
	(0.0948)	(0.0895)	(0.0947)	(0.109)	(0.108)	(0.116)	(0.121)	(0.128)	(0.130)	(0.135)	(0.140)	(0.140)	(0.148)	(0.149)	(0.152)	(0.160)
16 quarters after last trough	0.0910	-0.0266	0.235**	0.125	0.121	0.130	-0.0663	0.143	0.454**	0.329	0.182	0.339	0.154	-0.0796	0.705*	0.655
	(0.110)	(0.107)	(0.111)	(0.130)	(0.131)	(0.146)	(0.161)	(0.188)	(0.199)	(0.220)	(0.239)	(0.273)	(0.313)	(0.344)	(0.392)	(0.448)
1.trough.#1.fin_crisis.cycle	-0.0449	-0.157	0.0736	-0.185	0.433	0.683**	0.703*	0.613	-0.0699	0.264	-0.143	-0.135	-0.422	0.122	-1.053	-1.534
	(0.233)	(0.220)	(0.234)	(0.271)	(0.280)	(0.312)	(0.360)	(0.396)	(0.421)	(0.513)	(0.610)	(0.706)	(1.026)	(1.038)	(1.076)	(1.364)
GDP during recession	-0.00799	-0.00909	-0.0236***	-0.0275***	-0.0285***	-0.0286**	-0.0227*	-0.0111	-0.00304	0.00524	0.00462	0.00819	0.0121	0.0262	0.0363**	0.0409**
	(0.00823)	(0.00801)	(0.00872)	(0.0103)	(0.0106)	(0.0119)	(0.0129)	(0.0140)	(0.0143)	(0.0151)	(0.0157)	(0.0158)	(0.0168)	(0.0168)	(0.0172)	(0.0180)
GDP during recession, squared	0.000580	0.00103**	0.00153***	0.00173***	0.00181***	0.00214***	0.00225***	0.00216***	0.00220***	0.00232***	0.00237***	0.00240***	0.00218**	0.00183**	0.00166*	0.00145
	(0.000542)	(0.000512)	(0.000543)	(0.000624)	(0.000620)	(0.000667)	(0.000700)	(0.000741)	(0.000747)	(0.000781)	(0.000813)	(0.000817)	(0.000869)	(0.000872)	(0.000893)	(0.000952)
GDP = L,	0.0252	0.000746	0.0399***	0.0554***	0.0567***	0.0563***	0.0534***	0.0431***	0.0396***	0.0346***	0.0319***	0.0286**	0.0271**	0.0172	0.00887	0.00712
	(0.0282)	(0.0191)	(0.0151)	(0.0142)	(0.0125)	(0.0126)	(0.0125)	(0.0126)	(0.0121)	(0.0120)	(0.0118)	(0.0112)	(0.0115)	(0.0110)	(0.0108)	(0.0110)
coord	-0.0394	-0.0620*	-0.0889*	-0.0946**	-0.109**	-0.124***	-0.162***	-0.194***	-0.200***	-0.214***	-0.206***	-0.228***	-0.247***	-0.222***	-0.195***	-0.172**
	(0.0387)	(0.0366)	(0.0387)	(0.0444)	(0.0441)	(0.0474)	(0.0497)	(0.0526)	(0.0530)	(0.0555)	(0.0577)	(0.0580)	(0.0618)	(0.0620)	(0.0635)	(0.0670)
Constant	4.176***	4.803***	5.815***	7.342***	7.672***	8.841***	9.476***	10.61***	10.99***	12.01***	12.69***	12.93***	14.18***	14.45***	14.91***	16.16***
	(0.852)	(0.801)	(0.845)	(0.970)	(0.961)	(1.029)	(1.079)	(1.137)	(1.143)	(1.194)	(1.240)	(1.247)	(1.324)	(1.326)	(1.360)	(1.442)
Observations	1,299	1,298	1,297	1,296	1,295	1,294	1,293	1,292	1,289	1,286	1,283	1,279	1,275	1,271	1,267	1,261
R-squared	0.027	0.048	0.077	0.093	0.120	0.142	0.156	0.172	0.196	0.215	0.219	0.238	0.241	0.258	0.269	0.277
decade trend	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
base hour level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
restrict to recoveries	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9: Explaining the cumulative growth of hours worked per worker after the trough controlling for the growth of GDP and its square during the preceding recession

Employment rate growth over i quarters

VARIABLES	(1) 1 quarter	(2) 2 quarters	(3) 3 quarters	(4) 4 quarters	(5) 5 quarters	(6) 6 quarters	(7) 7 quarters	(8) 8 quarters	(9) 9 quarters	(10) 10 quarters	(11) 11 quarters	(12) 12 quarters	(13) 13 quarters	(14) 14 quarters	(15) 15 quarters	(16) 16 quarters
fin crisis	-0.0807**	-0.125**	-0.175**	-0.251***	-0.344***	-0.481***	-0.633***	-0.730***	-0.785***	-0.799***	-0.821***	-0.798***	-0.774***	-0.756***	-0.739***	-0.728***
	(0.0378)	(0.0590)	(0.0764)	(0.0932)	(0.110)	(0.129)	(0.142)	(0.156)	(0.169)	(0.180)	(0.191)	(0.200)	(0.209)	(0.216)	(0.223)	(0.230)
16 quarters after last trough	-0.294***	-0.486***	-0.508***	-0.621***	-0.544***	-0.590***	-0.533***	-0.492*	-0.483*	-0.407	-0.403	-0.239	-0.182	-0.188	-0.268	-0.0600
	(0.0468)	(0.0731)	(0.0959)	(0.121)	(0.146)	(0.174)	(0.206)	(0.254)	(0.286)	(0.324)	(0.361)	(0.428)	(0.476)	(0.529)	(0.594)	(0.651)
1.trough_#1.fin_crisis_cycle	-0.181*	-0.168	-0.132	-0.0806	-0.167	0.141	0.390	0.529	1.093*	0.944	1.668*	1.283	1.584	2.076	1.935	3.128*
	(0.0990)	(0.154)	(0.200)	(0.244)	(0.302)	(0.361)	(0.447)	(0.529)	(0.622)	(0.771)	(0.923)	(1.097)	(1.475)	(1.539)	(1.605)	(1.888)
GDP	0.0788***	0.228***	0.340***	0.396***	0.426***	0.433***	0.433***	0.430***	0.429***	0.419***	0.404***	0.390***	0.375***	0.359***	0.341***	0.320***
	(0.0129)	(0.0155)	(0.0153)	(0.0144)	(0.0142)	(0.0144)	(0.0142)	(0.0142)	(0.0143)	(0.0144)	(0.0144)	(0.0143)	(0.0142)	(0.0139)	(0.0138)	(0.0137)
coord	0.0348**	0.0657***	0.0868***	0.114***	0.163***	0.203***	0.265***	0.313***	0.358***	0.403***	0.428***	0.472***	0.523***	0.564***	0.576***	0.601***
	(0.0162)	(0.0253)	(0.0327)	(0.0398)	(0.0475)	(0.0553)	(0.0620)	(0.0684)	(0.0741)	(0.0799)	(0.0852)	(0.0900)	(0.0948)	(0.0986)	(0.102)	(0.106)
Constant	0.0976	-0.463	-1.289**	-1.774**	-2.049**	-1.167	-0.111	1.378	2.990**	5.030***	7.415***	9.496***	11.56***	13.49***	15.49***	17.39***
	(0.267)	(0.428)	(0.566)	(0.701)	(0.852)	(1.003)	(1.132)	(1.256)	(1.364)	(1.469)	(1.564)	(1.660)	(1.754)	(1.829)	(1.904)	(1.985)
Observations	1,683	1,670	1,657	1,644	1,632	1,621	1,612	1,604	1,594	1,582	1,569	1,556	1,545	1,533	1,522	1,512
R-squared	0.084	0.169	0.273	0.360	0.406	0.424	0.445	0.460	0.476	0.482	0.488	0.493	0.494	0.498	0.494	0.487
decade trend	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
base empl rate level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
restrict to recoveries	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10: Explaining the cumulative growth of the employment rate after the trough controlling for the growth of GDP unlagged

Hours worked growth over i quarters

VARIABLES	(1) 1 quarter	(2) 2 quarters	(3) 3 quarters	(4) 4 quarters	(5) 5 quarters	(6) 6 quarters	(7) 7 quarters	(8) 8 quarters	(9) 9 quarters	(10) 10 quarters	(11) 11 quarters	(12) 12 quarters	(13) 13 quarters	(14) 14 quarters	(15) 15 quarters	(16) 16 quarters
fin crisis	0.0326	0.0871	0.143	0.270***	0.259**	0.284**	0.338***	0.337***	0.368***	0.399***	0.370***	0.401***	0.345**	0.292**	0.268*	0.230
	(0.0901)	(0.0860)	(0.0916)	(0.104)	(0.105)	(0.113)	(0.118)	(0.125)	(0.127)	(0.133)	(0.137)	(0.138)	(0.146)	(0.147)	(0.150)	(0.158)
16 quarters after last trough	0.0582	-0.0783	0.0991	-0.0454	-0.0267	-0.0254	-0.223	-0.0181	0.316	0.176	-0.00931	0.135	-0.0290	-0.295	0.469	0.425
	(0.105)	(0.101)	(0.109)	(0.128)	(0.131)	(0.146)	(0.162)	(0.189)	(0.200)	(0.221)	(0.239)	(0.274)	(0.313)	(0.343)	(0.391)	(0.448)
1.trough_#1.fin_crisis_cycle	-0.0178	-0.0947	0.156	-0.120	0.417	0.700**	0.744**	0.642	-0.0662	0.252	-0.166	-0.131	-0.490	0.0886	-1.141	-1.597
	(0.230)	(0.219)	(0.234)	(0.267)	(0.279)	(0.311)	(0.358)	(0.394)	(0.420)	(0.514)	(0.606)	(0.701)	(1.018)	(1.029)	(1.067)	(1.357)
GDP	0.0775***	0.0759***	0.0811***	0.0977***	0.0887***	0.0815***	0.0742***	0.0649***	0.0566***	0.0563***	0.0559***	0.0540***	0.0556***	0.0535***	0.0481***	0.0448***
	(0.0288)	(0.0210)	(0.0169)	(0.0148)	(0.0122)	(0.0114)	(0.0105)	(0.0101)	(0.00948)	(0.00926)	(0.00897)	(0.00848)	(0.00853)	(0.00811)	(0.00797)	(0.00808)
coord	-0.0406	-0.0590*	-0.0914**	-0.103**	-0.114***	-0.128***	-0.155***	-0.179***	-0.181***	-0.194***	-0.194***	-0.212***	-0.231***	-0.212***	-0.190***	-0.170**
	(0.0360)	(0.0343)	(0.0366)	(0.0416)	(0.0418)	(0.0450)	(0.0473)	(0.0503)	(0.0511)	(0.0538)	(0.0558)	(0.0564)	(0.0602)	(0.0606)	(0.0623)	(0.0661)
Constant	3.449***	3.832***	4.766***	5.880***	6.183***	7.336***	7.964***	9.175***	9.732***	10.79***	11.67***	12.10***	13.40***	13.85***	14.49***	15.91***
	(0.758)	(0.725)	(0.775)	(0.886)	(0.893)	(0.963)	(1.014)	(1.074)	(1.086)	(1.140)	(1.181)	(1.195)	(1.274)	(1.280)	(1.317)	(1.403)
Observations	1,414	1,403	1,392	1,381	1,370	1,362	1,355	1,348	1,340	1,333	1,325	1,315	1,306	1,297	1,289	1,281
R-squared	0.026	0.044	0.069	0.093	0.119	0.138	0.150	0.163	0.182	0.200	0.211	0.231	0.239	0.260	0.270	0.279
decade trend	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
base hour level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
restrict to recoveries	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 11: Explaining the cumulative growth of hours worked per worker after the trough controlling for the growth of GDP unlagged

Employment rate growth over i quarters

VARIABLES	(1) 1 quarter	(2) 2 quarters	(3) 3 quarters	(4) 4 quarters	(5) 5 quarters	(6) 6 quarters	(7) 7 quarters	(8) 8 quarters	(9) 9 quarters	(10) 10 quarters	(11) 11 quarters	(12) 12 quarters	(13) 13 quarters	(14) 14 quarters	(15) 15 quarters	(16) 16 quarters
fin crisis	-0.104***	-0.143**	-0.159**	-0.224***	-0.306***	-0.378***	-0.451***	-0.565***	-0.607***	-0.654***	-0.695***	-0.710***	-0.715***	-0.721***	-0.729***	-0.717***
	(0.0361)	(0.0561)	(0.0705)	(0.0863)	(0.103)	(0.118)	(0.132)	(0.146)	(0.159)	(0.171)	(0.182)	(0.191)	(0.201)	(0.211)	(0.219)	(0.225)
16 quarters after last trough	-0.278***	-0.0933	0.126	0.0482	0.0805	0.0646	0.163	0.202	0.345	0.321	0.502	0.668*	0.567	0.596	0.533	0.826
	(0.0428)	(0.0681)	(0.0830)	(0.101)	(0.123)	(0.145)	(0.173)	(0.212)	(0.243)	(0.281)	(0.318)	(0.378)	(0.435)	(0.487)	(0.543)	(0.601)
GDP = L,	0.0699***	0.201***	0.308***	0.354***	0.387***	0.415***	0.431***	0.435***	0.439***	0.436***	0.425***	0.413***	0.396***	0.373***	0.351***	0.336***
	(0.0117)	(0.0128)	(0.0119)	(0.0116)	(0.0118)	(0.0122)	(0.0125)	(0.0128)	(0.0131)	(0.0134)	(0.0135)	(0.0135)	(0.0137)	(0.0138)	(0.0137)	(0.0136)
coord	0.0406**	0.0760***	0.104***	0.136***	0.175***	0.211***	0.255***	0.297***	0.341***	0.394***	0.429***	0.462***	0.488***	0.517***	0.537***	0.565***
	(0.0162)	(0.0252)	(0.0316)	(0.0387)	(0.0461)	(0.0531)	(0.0593)	(0.0658)	(0.0716)	(0.0774)	(0.0827)	(0.0874)	(0.0926)	(0.0974)	(0.101)	(0.104)
Constant	0.308	0.295	-0.146	-0.0995	0.0816	0.546	1.305	2.435**	3.582***	5.193***	7.334***	9.484***	11.90***	14.49***	16.88***	18.37***
	(0.269)	(0.424)	(0.542)	(0.671)	(0.811)	(0.944)	(1.064)	(1.188)	(1.302)	(1.415)	(1.517)	(1.609)	(1.712)	(1.808)	(1.888)	(1.962)
Observations	1,663	1,650	1,637	1,627	1,619	1,609	1,600	1,591	1,579	1,565	1,552	1,540	1,530	1,520	1,510	1,499
R-squared	0.083	0.184	0.331	0.405	0.447	0.478	0.500	0.510	0.521	0.526	0.530	0.535	0.527	0.517	0.509	0.504
decade trend	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
base empl rate level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
restrict to recoveries	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 12: Explaining the cumulative growth of the employment rate after the trough by the presence of financial crises and controlling for the average recovery

Hours worked growth over i quarters

VARIABLES	(1) 1 quarter	(2) 2 quarters	(3) 3 quarters	(4) 4 quarters	(5) 5 quarters	(6) 6 quarters	(7) 7 quarters	(8) 8 quarters	(9) 9 quarters	(10) 10 quarters	(11) 11 quarters	(12) 12 quarters	(13) 13 quarters	(14) 14 quarters	(15) 15 quarters	(16) 16 quarters
fin crisis	0.0128	0.0350	0.122	0.204**	0.248**	0.289***	0.338***	0.322**	0.325***	0.360***	0.291**	0.318**	0.241	0.182	0.141	0.108
	(0.0870)	(0.0831)	(0.0889)	(0.102)	(0.103)	(0.111)	(0.117)	(0.125)	(0.126)	(0.132)	(0.137)	(0.138)	(0.147)	(0.147)	(0.150)	(0.158)
16 quarters after last trough	0.0577	-0.0947	0.216**	0.0615	0.197*	0.266**	0.0578	0.261	0.417**	0.342*	0.121	0.284	0.103	-0.0991	0.507	0.446
	(0.0975)	(0.0953)	(0.0988)	(0.114)	(0.117)	(0.130)	(0.146)	(0.167)	(0.176)	(0.200)	(0.221)	(0.254)	(0.299)	(0.325)	(0.366)	(0.425)
GDP = L,	0.0117	-0.0101	0.0234*	0.0383***	0.0402***	0.0411***	0.0412***	0.0380***	0.0402***	0.0401***	0.0376***	0.0369***	0.0370***	0.0331***	0.0288***	0.0278***
	(0.0263)	(0.0176)	(0.0138)	(0.0126)	(0.0108)	(0.0104)	(0.00993)	(0.00972)	(0.00915)	(0.00906)	(0.00892)	(0.00847)	(0.00860)	(0.00823)	(0.00809)	(0.00825)
coord	-0.0349	-0.0509	-0.0853**	-0.0930**	-0.107**	-0.121***	-0.149***	-0.172***	-0.183***	-0.192***	-0.184***	-0.207***	-0.227***	-0.206***	-0.184***	-0.157**
	(0.0363)	(0.0346)	(0.0370)	(0.0424)	(0.0426)	(0.0460)	(0.0484)	(0.0513)	(0.0517)	(0.0546)	(0.0569)	(0.0575)	(0.0611)	(0.0614)	(0.0633)	(0.0668)
Constant	3.660***	4.171***	5.094***	6.447***	6.844***	7.970***	8.432***	9.472***	10.16***	11.36***	12.14***	12.60***	13.93***	14.42***	15.07***	16.35***
	(0.772)	(0.738)	(0.790)	(0.908)	(0.913)	(0.984)	(1.038)	(1.099)	(1.105)	(1.163)	(1.211)	(1.223)	(1.299)	(1.304)	(1.343)	(1.426)
Observations	1,394	1,383	1,372	1,364	1,357	1,350	1,343	1,336	1,327	1,318	1,310	1,301	1,293	1,285	1,277	1,268
R-squared	0.021	0.037	0.057	0.071	0.095	0.114	0.126	0.144	0.174	0.192	0.199	0.220	0.227	0.248	0.258	0.269
decade trend	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
base hour level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
restrict to recoveries	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 13: Explaining the cumulative growth of hours worked per worker after the trough by the presence of financial crises and controlling for the average recovery

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Total hours growth over i quarters

VARIABLES	(1) 1 quarter	(2) 2 quarters	(3) 3 quarters	(4) 4 quarters	(5) 5 quarters	(6) 6 quarters	(7) 7 quarters	(8) 8 quarters	(9) 9 quarters	(10) 10 quarters	(11) 11 quarters	(12) 12 quarters	(13) 13 quarters	(14) 14 quarters	(15) 15 quarters	(16) 16 quarters
fin crisis	-0.128	-0.222**	-0.255**	-0.259*	-0.436***	-0.549***	-0.592***	-0.743***	-0.766***	-0.812***	-0.943***	-0.920***	-1.035***	-1.146***	-1.221***	-1.248***
	(0.100)	(0.109)	(0.123)	(0.148)	(0.160)	(0.177)	(0.191)	(0.207)	(0.214)	(0.224)	(0.236)	(0.242)	(0.258)	(0.268)	(0.278)	(0.289)
16 quarters after last trough	-0.175	-0.128	0.308**	0.0949	0.111	0.0825	-0.0832	0.149	0.530	0.280	0.312	0.741	0.621	0.720	0.877	1.350*
	(0.120)	(0.134)	(0.148)	(0.182)	(0.199)	(0.227)	(0.258)	(0.306)	(0.331)	(0.370)	(0.408)	(0.478)	(0.551)	(0.625)	(0.723)	(0.816)
1.trough_#1.fin_crisis_cycle	-0.101	-0.188	0.0525	-0.149	0.701	1.160**	1.246**	1.425**	0.750	1.280	1.158	0.641	-0.0654	0.254	-0.150	-0.525
	(0.257)	(0.279)	(0.313)	(0.379)	(0.427)	(0.486)	(0.578)	(0.647)	(0.703)	(0.864)	(1.043)	(1.234)	(1.801)	(1.885)	(1.984)	(2.484)
GDP = L,	0.0961***	0.216***	0.357***	0.422***	0.460***	0.493***	0.514***	0.523***	0.537***	0.542***	0.539***	0.537***	0.531***	0.510***	0.491***	0.479***
	(0.0292)	(0.0223)	(0.0184)	(0.0176)	(0.0163)	(0.0160)	(0.0158)	(0.0157)	(0.0152)	(0.0152)	(0.0152)	(0.0147)	(0.0151)	(0.0149)	(0.0149)	(0.0150)
coord	0.0567	0.109**	0.133***	0.187***	0.240***	0.283***	0.326***	0.378***	0.423***	0.488***	0.558***	0.596***	0.649***	0.759***	0.862***	0.966***
	(0.0401)	(0.0437)	(0.0492)	(0.0592)	(0.0643)	(0.0708)	(0.0768)	(0.0831)	(0.0860)	(0.0913)	(0.0968)	(0.100)	(0.107)	(0.112)	(0.116)	(0.121)
Constant	0.214	0.0876	-0.364	-0.828***	-1.332***	-1.910***	-2.513***	-3.112***	-3.696***	-4.278***	-4.759***	-5.292***	-5.772***	-6.210***	-6.638***	-7.096***
	(0.177)	(0.197)	(0.224)	(0.272)	(0.296)	(0.327)	(0.356)	(0.387)	(0.404)	(0.433)	(0.465)	(0.487)	(0.528)	(0.556)	(0.588)	(0.621)
Observations	1,394	1,383	1,372	1,364	1,357	1,350	1,343	1,336	1,327	1,318	1,310	1,301	1,293	1,285	1,277	1,268
R-squared	0.025	0.109	0.253	0.336	0.421	0.475	0.510	0.531	0.568	0.579	0.583	0.597	0.585	0.579	0.570	0.564
decade trend	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
base hour level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
restrict to recoveries	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 14: Explaining the cumulative growth of the sum of hours worked

Employment rate growth over i quarters

VARIABLES	(1) 1 quarter	(2) 2 quarters	(3) 3 quarters	(4) 4 quarters	(5) 5 quarters	(6) 6 quarters	(7) 7 quarters	(8) 8 quarters	(9) 9 quarters	(10) 10 quarters	(11) 11 quarters	(12) 12 quarters	(13) 13 quarters	(14) 14 quarters	(15) 15 quarters	(16) 16 quarters
fin crisis	0.0494	0.158	0.345**	0.512***	0.669***	0.810***	0.954***	1.107***	1.221***	1.401***	1.593***	1.795***	1.974***	2.164***	2.338***	2.508***
	(0.0754)	(0.115)	(0.144)	(0.176)	(0.202)	(0.227)	(0.251)	(0.275)	(0.294)	(0.310)	(0.329)	(0.345)	(0.361)	(0.378)	(0.391)	(0.400)
16 quarters after last trough	-0.192***	-0.104	0.174	0.0781	0.186	0.113	0.0569	0.191	0.435	0.373	0.633	0.475	0.457	0.813	0.759	0.784
	(0.0580)	(0.0923)	(0.112)	(0.139)	(0.164)	(0.192)	(0.224)	(0.270)	(0.310)	(0.360)	(0.395)	(0.526)	(0.625)	(0.782)	(0.860)	(0.939)
1.trough_#1.fin_crisis_cycle	-0.106	-0.260	-0.709**	-0.576	-0.562	-0.361	-0.103	0.338	1.001	0.564	0.267	0.136	1.830	1.660	2.029	6.164**
	(0.180)	(0.276)	(0.344)	(0.422)	(0.487)	(0.549)	(0.612)	(0.716)	(0.820)	(1.041)	(1.105)	(1.351)	(1.712)	(1.842)	(1.930)	(2.686)
GDP = L,	0.0394***	0.124***	0.233***	0.273***	0.299***	0.322***	0.338***	0.339***	0.341***	0.335***	0.315***	0.299***	0.278***	0.251***	0.228***	0.214***
	(0.0139)	(0.0166)	(0.0161)	(0.0159)	(0.0157)	(0.0159)	(0.0166)	(0.0172)	(0.0176)	(0.0180)	(0.0184)	(0.0185)	(0.0185)	(0.0182)	(0.0178)	(0.0175)
coord	-0.0248	-0.0452	-0.0571	-0.0712	-0.0721	-0.0733	-0.0539	-0.0399	-0.0321	-0.0167	-0.0196	-0.0228	-0.0258	-0.0162	-0.0210	0.00823
	(0.0195)	(0.0299)	(0.0374)	(0.0459)	(0.0529)	(0.0595)	(0.0662)	(0.0731)	(0.0783)	(0.0839)	(0.0895)	(0.0948)	(0.0998)	(0.105)	(0.109)	(0.112)
Constant	0.604	0.960	0.538	1.172	1.886	2.925*	4.272**	6.148***	7.856***	9.870***	12.87***	16.34***	19.42***	22.60***	25.53***	26.32***
	(0.445)	(0.699)	(0.899)	(1.121)	(1.310)	(1.494)	(1.682)	(1.868)	(2.012)	(2.176)	(2.326)	(2.457)	(2.593)	(2.739)	(2.871)	(3.003)
Observations	855	843	831	822	815	807	799	791	781	769	758	747	738	729	720	710
R-squared	0.046	0.102	0.235	0.302	0.355	0.391	0.409	0.415	0.429	0.427	0.422	0.420	0.415	0.405	0.399	0.399
decade trend	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
base empl rate level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
restrict to recoveries	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 15: Explaining the cumulative growth of the employment rate after the trough before 1990

Employment rate growth over i quarters

VARIABLES	(1) 1 quarter	(2) 2 quarters	(3) 3 quarters	(4) 4 quarters	(5) 5 quarters	(6) 6 quarters	(7) 7 quarters	(8) 8 quarters	(9) 9 quarters	(10) 10 quarters	(11) 11 quarters	(12) 12 quarters	(13) 13 quarters	(14) 14 quarters	(15) 15 quarters	(16) 16 quarters
fin crisis	-0.143***	-0.222***	-0.340***	-0.477***	-0.615***	-0.693***	-0.746***	-0.917***	-0.969***	-1.075***	-1.082***	-1.069***	-1.023***	-0.989***	-0.918***	-0.889***
	(0.0513)	(0.0775)	(0.0947)	(0.111)	(0.132)	(0.150)	(0.162)	(0.175)	(0.189)	(0.200)	(0.208)	(0.215)	(0.224)	(0.233)	(0.237)	(0.241)
16 quarters after last trough	-0.289***	-0.0455	0.0964	0.0625	-0.0232	-0.0760	0.154	0.0991	0.0312	0.117	-0.0576	0.397	0.0637	-0.258	-0.682	-0.309
	(0.0768)	(0.116)	(0.142)	(0.170)	(0.201)	(0.228)	(0.261)	(0.330)	(0.354)	(0.384)	(0.424)	(0.448)	(0.480)	(0.509)	(0.569)	(0.616)
1.trough_#1.fin_crisis_cycle	-0.0842	0.0248	0.162	0.213	0.363	0.370	-0.00858	0.257	0.280	1.078	1.694*	0.888	0.146	0.687	1.292	1.014
	(0.126)	(0.190)	(0.233)	(0.275)	(0.341)	(0.396)	(0.489)	(0.583)	(0.676)	(0.809)	(1.023)	(1.165)	(1.665)	(1.730)	(1.769)	(1.810)
GDP = L,	0.104***	0.272***	0.368***	0.428***	0.479***	0.523***	0.546***	0.554***	0.561***	0.555***	0.555***	0.541***	0.531***	0.515***	0.509***	0.500***
	(0.0198)	(0.0191)	(0.0167)	(0.0160)	(0.0168)	(0.0176)	(0.0180)	(0.0187)	(0.0194)	(0.0200)	(0.0204)	(0.0203)	(0.0209)	(0.0212)	(0.0212)	(0.0215)
coord	0.0475	0.0764	0.0978	0.112	0.149	0.162	0.149	0.196	0.275*	0.390**	0.424**	0.424**	0.438**	0.438**	0.389*	0.342
	(0.0461)	(0.0692)	(0.0841)	(0.0979)	(0.116)	(0.131)	(0.143)	(0.155)	(0.167)	(0.178)	(0.185)	(0.191)	(0.201)	(0.209)	(0.212)	(0.217)
Constant	0.513	0.980	1.514	2.096*	2.856**	3.732**	5.061***	6.460***	7.216***	8.521***	10.18***	12.57***	15.17***	18.27***	20.13***	21.26***
	(0.523)	(0.795)	(0.983)	(1.167)	(1.415)	(1.627)	(1.789)	(1.978)	(2.158)	(2.334)	(2.455)	(2.547)	(2.672)	(2.759)	(2.794)	(2.864)
Observations	808	807	806	805	804	802	801	800	798	796	794	793	792	791	790	789
R-squared	0.121	0.271	0.442	0.548	0.597	0.641	0.677	0.694	0.708	0.716	0.729	0.736	0.733	0.729	0.730	0.727
decade trend	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
base empl rate level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
restrict to recoveries	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 16: Explaining the cumulative growth of the employment rate after the trough after 1990

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Hours worked growth over i quarters

VARIABLES	(1) 1 quarter	(2) 2 quarters	(3) 3 quarters	(4) 4 quarters	(5) 5 quarters	(6) 6 quarters	(7) 7 quarters	(8) 8 quarters	(9) 9 quarters	(10) 10 quarters	(11) 11 quarters	(12) 12 quarters	(13) 13 quarters	(14) 14 quarters	(15) 15 quarters	(16) 16 quarters
fin crisis	-0.0329	0.0139	0.0548	0.0752	0.101	0.0992	0.165	0.193	0.289	0.362	0.369	0.392	0.456*	0.525**	0.601**	0.662**
	(0.178)	(0.175)	(0.177)	(0.194)	(0.202)	(0.210)	(0.229)	(0.242)	(0.226)	(0.237)	(0.245)	(0.251)	(0.264)	(0.264)	(0.271)	(0.282)
16 quarters after last trough	-0.0981	-0.235*	0.0272	-0.120	-0.00295	0.00523	-0.0239	-0.0606	0.460**	0.247	0.0707	0.558	0.485	-0.133	1.387**	0.742
	(0.130)	(0.132)	(0.131)	(0.145)	(0.155)	(0.169)	(0.192)	(0.218)	(0.218)	(0.257)	(0.276)	(0.362)	(0.442)	(0.552)	(0.611)	(0.697)
1.trough_#1.fin_crisis_cycle	-0.0217	0.0377	0.183	0.354	0.343	0.396	0.173	0.366	0.00929	0.0287	0.309	-0.441	0.828	0.948	-0.983	
	(0.481)	(0.472)	(0.479)	(0.524)	(0.543)	(0.565)	(0.613)	(0.649)	(0.605)	(0.807)	(0.836)	(1.052)	(1.533)	(1.564)	(1.619)	
GDP = L.	-0.0241	-0.0168	0.0154	0.0258	0.0285*	0.0424***	0.0429***	0.0451***	0.0499***	0.0461***	0.0430***	0.0438***	0.0432***	0.0416***	0.0375***	0.0398***
	(0.0321)	(0.0242)	(0.0190)	(0.0167)	(0.0147)	(0.0137)	(0.0138)	(0.0136)	(0.0121)	(0.0124)	(0.0123)	(0.0120)	(0.0121)	(0.0114)	(0.0110)	(0.0110)
coord	-0.0170	-0.0239	-0.0425	-0.0432	-0.0555	-0.0503	-0.0526	-0.0594	-0.0672	-0.0736	-0.0721	-0.0671	-0.0892	-0.0908	-0.0621	-0.0381
	(0.0426)	(0.0419)	(0.0427)	(0.0467)	(0.0484)	(0.0503)	(0.0546)	(0.0576)	(0.0634)	(0.0572)	(0.0593)	(0.0613)	(0.0649)	(0.0650)	(0.0669)	(0.0697)
Constant	4.785***	4.806***	5.472***	6.533***	7.232***	8.488***	9.119***	10.74***	10.44***	12.55***	13.94***	15.10***	17.16***	17.87***	18.79***	20.25***
	(1.198)	(1.189)	(1.215)	(1.339)	(1.396)	(1.453)	(1.592)	(1.673)	(1.555)	(1.656)	(1.712)	(1.771)	(1.869)	(1.882)	(1.937)	(2.039)
Observations	752	741	730	722	715	708	701	694	686	678	671	663	656	649	642	634
R-squared	0.026	0.034	0.048	0.069	0.093	0.127	0.146	0.183	0.251	0.272	0.298	0.322	0.339	0.364	0.382	0.389
decade trend	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
base hour level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
restrict to recoveries	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 17: Explaining the cumulative growth of hours worked per worker after the trough before 1990

Hours worked growth over i quarters

VARIABLES	(1) 1 quarter	(2) 2 quarters	(3) 3 quarters	(4) 4 quarters	(5) 5 quarters	(6) 6 quarters	(7) 7 quarters	(8) 8 quarters	(9) 9 quarters	(10) 10 quarters	(11) 11 quarters	(12) 12 quarters	(13) 13 quarters	(14) 14 quarters	(15) 15 quarters	(16) 16 quarters
fin crisis	-0.0103	0.0387	0.113	0.254*	0.247*	0.236	0.303**	0.354**	0.371**	0.441***	0.400**	0.428***	0.329*	0.247	0.200	0.133
	(0.119)	(0.109)	(0.118)	(0.139)	(0.134)	(0.147)	(0.147)	(0.155)	(0.160)	(0.162)	(0.166)	(0.161)	(0.171)	(0.169)	(0.172)	(0.183)
16 quarters after last trough	0.323*	0.179	0.408**	0.400*	0.179	0.0963	-0.361	0.221	0.139	0.0644	0.0830	0.133	0.133	0.322	0.718*	0.654
	(0.181)	(0.167)	(0.181)	(0.217)	(0.208)	(0.228)	(0.242)	(0.288)	(0.295)	(0.300)	(0.323)	(0.321)	(0.350)	(0.354)	(0.406)	(0.467)
1.trough_#1.fin_crisis_cycle	-0.115	-0.320	-0.0556	-0.509	0.353	0.686*	1.061**	0.422	-0.222	-0.164	-0.912	-0.435	-0.483	0.0205	-0.792	-0.613
	(0.291)	(0.266)	(0.291)	(0.344)	(0.343)	(0.383)	(0.430)	(0.481)	(0.519)	(0.586)	(0.725)	(0.773)	(1.112)	(1.100)	(1.129)	(1.209)
GDP = L.	0.127***	0.0320	0.0666***	0.0821***	0.0740***	0.0645***	0.0641***	0.0601***	0.0618***	0.0677***	0.0635***	0.0579***	0.0549***	0.0434***	0.0378***	0.0351***
	(0.0448)	(0.0263)	(0.0201)	(0.0189)	(0.0158)	(0.0155)	(0.0142)	(0.0139)	(0.0134)	(0.0128)	(0.0126)	(0.0115)	(0.0119)	(0.0114)	(0.0114)	(0.0121)
coord	0.0673	0.00352	-0.124	-0.0904	-0.142	-0.180	-0.287**	-0.332**	-0.305**	-0.312**	-0.221	-0.347**	-0.344**	-0.240	-0.203	-0.0953
	(0.112)	(0.103)	(0.112)	(0.130)	(0.126)	(0.137)	(0.138)	(0.146)	(0.150)	(0.153)	(0.157)	(0.154)	(0.165)	(0.163)	(0.166)	(0.178)
Constant	16.94***	16.99***	22.18***	28.44***	28.41***	32.49***	33.57***	36.11***	38.58***	40.85***	41.92***	40.23***	42.60***	42.36***	43.63***	46.64***
	(2.157)	(1.926)	(2.024)	(2.331)	(2.217)	(2.398)	(2.400)	(2.476)	(2.504)	(2.533)	(2.592)	(2.518)	(2.645)	(2.539)	(2.541)	(2.676)
Observations	642	642	642	642	642	642	642	642	641	640	639	638	637	636	635	634
R-squared	0.102	0.122	0.184	0.218	0.247	0.271	0.289	0.309	0.317	0.341	0.328	0.332	0.329	0.340	0.353	0.363
decade trend	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
base hour level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
restrict to recoveries	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 18: Explaining the cumulative growth of hours worked per worker after the trough after 1990

Employment rate growth over i quarters

VARIABLES	(1) 1 quarter	(2) 2 quarters	(3) 3 quarters	(4) 4 quarters	(5) 5 quarters	(6) 6 quarters	(7) 7 quarters	(8) 8 quarters	(9) 9 quarters	(10) 10 quarters	(11) 11 quarters	(12) 12 quarters
fin crisis	-0.194*	-0.313*	-0.456**	-0.455*	-0.435	-0.312	-0.328	-0.103	0.754	0.427	0.640	0.00409
	(0.117)	(0.174)	(0.219)	(0.268)	(0.345)	(0.373)	(0.479)	(0.636)	(0.626)	(0.847)	(1.035)	(1.759)
GDP = L_i	0.132***	0.167***	0.234***	0.229***	0.270***	0.343***	0.441***	0.385***	0.399***	0.319***	0.290**	0.120
	(0.0353)	(0.0418)	(0.0500)	(0.0551)	(0.0600)	(0.0600)	(0.0770)	(0.0926)	(0.0873)	(0.0955)	(0.108)	(0.166)
coord	0.0922*	0.173**	0.217**	0.323**	0.328**	0.551***	0.430**	0.464	0.312	0.671	0.713	0.838
	(0.0549)	(0.0789)	(0.103)	(0.130)	(0.151)	(0.181)	(0.216)	(0.291)	(0.285)	(0.407)	(0.493)	(0.748)
Constant	-0.857	-1.753	-0.934	-0.747	-1.774	-3.320	-2.241	-3.425	-1.796	3.459	6.009	0.842
	(0.960)	(1.418)	(1.831)	(2.396)	(2.942)	(3.228)	(4.326)	(5.294)	(5.398)	(6.695)	(7.335)	(10.97)
Observations	164	163	159	150	142	133	115	92	82	70	62	48
R-squared	0.166	0.184	0.231	0.216	0.227	0.318	0.341	0.272	0.330	0.351	0.397	0.438
decade trend	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
base empl rate level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
restrict to recoveries	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 19: Explaining the cumulative growth of the employment rate after the trough using one observation per cycle (event-study)

Hours worked growth over i quarters

VARIABLES	(1) 1 quarter	(2) 2 quarters	(3) 3 quarters	(4) 4 quarters	(5) 5 quarters	(6) 6 quarters	(7) 7 quarters	(8) 8 quarters	(9) 9 quarters	(10) 10 quarters	(11) 11 quarters	(12) 12 quarters	(13) 13 quarters	(14) 14 quarters	(15) 15 quarters
fin crisis	-0.110	-0.245	0.103	0.0426	0.398	0.636	0.802*	0.195	0.0133	-0.112	-0.395	-0.880	-2.629	-1.573	-1.745
	(0.239)	(0.267)	(0.298)	(0.281)	(0.337)	(0.382)	(0.442)	(0.609)	(0.423)	(0.577)	(0.759)	(1.354)	(2.233)	(2.973)	(4.845)
GDP = L,	-0.0506	-0.0787	-0.0412	-0.132**	-0.0957*	-0.0940	-0.0677	-0.147*	-0.109*	-0.133**	-0.0623	-0.0725	-0.141	-0.302	-0.250
	(0.0665)	(0.0594)	(0.0633)	(0.0516)	(0.0533)	(0.0567)	(0.0647)	(0.0873)	(0.0579)	(0.0652)	(0.0757)	(0.135)	(0.155)	(0.166)	(0.408)
coord	-0.0948	-0.0285	-0.0573	-0.0462	-0.0528	-0.231	-0.150	-0.442	-0.294	-0.288	-0.162	-0.400	-0.104	1.275	1.798
	(0.106)	(0.113)	(0.132)	(0.124)	(0.138)	(0.171)	(0.178)	(0.270)	(0.188)	(0.273)	(0.351)	(0.522)	(1.221)	(2.198)	(4.368)
Constant	4.284*	2.092	6.315**	5.424*	8.815**	11.32***	7.388*	16.09***	11.81***	11.02**	9.121	8.968	9.558	14.56	22.81
	(2.311)	(2.549)	(2.870)	(2.745)	(3.378)	(3.846)	(4.310)	(5.884)	(3.880)	(5.195)	(6.370)	(8.571)	(10.47)	(17.78)	(46.23)
Observations	138	137	134	125	118	109	95	80	72	61	54	41	33	28	23
R-squared	0.125	0.103	0.174	0.209	0.234	0.316	0.168	0.272	0.260	0.278	0.228	0.202	0.411	0.556	0.391
decade trend	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
base hour level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
restrict to recoveries	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 20: Explaining the cumulative growth of hours worked per worker after the using one observation per cycle (event-study)

Employment rate growth during the recession	
	(1)
VARIABLES	peak to trough growth rate of the employment rate
fin crisis	-0.986***
	(0.109)
GDP during recession	0.392***
	(0.0106)
GDP during recession, squared	-0.0232***
	(0.000758)
coord	0.253***
	(0.0495)
Observations	2,896
R-squared	0.534
decade trend	yes
base empl rate level	yes
country FE	yes
restrict to recoveries	yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 21: Explaining the cumulative growth of the employment rate from peak to trough.

Hours worked growth during the recession	
	(1)
VARIABLES	peak to trough growth rate of hours worked
fin crisis	-0.219**
	(0.0922)
GDP during recession	0.0314***
	(0.00817)
GDP during recession, squared	-0.00238***
	(0.000563)
coord	-0.172***
	(0.0398)
Observations	2,473
R-squared	0.094
decade trend	yes
base hour level	yes
country FE	yes
restrict to recoveries	yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 22: Explaining the cumulative growth of hours worked per worker from peak to trough.

Employment rate growth over q quarters

VARIABLES	(1) 1 quarter	(2) 2 quarters	(3) 3 quarters	(4) 4 quarters	(5) 5 quarters	(6) 6 quarters	(7) 7 quarters	(8) 8 quarters	(9) 9 quarters	(10) 10 quarters	(11) 11 quarters	(12) 12 quarters
fin crisis	-0.0202	-0.0205	-0.0177	-0.0528	-0.110	-0.181**	-0.246**	-0.331***	-0.392***	-0.427***	-0.480***	-0.488***
	(0.0243)	(0.0389)	(0.0506)	(0.0637)	(0.0753)	(0.0871)	(0.0976)	(0.108)	(0.118)	(0.126)	(0.134)	(0.141)
GDP = L$_t$	0.0469***	0.132***	0.199***	0.229***	0.252***	0.269***	0.279***	0.282***	0.283***	0.280***	0.271***	0.262***
	(0.00726)	(0.00817)	(0.00784)	(0.00788)	(0.00799)	(0.00828)	(0.00856)	(0.00885)	(0.00905)	(0.00924)	(0.00942)	(0.00945)
coord	0.0300***	0.0552***	0.0738***	0.0948***	0.120***	0.140***	0.165***	0.191***	0.212***	0.243***	0.262***	0.285***
	(0.00990)	(0.0158)	(0.0207)	(0.0260)	(0.0309)	(0.0358)	(0.0404)	(0.0451)	(0.0491)	(0.0531)	(0.0570)	(0.0604)
1.trough#1.fin_crisis.cycle	-0.0886	-0.115	-0.105	-0.0390	0.0635	0.150	0.312	0.472	0.716*	0.654	0.896	0.514
	(0.0640)	(0.102)	(0.133)	(0.168)	(0.207)	(0.247)	(0.303)	(0.351)	(0.407)	(0.505)	(0.607)	(0.726)
Observations	1,480	1,468	1,456	1,447	1,440	1,433	1,426	1,419	1,410	1,399	1,389	1,379
R-squared	0.088	0.201	0.340	0.403	0.449	0.477	0.495	0.504	0.517	0.521	0.522	0.524
decade trend	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
base empl rate level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
restrict to recoveries	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 23: Explaining the cumulative growth of the employment rate after the trough using linearly detrended series

Hours worked growth over q quarters

VARIABLES	(1) 1 quarter	(2) 2 quarters	(3) 3 quarters	(4) 4 quarters	(5) 5 quarters	(6) 6 quarters	(7) 7 quarters	(8) 8 quarters	(9) 9 quarters	(10) 10 quarters	(11) 11 quarters	(12) 12 quarters
fin crisis	0.251	0.556	1.646	3.419*	3.216*	3.917*	4.761**	4.675**	5.661**	5.752**	4.924*	5.197**
	(1.497)	(1.511)	(1.633)	(1.862)	(1.907)	(2.051)	(2.181)	(2.300)	(2.321)	(2.441)	(2.530)	(2.592)
GDP = L.	0.122	-0.0989	0.528**	0.786***	0.831***	0.845***	0.839***	0.788***	0.849***	0.844***	0.812***	0.789***
	(0.436)	(0.308)	(0.244)	(0.221)	(0.193)	(0.185)	(0.180)	(0.175)	(0.165)	(0.165)	(0.162)	(0.157)
coord	-0.536	-0.869	-1.470**	-1.588**	-1.834**	-2.063**	-2.530***	-2.921***	-3.170***	-3.313***	-3.195***	-3.593***
	(0.601)	(0.606)	(0.654)	(0.744)	(0.763)	(0.820)	(0.875)	(0.924)	(0.933)	(0.992)	(1.036)	(1.069)
1.trough.#1.fin_crisis_cycle	-1.069	-2.196	1.645	-2.312	8.965*	12.98**	14.65**	13.51*	-0.794	6.107	-0.837	-0.234
	(3.833)	(3.851)	(4.160)	(4.757)	(5.070)	(5.621)	(6.576)	(7.190)	(7.617)	(9.384)	(11.15)	(13.17)
Observations	1,394	1,383	1,372	1,364	1,357	1,350	1,343	1,336	1,327	1,318	1,310	1,301
R-squared	0.025	0.045	0.070	0.090	0.119	0.143	0.157	0.178	0.211	0.231	0.245	0.265
decade trend	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
base hour level	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
country FE	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
restrict to recoveries	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 24: Explaining the cumulative growth of hours worked per worker after the trough using linearly detrended series

INSTITUT DE RECHERCHE ÉCONOMIQUES ET SOCIALES

Place Montesquieu 3
1348 Louvain-la-Neuve

UCLouvain

LiDAM

IRES | Louvain Institute of Data Analysis and
Modeling in economics and statistics