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SHORT-TIME EMPLOYMENT AID DURING THE COVID-19 LOCKDOWN SHORT-AND LONG-RUN EFFECTIVENESS

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ABSTRACT

The COVID-19 pandemic led to significant economic disruptions, prompting many governments to implement short-time employment aid (STEA) to mitigate job losses and income reductions. This study examines the effectiveness of STEA in the short and long term in Europe among workers aged 50 and older, a part of the population that was especially threatened by the disease. Using data from the Survey of Health, Ageing and Retirement in Europe (SHARE), we analyze the impact of STEA on employment status, working hours, and income during and after the pandemic.

STEA was widespread in Europe. Our findings indicate that the use of STEA was in general reasonably targeted and may have helped its recipients to avoid even worse economic losses during the pandemic, especially after a learning process from 2020 to 2021. However, STEA may have led to increased employment instability in the longer run. Specifically, recipients of STEA were more likely to experience unemployment or furloughs post-pandemic. These results highlight the importance of designing STEA policies that not only provide immediate economic relief but also support sustainable employment and economic resilience.

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1. Introduction

The COVID-19 pandemic and the epidemiological containment measures governments introduced in response to it caused one of the most significant economic downturns since the financial crisis in 2009. Many people were affected by a reduction in working hours, also known as short-time work (STW). To minimize the adverse effects of STW on workers' incomes, many governments compensated workers for their earnings losses through short-time employment aid schemes (STEA). Although these schemes differed widely in their coverage and generosity across countries (European Commission 2010, ETUC 2020, OECD 2020), they had a common aim: to guarantee workers a minimum income regardless of the hours they worked.

This study examines whether STEA actually helped the workers aged 50 and older who were considered more threatened by the disease than younger workers. We take a comparative view by employing data from the Survey of Health, Ageing and Retirement in Europe (SHARE) and exploit the cross-national variation of the stringency of lockdown measures as well as the severity of the pandemic across the 28 SHARE countries. To our best knowledge, this is the first analysis of STEA during the COVID-19 pandemic covering all EU countries and providing evidence on both short and long-term effects.

Our research objectives are based on the following questions:

- Who was affected by shorter working hours during the COVID-19 pandemic? Specifically, were these workers among the most vulnerable because, for example, they had a previous history of unemployment or low income?
- Did the workers affected by STW receive support? Specifically, did they receive STEA from their governments or employers? Did this support help them to maintain their living standards?

Short-time employment aid schemes are not new. There is plenty of evidence that these schemes can have positive effects on employment and save productive employer-employee matches that otherwise would have been dissolved (see, for instance, Boeri & Bruecker 2011, Giupponi & Landais 2023, Kopp & Siegenthaler 2021, Cahuc et al. 2021, Hijzen & Martin 2013 or Niedermayer & Tilly 2017). However, as Giupponi & Landais (2023) and Osuna & Perez (2021) point out, these positive effects can vanish and even become negative if the shock that hits the economy is not temporary and affects low-productivity firms. The reason is that STEA serves as short-term insurance to workers but it also slows down or even stops the Schumpeterian process of replacing firms with low productivity by firms with

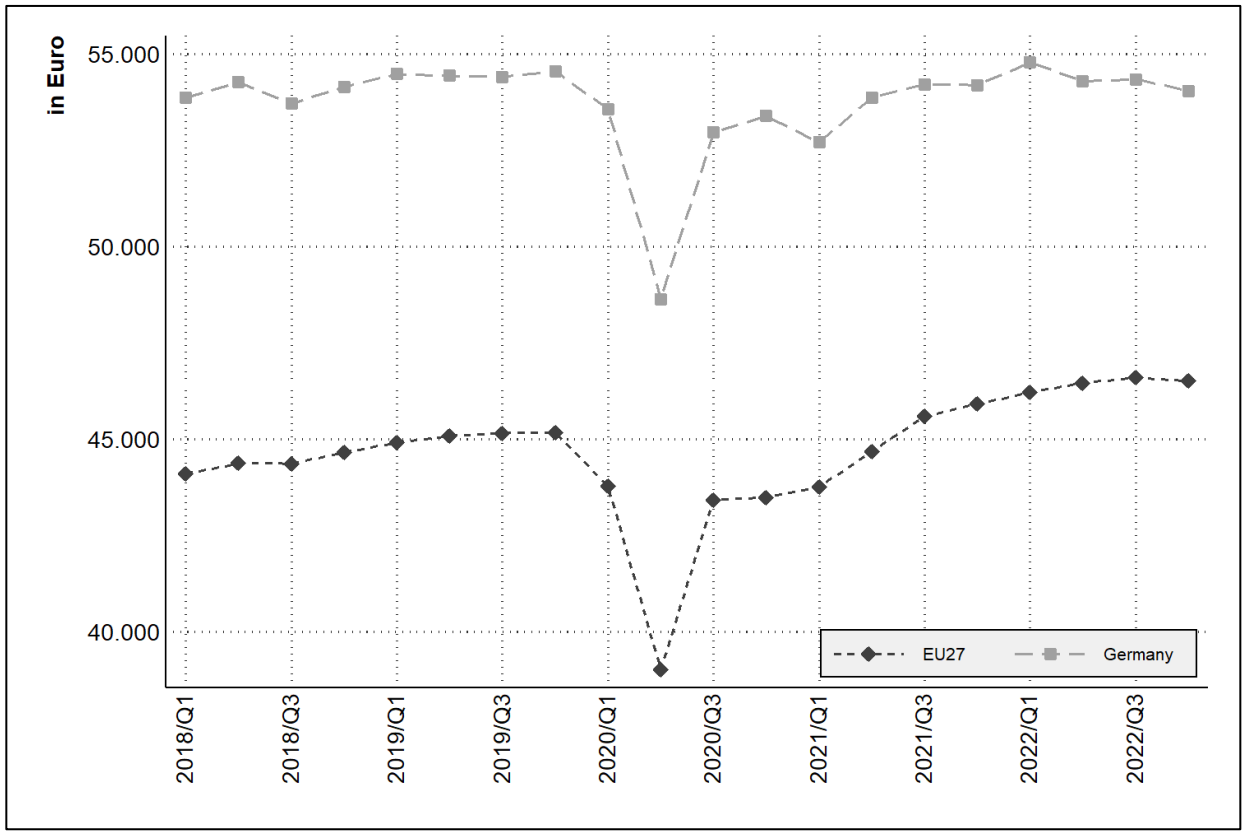
higher productivity. Hence, the insurance against job loss may help temporarily but it may inefficiently retain workers in low-productivity firms (in the extreme: "zombie companies") which will eventually fail. The resources – on the one hand, the human capital in the form of the employees whom more productive firms could have hired; on the other hand, the financial means needed to retain the jobs – could have been used for better purposes. Hence, a second set of research questions evaluates the potential adverse side effects of STEA:

- Do we observe adverse side effects of STEA? Specifically, do we see more unstable employment in the longer run among workers who received STEA?
- If we observe such negative long-run outcomes, can we attribute them to STEA, or can they be explained by the fact that the jobs and the workers eligible for STEA have been less productive in the first place?

Several studies highlight that the design of short-time work policies is crucial for a balance in this trade-off. In addition to being used as a temporary measure to avoid labor market frictions, these policies should target firms with high productivity that are likely to recover quickly after a shock (Giupponi & Landais, 2023). One should also avoid extending STEA when the business cycle starts to swing up (Boeri & Bruecker 2011, Hijzen & Martin 2013). The application of STEA in Europe during the pandemic may not have met these criteria. STEA measures were widely available to almost all firms during the crisis. However, they remained in place for an extended period in some countries. For example, in Germany, easier access to these measures only ended in June 2023, which overlaps with the period during which the German economy and the whole European economy had already begun to recover, as shown in Figure 1, suggesting that STEA may have had adverse effects in some European countries in the longer run.

To distinguish between short- and longer-run effects, the paper takes advantage of the longitudinal features of SHARE. SHARE's Wave 8 collected data just before the pandemic in the Winter of 2019/2020, and Wave 9 was conducted after the pandemic in 2022/2023. Between these regular waves, SHARE conducted two waves of a "Corona Telephone Survey" during the COVID-19 lockdown in spring 2020 and spring 2021. Hence, shocks to individuals' working hours, their income situation, the receipt of STEA during the pandemic, and the employment situation after the pandemic can be tracked.

Figure 1. Real GDP in EU-27 from 2019 to 2022



Source. OECD (2021b).
Note. The graph shows quarterly data for real GDP per capita between 2018 and 2022 for Germany and the EU-27. We adjusted the GDP values for inflation, by using 2020Q1 price levels, which is the price level at the beginning of the pandemic.

Our study also uses data from previous waves of SHARE, including SHARELIFE, to identify respondents who were considered vulnerable before the pandemic. In addition, the study distinguishes between the direct effects of the pandemic, measured by the country-specific death rate due to COVID-19, and the indirect effects of the pandemic, derived from the governments' containment responses, as represented by the Stringency Index of the Oxford COVID-19 Government Response Tracker (OxCGRT, Hale et al. 2021). The information about the legal instruments supporting STEA instruments was retrieved from the SPLASH Database (the Social Policy Archive for SHARE).

We proceed as follows: in Section 2, we describe short-time employment measures in the 28 SHARE countries. Section 3 gives an overview of the data and sample we are using. Section 4 describes how common reduced working hours were by country and sector and which respondents suffered from a reduction in working hours during the pandemic. Section 5 is devoted to STEA, shows its prevalence in the SHARE countries and investigates whether it has improved the economic situation of its

recipients. Section 6 is the core of the paper. We analyze the employment effects of STEA in the short und longer run. We summarize and conclude in Section 7.

2. STEA Policies

Many European countries responded to the first wave of the pandemic by implementing nationwide lockdowns in March 2020. Since these lockdowns often included restrictions that affected economic activity and therefore caused reductions in working hours, access to short-time employment measures was granted relatively quickly. Table 1 presents a summary of the short-time employment aid policies in the 28 SHARE countries. Our focus is specifically on when (easier) access to these measures became available, the conditions that must be fulfilled to be eligible for the financial aid, and the percentage of salaries these measures replace. Additionally, we document whether policies were available prior to the outbreak of the pandemic and whether employers are required to contribute to the subsidies. With the exceptions of the Czech Republic and Hungary, which reacted a few weeks later, all countries introduced some form of STEA in March 2020.

In 20 of the 28 countries, STEA was available continuously until the end of our observation period, which is the end of 2021. Hungary was the only country to abolish STEA measures in 2020. Other countries temporarily interrupted the program: Estonia from July to December 2020 and Latvia from July to November 2020. Denmark interrupted the program twice, first between September and November 2020, and again between July and October 2021. Some countries abolished the scheme later in 2021, including Israel and Latvia (both in June 2021), Sweden (September 2021), and Lithuania (November 2021).

Most countries replaced a percentage of the normal salary, with some countries, at least temporarily, even replacing up to 100% (Bulgaria, Czech Republic, Denmark, Lithuania, the Netherlands, and Switzerland). Other countries compensated short-time work with a fixed amount, but the majority replaced between 60-80% of prior salaries, often with some lower and upper bounds. Employers did not have to contribute to the compensation in most countries. Notable exceptions include Bulgaria, where employers had to cover 40-50% of the compensation, the Czech Republic (up to 40%), and Portugal (30%). In Denmark, employers contributed 25% to the compensation, but 100% for amounts above 4,000€. In Poland, employers contributed 0% only up to the average wave, then 100%. In Lithuania, everything above 963€ was directly compensated by the employer.

Table 1. Short-time employment aid schemes in Europe

Country	STEA before?	Start Date	End before 31.12.2021?	Rep. rate	Eligibility	% Employer	Notes
Austria	Yes	01.03.2020*	No	80-90% n.w.	Workplace in economic difficulties	0%	Working hours: 10-90% of normal hours, from Oct' 20: 30-80%
Belgium	Yes	13.03.2020	No	70% (max. 1,928€)	Temporary unemployment	0%	
Bulgaria	No	19.03.2020*	No	100%	Revenues decreased by 20%	40-50%	From Jul '20: 80% rep. rate for workers in tourism and transport From Jul' 21: Revenue decrease 30%
Croatia	No	20.03.2020	No	267-533€	Revenues decreased by 20%	0%	From Jul '20: minimum loss to 40-60%; Working hours: 10-90% of normal hours
Cyprus	No	11.03.2020	No	60%	Revenues decreased by 25%	0% + soc. sec. contr.	
Czech Rep.	No	06.04.2020	No	100% (max. 1,430€)	Workplace shut down by gov.	20%	Working hours: 0%
				60-100% (max. 1,430€)	Workplace in economic difficulties	40%	Rep. rate depends on companies' difficulties
Denmark	Yes	09.03.2020	No, interrupted from Sep-Nov '20 & Jul-Oct '21	100%	Workplace would otherwise dismiss 30% of staff (or more than 50 employees)	25%, 100% above 4,000€	
Estonia	No	01.03.2020*	31.05.2021, interrupted from Jul-Dec '20 & Mid Jan-Feb '21	70% (max. 1,000€) + min. 150€ by employer + tax coverage	Revenues decreased by 30%	Min. 150€	From Jan' 21: Revenue decrease 50%
Finland	Yes	16.03.2020	No	40-90% (min. 1,080€)	Temporary unemployment	13%	
France	Yes	27.03.2020	No	70% (min. min-wage, max. 4.5*min-wage)	Business affected significantly by COVID-19	0-14%	From Apr '21: Rep. rate decreases to 60% and employer share incr. to 40%
Germany	Yes	01.03.2020*	No	60% n.w. months 1-3, (70% months 4-6, 80% months afterwards), + 7% if children	10% of workforce have to reduce working hours by more than 10%	0%	70-80% rep. rate only from Apr '20; Working hours: 0-90% of normal hours
Greece	No	20.03.2020	30.11.2020	300-534€	Business affected significantly by COVID-19	0%	Working hours: 0%
		15.06.2020	No	60% n.w.	Revenues decreased by 20%		
Hungary	No	17.04.2020	31.08.2020	70-80% (max. 612-987€)	Revenues decreased by 9-75%	0%	Working hours: 50-70% of normal hours; Wage subsidies for HoReCa/culture/sport/ leisure sectors in Nov '20-Jan '21
Italy	Yes	17.03.2020	No	80% (max. 1,130€)	Business activities affected by COVID-19	0%	Aug-Dec '20: Employers cover 9-18% if revenues loss <20%
Israel	No	27.03.2020	30.06.2021	Unemployment benefits	Temporary unemployment	0%	
Latvia	No	14.03.2020	30.06.2021, interrupted from Jul-Nov'20	75% (max. 700€)	Revenues decreased by 20% (larger) or 30% (smaller companies)	0%	From Nov '20: revenues loss at least 20%, rep. rate only 70% (max 1,000€, min 500€)

Table 1 (ctd.). Short-time employment aid schemes in Europe

Country	STEA before?	Start Date	End before 31.12.2021?	Rep. rate	Eligibility	% Employer	Notes
Lithuania	No	17.03.2020	22.11.2021	100%	Company has suspended operations fully or partially	0-30%, 100% above 963€	From Jan '21: gov. covers all salaries up to 963€
Luxembourg	Yes	18.03.2020	No	80% (max. 2.5*min-wage ≈ 5,000€)	Business activities affected by COVID-19	soc. sec. contr.	
Malta	No	24.03.2020	No	max. 1,200€	Revenues decreased by 9%	max. 400€	
Netherlands	Yes	17.03.2020	No	100%	Revenues decreased by 20%	10%	From Oct '20: Rep. rate 90% Employers cover 20% (from Dec '20), 30% (Jan-Mar '21), 40% (afterwards)
Poland	No	08.03.2020	No	50% (min. min-wage)	Revenues decreased by 15% (compared to prev. year), or 25% (compared to prev. month)	0%, 100% above average wage	Working hours: 50-80% of normal hours; No STEA for employees with > 3* av. wage
Portugal	Yes	27.03.2020	No	66% (min. min-wage, from Jan '21: max. 3*min-wage)	Workplace shut down by gov.	30%	Rep. rate: 80% (from Aug '20), 90% (from Oct '20), 100% (from Jan '21) Working hours: 0%
		01.08.2020			Revenues decreased by 40%		Oct '20: Rep. rate 80% Jan '21: Revenue decrease 25% Working hours: 30-50% of normal hours
Romania	No	21.03.2020	No	75% (max. 492€)	Workplace shut down due to COVID-19	0%	Working hours: 0%
		01.08.2020			Revenues decreased by 10%		Working hours: 50-100% of normal hours
Slovakia	Yes	27.03.2020	No	80% (max. 1,100€)	Revenues decreased by 20%	0% + soc. sec. contr.	From Oct '20: state covers soc. sec. cont.
Slovenia	No	31.03.2020	No	80%	Revenues decreased by 20%	0%	Working hours: 0%
		01.06.2020			10% of workforce have to reduce working hours by more than 10%		Working hours: 0-90% of normal hours
Spain	Yes	17.03.2020	No	70% months 1-6; 50% afterwards (max. 1,098€, 1,411€ with 2+ children)	Sector affected significantly by COVID-19	0%	
Sweden	Yes	16.03.2020	30.09.2021	80-87.5% (max. 4,071€)	Workplace in unforeseeable economic difficulties	4-12%	Working hours: 20-100% of normal hours
Switzerland	Yes	13.03.2020	No	80%, 100% if earnings below 3,220€	Revenues decreased by 10%	0% + soc. sec. contr.	Working hours: 0-90% of normal hours

Sources: SPLASH Database, Eurofund (2020), ETUI (2021), OECD (2021a).
Notes: Start and end dates refer to the period during which access to short-time employment aid schemes were created, or in case a scheme already existed, easier access was granted. * indicates retroactive start date. When replacement rates refer to salaries, they are relative to the gross wage, unless stated otherwise by "n.w." (net wage). Abbreviations: rep. rate=replacement rate; min-wage=minimum wage; max-wage=maximum wage; gov.=government; soc. sec. contr.=social security contributions; HoReCa=Hotels, Restaurants, and Cafes; av. wage = average wage.

In 15 of 28 countries, access to short-time employment aid measures was granted if the company experienced reduced turnover, varying from a relatively small difference (e.g., 9% in Malta) to a more significant difference in turnover (e.g., 30% in Estonia and Latvia, or even 40% in Portugal). Some schemes required a complete or partial discontinuation of economic activity (e.g. schemes in Portugal, Romania, Lithuania, and the Czech Republic). Other schemes required firms only to be affected by the COVID-19 pandemic (e.g. Italy or France) or to have a reduction in employment (e.g. Denmark, Germany, and Slovenia). In Belgium, Finland, and Israel, temporary unemployment was required.

One could expect that in countries where access to STEA was granted relatively easily and where employers had to cover only a small share of the compensation, more individuals might have utilized STEA. Examples of countries where both factors apply include Austria, Belgium, France, Germany, Greece, Italy, Luxembourg, Romania, Slovenia, Spain, and Switzerland. Conversely, countries like Bulgaria, Estonia, Denmark, and Portugal have either very strict access requirements or a high employer contribution. These patterns are largely confirmed in the actual uptake patterns as will be shown in Section 5.

In Croatia, revenue losses needed to be 20% until July 2020 but this requirement was increased to 40% afterwards. Thus, all else being equal, the use of STEA should be lower after July 2020. Section 5 will confirm also these patterns. In France and the Netherlands, the share that employers had to contribute also increased over time.

3. Data & summary statistics

This study utilizes data from the Survey of Health, Ageing and Retirement in Europe (SHARE), a biennial survey that targets individuals aged 50 and above. SHARE provides extensive microdata on socioeconomic status, social and family networks, and health across multiple European countries.[1]

For our analysis, we combine data from Wave 1 (2004) through Wave 9 (2021/22), which includes Waves 3 and 7 with retrospective information ("SHARELIFE"), as well as data from two telephone interviews conducted during the COVID-19 lockdowns in 2020 (CATI 1) and summer 2021 (CATI

[1] Börsch-Supan et al. (2013) provides a description.

2). Our dataset encompasses 27 countries, including all EU countries except Austria plus Switzerland and Israel.[2]

Our focus is on the impact on employment status and income related to the pandemic. The three most important variables are:

Reduced working hours: In CATI 1 and CATI 2, respondents were asked whether they had reduced their working hours since the onset of the pandemic (asked in CATI 1) or since their last interview (CATI 2). We analyze these data for respondents employed at the start of the pandemic.

Received short-time employment aid (STEA): Both CATI interviews covered a question about any financial assistance received, detailing whether it came from government, employer, family, or friends. In CATI 1, this question was asked only to the first respondent of the household, who answered for the entire household. In CATI 2, all respondents received the question individually.

However, only CATI 2 included a specific question about compensation for reduced working hours. We therefore construct the variable "Short-Time Employment Aid" by combining reduced working hours with the information about any financial help provided by the employer or the government. This way, we can compare financial assistance over the two interviews.

Unemployment: Both CATI interviews included a question about being unemployed, furloughed, or business closure on the individual level. In CATI 1, this pertains to the period following the pandemic's outbreak until the interview data. For CATI 2, it refers to the period post-CATI 1 to the interview date of the second telephone interview. Unfortunately, in some countries, that question also contains whether individuals went into short-time work, complicating the analysis of short-time employment and unemployment.[3]

In our analysis, we primarily focus on individuals who were employed during the outbreak of COVID-19 as of the first CATI in the summer of 2020. Our sample comprises 11,663 respondents, 85.1% of whom also participated in the subsequent telephone interview in summer 2021 (CATI 2)[4].

[2] Austria is excluded due to comparability issues.
[3] The survey version in which the question also covered short-time work are: Belgium (only French interview), Bulgaria, Switzerland (all language versions), France, Italy, Luxembourg.
[4] We excluded individuals who participated in CATI 2, but not in CATI 1 as most of our analysis is conditional on having been employed during the outbreak of COVID-19. Out of the 50,209 respondents in CATI 2, this excludes 849 of them.

Additionally, we incorporate data from Wave 8 – collected just before the pandemic – and Wave 9 – the first regular survey wave following the outbreak. Coverage for these waves is 60.4% and 78.4% of our sample, respectively.[5]

Table 2 describes the demographic characteristics of our sample. Where possible, we show data from CATI 1 and CATI 2 and supplement it with information from Waves 8 and 9 which include many additional variables. Our sample comprises 53.9% women. The average age is 59.6 years in summer 2020. Average household size is 2.3. Employment histories are derived from the Job-Episodes Panel, which utilizes retrospective data from Waves 3 and 7 and employment spells between regular survey waves. They indicate that 13.3% of our sample experienced at least one spell of unemployment before CATI 1. Educational attainment is distributed as follows: about 21% of respondents fall into the low education category (ISCED-97 levels 0-2), about 50% are in the middle category (ISCED-97 levels 3-4), and about 29% are categorized as highly educated (ISCED-97 levels 5-6).

Table 2. Summary Statistics

	CATI 1 (2020)	**CATI 2 (2021)**
Females	53.9%	54.2%
Age	59.6	60.1
Household Size	2.3	2.2
Ever Unemployed	13.3%	13.3%
Low Education	21.0%	21.6%
High Education	29.0%	29.3%
	W8 (2019-20)	**W9 (2021-22)**
Married	65.3%	69.3%
Self-employed	16.2%	17.3%
Works Fulltime	75.0%	73.4%
Equiv. Income	25,252€	24,636 €

Source. Own calculations, based on SHARE release 9.0.0.
Note. We use household equivalized income, dividing total household income by 1 for the first person in the household, plus 0.5 for every additional household member. We adjust for inflation. Weights applied.

[5] Note that the data collection of the 8th wave of SHARE was disrupted by the outbreak of COVID-19. As a consequence, fieldwork had to be suspended in March 2020, with only about 70% of all planned interviews being conducted at that point of time.

Approximately two-thirds of respondents were married in Wave 8. Regarding employment, about 75% of those employed in the Waves 8 and 9 worked full-time, slightly decreasing from Wave 8 to Wave 9. Equivalized household income decreased from 25,300€ in Wave 8 to 24,600€ in Wave 9 (in 2022 Euro values, using the OECD equivalence scale). The average age of our sample is 59.6 years. We focus on elderly employees because they were considered especially threatened by the pandemic. This group experienced the labor market impacts of short-time work differently from their younger counterparts for two reasons. First, elderly workers often possess firm-specific skills and experience that employers can highly value, making them particularly costly to replace. Breaking these employer-employee matches may be especially inefficient when firms must implement layoffs or even shut down operations in response to the pandemic. Second, reemployment probabilities diminish as individuals approach retirement age. Therefore, the loss of employment for older workers may have more severe long-term consequences compared to those faced by younger or middle-aged employees, e.g., because these employees have less time to make up for income losses suffered due to short-time work.

4. Short-time work in Europe

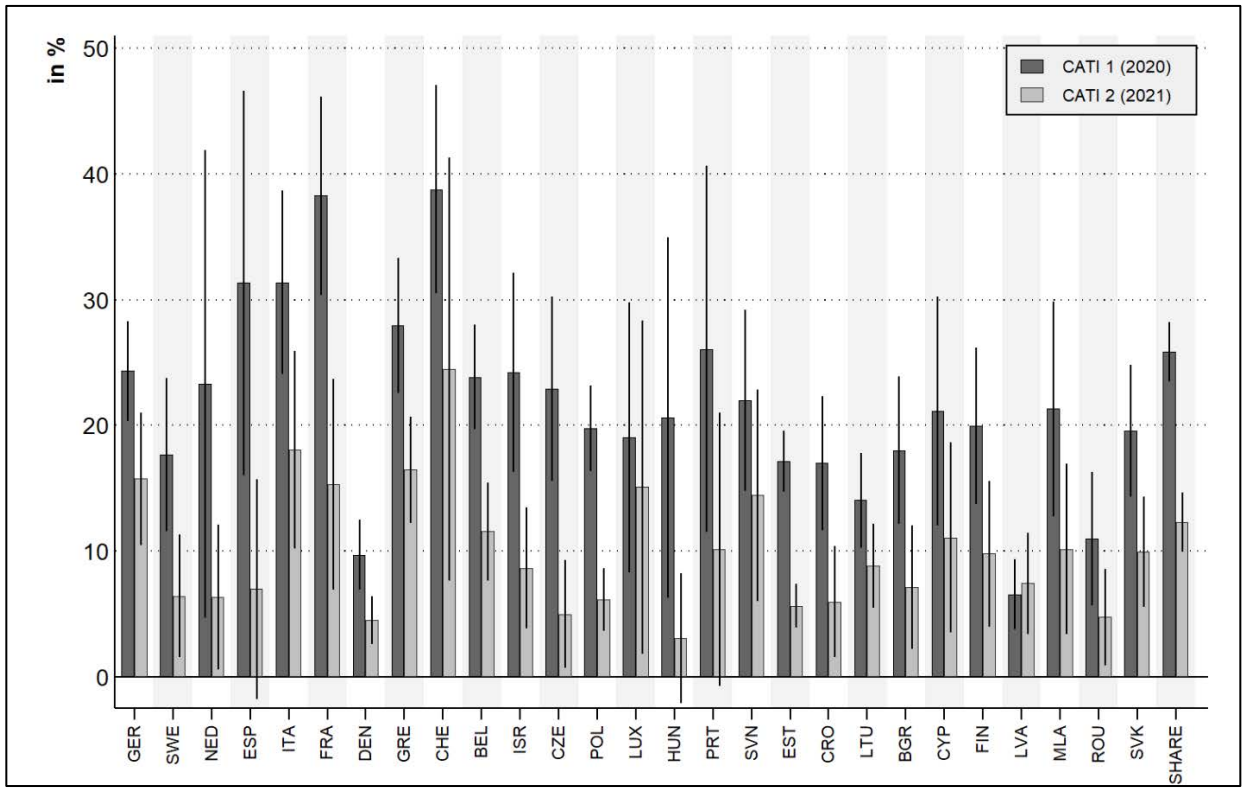
Prevalence of short-time work (extensive margin)

Figure 2 illustrates the proportion of respondents from each country who reported reduced working hours during the pandemic. On average across all countries, the percentage decreased from 26.1% between the onset of the pandemic and reported in CATI 1, to 12.4% who reported reduced working hours between CATI 1 and CATI 2.

The variation across countries is substantial. For instance, nearly 40% of respondents in France and Switzerland and 30% in Spain and Italy reported reduced working hours shortly after the outbreak (darker bars, CATI 1). In contrast, in Denmark, Latvia, and Romania, less than 11% of individuals experienced a reduction during the same period.

In the subsequent CATI 2, fewer individuals reported reduced working hours relative to the earlier telephone interview. While the overall average across SHARE countries showed a substantial decrease, this trend was not universal. In Luxembourg and Slovenia, the decrease was relatively small; in Latvia, the share of respondents working reduced hours even increased; in Switzerland, the share decreased by 15 percentage points but remained at a high value of 24%. The reduction was very strong in other countries (e.g., Sweden, Netherlands, Spain, and Hungary).

Figure 2. Prevalence of short-time work across SHARE countries (extensive margin)



Source. Own calculations, based on SHARE release 9.0.0.
Note. The graph shows the prevalence of reduced working hours across the SHARE countries. Individuals are in the sample conditional on having been employed during the outbreak of the pandemic.
Total number of observations: N_{CATI1}=9,464, N_{CATI2}=7,115. Corresponding cross-sectional weights were applied. Vertical lines represent confidence intervals.

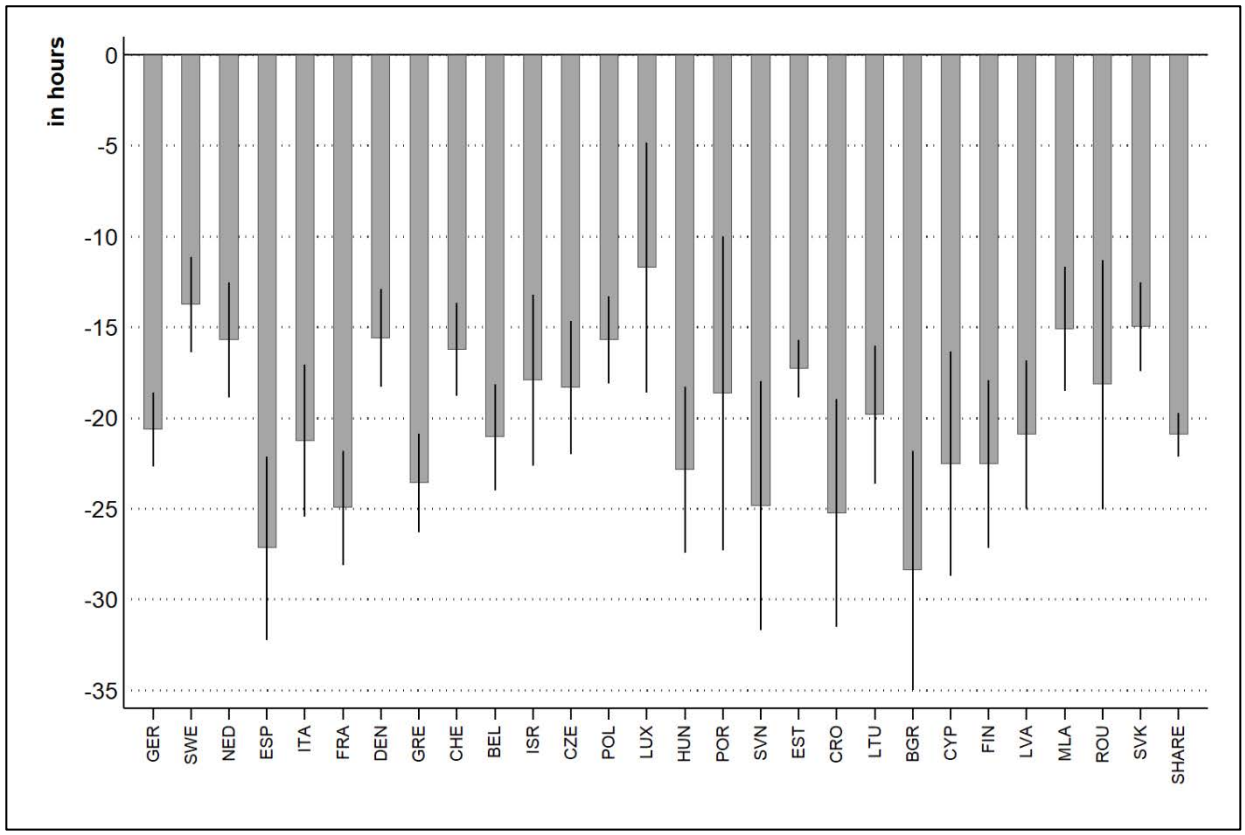
Extent of short-time work (intensive margin)

We also measure the extent of working hour reductions, i.e., the intensity of the shocks, which likely varies by country (depending on the design of the short-time work policies) and sector. With SHARE, we can observe the largest reduction in working hours that respondents experienced. Respondents are asked what the lowest number of hours worked in a single week was, conditional on having a job in that week. We show in Figure 3 how these most extreme reductions vary over the SHARE countries.

The average difference between pre-pandemic working hours and the minimum working hours during the pandemic was approximately 21 hours. Given that the average workweek was 36.5 hours before the outbreak, this reduction represents a decrease of about 58%. However, the extent of working hour reductions varies greatly by country. The reductions were largest in France, Greece, Slovenia, and

Croatia (about 25 hours), and in Spain and Bulgaria (about 27 hours), much smaller in Luxembourg and Sweden (about 13 hours).

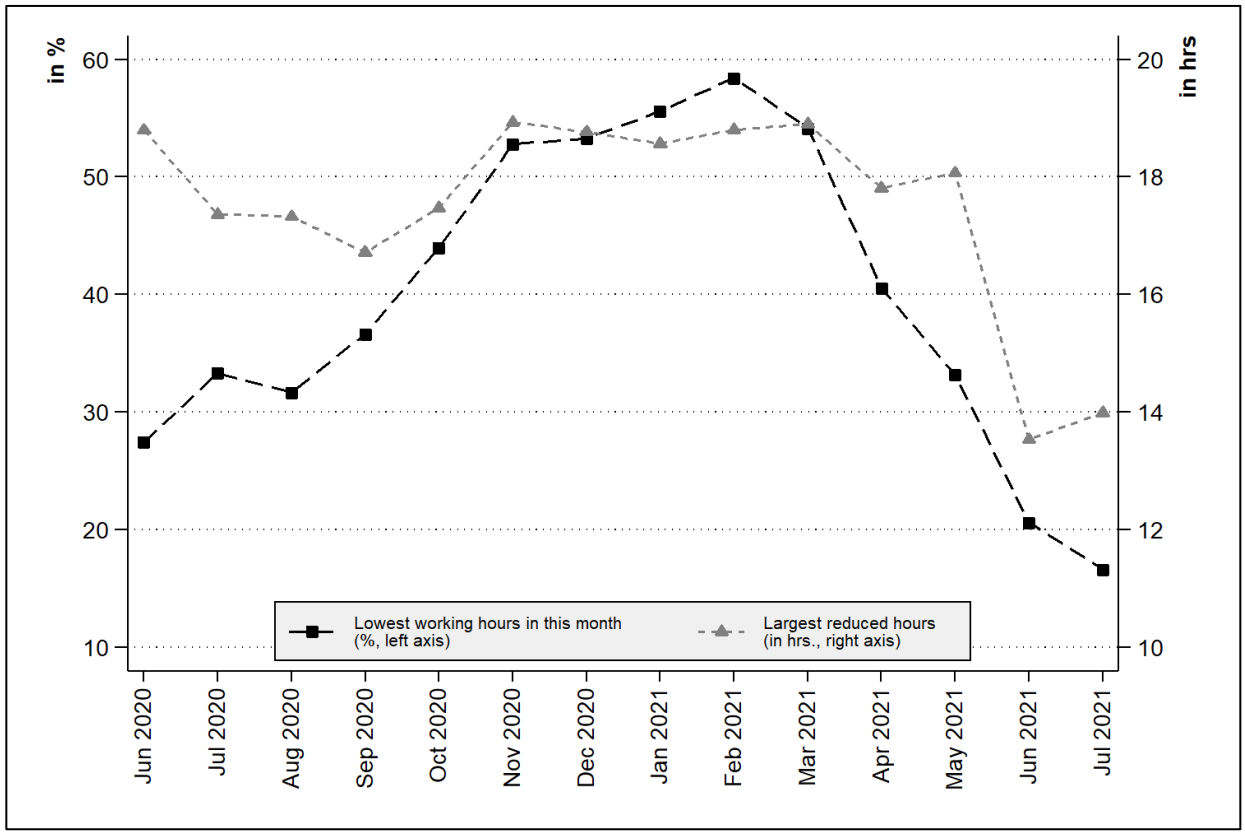
Figure 3. Largest reduction in working hours (intensive margin)



Source. Own calculations, based on SHARE release 9.0.0.
Note. Respondents report how large their largest reduction in working hours was, this graph shows the average values over countries, for both CATIs combined. It is conditional on having been employed during the outbreak of the pandemic and on having reported reduced working hours during CATI 1 or CATI 2.
Total number of observations: N=2,150. Corresponding cross-sectional weights were applied. Vertical lines represent confidence intervals.

Although we cannot directly observe working hours over time in our dataset, we can infer some of the temporal variation. Individuals were asked in CATI 2 to report in which months their lowest working hours started and ended. The results are depicted in Figure 4. The black line with squares (left axis) indicates the share of individuals who reported their lowest working hours between June 2020 and July 2021, conditional on having any reduced working hours.

Figure 4. Month in which largest reduction in working hours was reported



Source. Own calculations, based on SHARE release 9.0.0.
Note. Respondents report how large their largest reduction in working hours was and also during which months this most extreme reduction occurred. The black line with squares shows the share of respondents who reported that reduction in a specific month (left axis). The grey line with triangles shows the average of the largest reduced hours reported in that month (right axis). It is conditional on having been employed during the outbreak of the pandemic and on having reported reduced working hours during CATI 1 or CATI 2.
Total number of observations: N=543. Corresponding cross-sectional weights were applied.

The proportion reporting their lowest working hours increased steadily from 30% in summer 2020 to peak between November 2020 and February 2021, when over 50% indicated that these were the months with the largest reduction. Following this peak, there was a substantial decline starting in spring 2021, with only 15% of respondents reporting their lowest working hours in July 2021.

Figure 4 also shows the extent of the reduction in working hours for each month when the lowest levels were reported, compared to pre-pandemic levels and conditional on having any reduced working hours. It also excludes those employees who reported their minimum working hours in different months. The average reduction is relatively stable until the spring of 2021 at about 17-19 hours but then decreases sharply after May 2021.

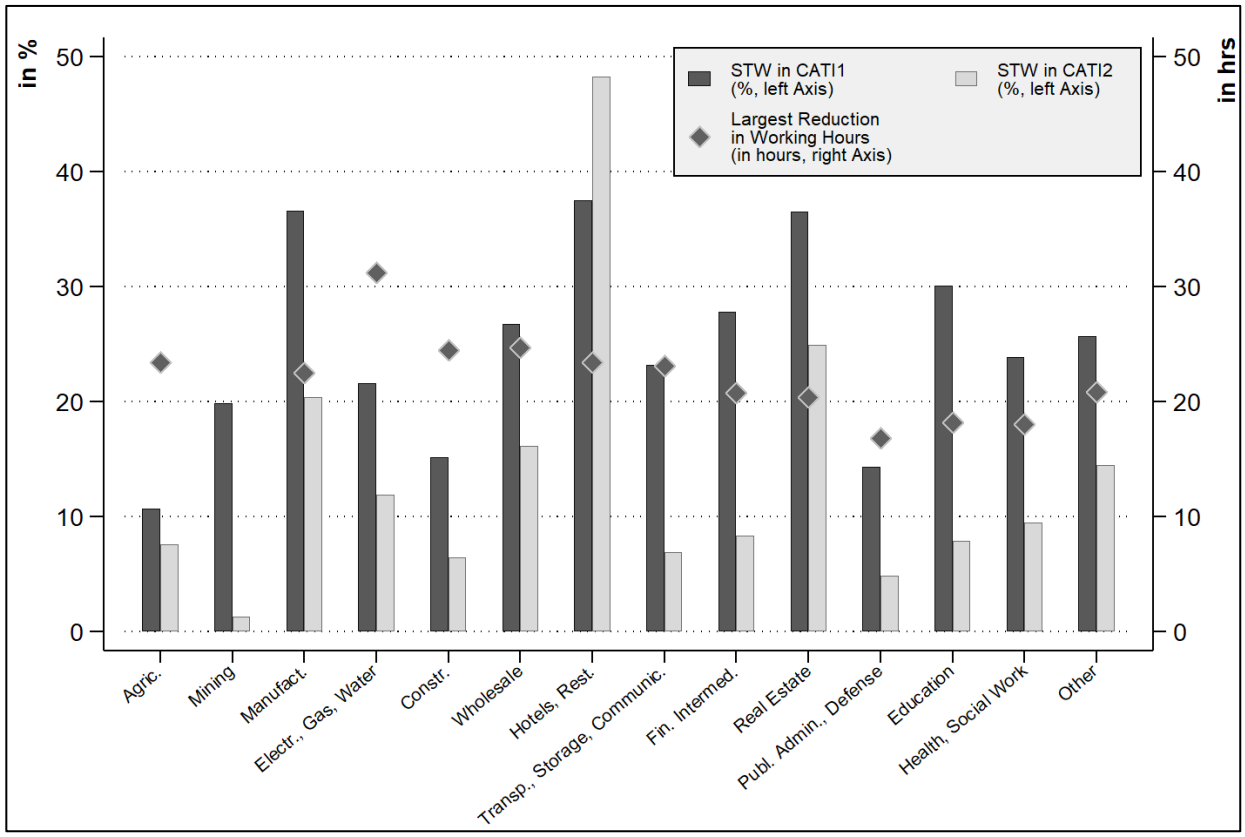
Short-time work by sector

The reduction of working hours varied strongly across sectors of the economy. This is illustrated in Figure 5. In sectors like "Agriculture" or "Public Administration", few respondents reported reduced working hours both in 2020 and 2021, which, for agriculture, is not unexpected given the nature of the sector (for instance, limited professional contact or the use of temporary workers). However, for many sectors, approximately 20% of individuals reported reduced working hours shortly after the outbreak, as recorded in CATI 1. By the time of CATI 2, a year later, the percentage of respondents reporting reduced hours had substantially declined to below 10% in most sectors.

There were some exceptions. In the "Wholesale and Retail Trade" sector, around 15% of respondents continued to report reduced working hours in CATI 2. In the "Manufacturing" and "Real Estate" sectors, this share was still around 20%. The "Hotels and Restaurants" sector was particularly affected: almost 40% of respondents reported reduced hours in CATI 1, and this figure even increased over time, with approximately 50% of workers in that sector reporting fewer working hours in CATI 2.

Figure 5 also presents the average of the largest reduction in working hours. This is illustrated by the diamonds (right axis). The hours represent the maximum in both interviews. In most sectors, working hours were reduced by an average of about 20 hours, less in the "Public Administration" or "Real Estate" sectors (about 15 hours) and more in the "Hotel and Restaurant" and "Financial Intermediation" sectors (about 25 hours).

Figure 5. Prevalence and intensity of reduced working hours over industries (extensive and intensive margin)



Source. Own calculations, based on SHARE release 9.0.0.
Note. Respondents report how large their largest reduction in working hours was, this graph shows the average values over industries in form of the diamonds (right axis), for both CATIs combined. Additionally, it shows how many respondents in a sector reported reduced working hours (left axis). It is conditional on having been employed during the outbreak of the pandemic and on having STW during CATI 1 or CATI 2.
Number of observations differ as we do not observe the corresponding industry for all respondents. On the extensive margin, we observe: N_{CATI1}=6,835, N_{CATI2}=5,399. On the intensive margin, we observe N=1,579. Corresponding cross-sectional weights were applied.
Abbreviations: "Agric." = Agriculture; "Manufact." = Manufacturing; "Constr" = Construction; "Hotels, Rest" = Hotels, Restaurants, and Cafes; "Transp., Storage, Communic." = Transport, Storage, Communication; "Fin. Intermed." = Financial Intermediation; "Publ. Admin, Defense" = Public Administration, Defense.

Who was affected by short-time work?

Table 3 shows the characteristics of individuals who experienced reduced working hours during the two CATI waves, based on a linear probability model. In one specification, we include country-fixed-effects to account for all factors that vary at the country level. In the second specification, we include a measure of the stringency of lockdowns (the Oxford Stringency Index, Hale et al. 2021) as well as a measure of severity of the pandemic (mortality by country and month) instead of the country-fixed

effects. We take the average of these two measures over the period between the interview and the pandemic outbreak (for CATI 1) and the period between the two interviews (CATI 2).

Generally speaking, Table 3 shows that those respondents who tend to be disadvantaged (low education, unemployment experience, low income, self-employed) are also those who were most hit by the reduction of working hours. However, measurement precision varies greatly across these characteristics and between the two CATI surveys. Educational attainment has the most pronounced association with reduced working hours. In CATI 1, respondents with lower educational levels (ISCED-97 levels 0-2) show a higher probability of reduced working hours than those with intermediate levels of education (ISCED-97 levels 3-4). Specifically, the likelihood is increased by almost around 3 percentage points (p.p.) in CATI 1, statistically significant at the 10% level. In CATI 2, we do not find such an association. Conversely, respondents with more educational attainment (ISCED-97 levels 5-6) are less likely to have experienced reductions in working hours. The difference is -3.3 p.p. in CATI 1 and -2.9 p.p. in CATI 2 (both statistically significant at the 5% level).

We observe a significant impact of the employment status on the likelihood of reduced working hours during the pandemic. Individuals who were self-employed at the onset of the pandemic are much more likely to work reduced hours: in CATI 1, the difference is 14.8 p.p.; in CATI 2, it is 13.7 p.p.. It is statistically significant at the 1% level in both cases. Whether individuals ever experienced any period of unemployment does not seem to affect the likelihood of short-time work in CATI 1, while we find that prior experience with unemployment increases the likelihood by almost 3 p.p. in CATI 2 (statistically significant on the 10% level). The position in the income distribution – whether the bottom or top tercile – has the expected sign in CATI 2 but no statistical significance.

Regarding the stringency index and the severity of the pandemic we observe in CATI 1 that stricter policies are associated with a lower probability for short-time work (statistically significant at the 5% level). In CATI 2, we find the opposite effect more precisely measured. This is the expected direction: more stringent lockdowns imply less economic activity. Higher mortality is associated with a higher proportion of short-time work in CATI 1 (statistically significant at the 1% level). It is not statistically significant in CATI 2.

Table 3. Linear probability model: who is affected by short-time work?

	Short-Time Work (0-100)			
	CATI 1		CATI 2	
Age (years)	0.04	0.00	0.13	0.18
	(0.13)	(0.12)	(0.12)	(0.12)
Female	0.51	0.19	0.60	0.53
	(1.29)	(1.28)	(1.16)	(1.16)
Low Educ. (ISCED 0-2)	3.55*	3.88*	0.14	-0.30
	(2.06)	(1.99)	(1.78)	(1.71)
High Educ. (ISCED 5-6)	-3.31**	-4.46***	-2.97**	-3.27***
	(1.38)	(1.34)	(1.20)	(1.16)
Self Employed	14.76***	16.12***	13.73***	14.34***
	(2.00)	(1.99)	(1.74)	(1.73)
Ever Unemployed	-0.97	-0.89	2.93*	2.10
	(1.88)	(1.86)	(1.58)	(1.56)
Bottom Income Tercile	-0.54	0.07	1.00	1.78
	(1.94)	(1.95)	(1.69)	(1.69)
Top Income Tercile	0.99	-0.02	-0.58	-0.79
	(1.42)	(1.41)	(1.24)	(1.23)
Stringency Index		-0.11*		0.12**
		(0.07)		(0.06)
Cumulative Deaths per 1,000		0.19***		0.00
		(0.03)		(0.03)
Country Fixed-Effects	✓		✓	
R^2	0.105	0.077	0.155	0.123
N	4,597	4,597	3,713	3,713

Source. Own calculations, based on SHARE release 9.0.0, Hale et al. (2021) and WHO (2020).
Note. In all specifications time and industry-fixed-effects are included. Standard errors in brackets. Significance levels: p<0.1 (*), p<0.05 (**), p<0.01 (***).

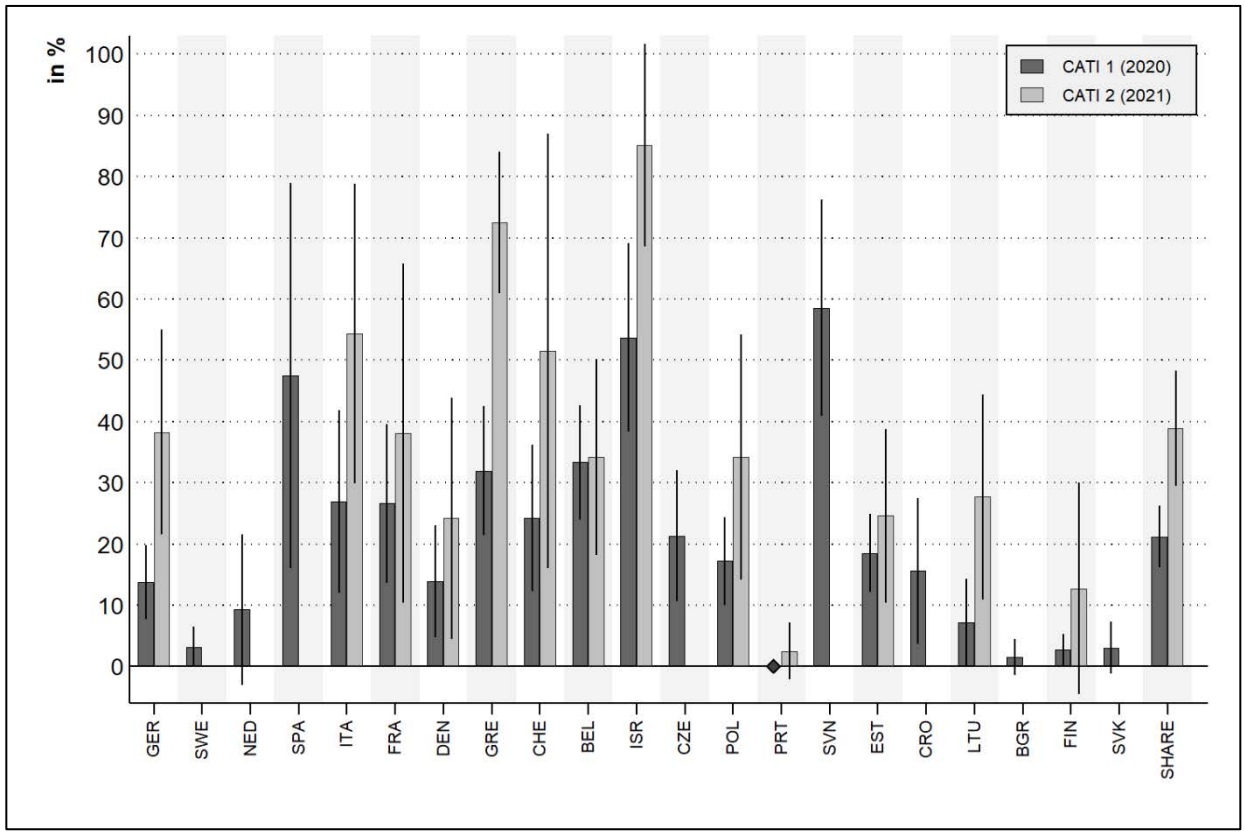
5. Prevalence and efficacy of short-time employment aid

Figure 6 presents our findings for STEA, as defined in Section 3. We restrict the analysis to countries with at least 25 respondents for whom we could construct the STEA measure. This reduces the number of countries from 27 to 21. Averaged over all respondents across all SHARE countries, we find that 21.1% of those with reduced working hours received financial help in CATI 1. This percentage increased to 38.9% in CATI 2. This increase does not imply that more employees actually received STEA since the share of employees suffering from STW fell from 26.1% to 12.4% (Figure 2). We interpret this decline as an improvement of targeting.

Spain, Italy, France, Greece, Switzerland, Belgium, and Slovenia, had more than 25% of respondents who reported STW and received this form of compensation in CATI 1. In contrast, in countries like Sweden, the Netherlands, Portugal, Bulgaria, Finland, Lithuania, and Slovakia no or only few respondents reported receipt STEA. This essentially mirrors the results from Müller & Schulte 2020 and is in line with Section 2, where we found that in countries like Italy, France, Greece, Switzerland, Belgium, and Slovenia, firms had relatively easy access to short-time employment and did not have to contribute a large share to the corresponding compensation. Conversely, we pointed out that the opposite is the case for Denmark, Estonia, Portugal, or Bulgaria.

A year later, in CATI 2, short-time work became less common in some countries such that we observe less than 25 respondents per country, as indicated by the missing light-grey bars in Figure 6. In most other countries, there is a distinctive upward trend in the proportion of individuals receiving compensation. For instance, in Germany, the share of respondents receiving aid increased from approximately 15% to almost 40%. In Italy, the increase was from 28% to 53%, and in Greece, it surged from 32% to 72%. The highest share of respondents who received this help can be observed in Israel, with around 85% of the respondents reporting that they did so. Conversely, in countries like Portugal and Finland, where there was initially a very low proportion of respondents receiving aid in CATI 1, the numbers remained low in CATI 2, with only a few individuals reporting receipt of aid.

Figure 6. Prevalence of short-time work compensation across SHARE countries



Source. Own calculations, based on SHARE release 9.0.0.
Note. The graph shows the share of respondents using short-time employment aid (STEA) across the SHARE countries. Respondents are considered to receive STEA if they report reduced working hours and that they received financial aid from either the government or the employer in the corresponding telephone interview. It is conditional on having been employed during the outbreak of the pandemic.
Total number of observations: N_{CATI1}=2,022, N_{CATI2}=840. Corresponding cross-sectional weights were applied. Shares for country only shown if more than 25 observations available. If bar and diamond is missing, not enough observations in the respective interview. If country is entirely missing, not enough observations in both interviews. Vertical lines represent confidence intervals.

Did STEA improve the economic situation of its recipients?

Whether STEA improved the economic situation of its recipients is a difficult question to answer since the recipients are selected to be those individuals who are in worse economic circumstances in the first place. Moreover, there is no clean experiment with a well-defined counterfactual since STEA policies were universal in each country. Exploiting the cross-national variation in the generosity of STEA does not solve the problem since it is confounded with other differences among countries. Besides presenting the raw mean comparisons between employees who received STEA and those who did not, we use two similar approaches to account for selectivity: conditioning on those observables which generate the selectivity, and matching respondents by those observables. The shortcoming of both

approaches is that they ignore unobserved sources of selectivity. Both the ordinary least squares model and the propensity matching approach condition on the following variables: age, quadratic age term, education, marital status, gender, history of unemployment, income tercile, and a dummy whether the respondent is self-employed. All specifications include country- and industry-fixed-effects. When analyzing the binary variable of whether it was (fairly) easy to make ends meet, we also present marginal effects derived from a logistic regression.

Table 4 shows the results. We employ two measures of economic well-being: equivalized household income (Panels A and B) and being able to (fairly) easily make ends meet (Panels C and D), separately for CATI 1 (i.e., the time between the onset of the pandemic and the first telephone interview) and CATI 2 (i.e., the time between the two telephone interviews). More specifically, the left side of Panels A and B displays the difference in equivalized household income prior to the outbreak and the lowest monthly income experienced between the onset of the pandemic and the interview date of CATI 1, whereas the right side of Panels A and B shows the difference in the lowest monthly income experienced between the two CATI interviews. We made the same comparisons over time for the variable "Easy or fairly easy to make ends meet" (Panels C and D).

We first show the effect of being hit by the shock of short-time work (STW; Panels A and C), then the effect of receiving STEA given that an employee faced STW (Panels B and D). The first line in each panel reports the raw difference (Δ) between the onset of the pandemic and CATI 1 (left side) and the onset of the pandemic and CATI 2 (right side), without conditioning on the variables that may have caused selectivity bias, followed by the regression analyses.

Regarding the difference between raw means Δ and conditional regression results β, the effects of STW are being reduced by conditioning, while the opposite is the case for STEA where conditioning makes the effects larger. In CATI 2, the impact of reduced working hours is significantly larger than in CATI 1, both in terms of the difference in income and the likelihood of making ends meet (fairly) easily. For STEA, we do not find a statistically significant difference. However, we observe that the negative relationship that can be found in CATI 1 disappears in CATI 2. This holds for both raw means and selectivity-corrected regression results.

Regarding the income differences among individuals who reported reduced working hours, we find a decrease of almost 100€ in the linear model and of 96€ using the matching approach. In CATI 2, the income difference is even larger at around 180€. In both interviews and across both models, the

differences are statistically significant at the 1% level. Next, we compare respondents who worked reduced working hours and received STEA to those with reduced hours without that financial help. Of the 950 respondents who reported to work fewer hours and gave income data for both the pre-onset period and CATI 1, 173 received STEA. Those receiving STEA experienced a larger reduction in their equivalized household income. The difference of 213€ is statistically significant at the 1% level. Using matching, we find an even larger effect (296€). While this result may be surprising, it only covers the relatively short period from March 2020 to July 2020. When examining the much longer period between CATI 1 and CATI 2 (for most respondents between August 2020 and July 2021), we find a positive effect of STEA, however, statistically insignificant.

In Panels C and D of Table 4, we repeat the analysis with the binary variable whether it was (fairly) easy to make ends meet as outcome. We present the unconditional means, as well as coefficients from three different models: ordinary least squares, logistic regression, and a matching approach.

Respondents who report reduced working hours in CATI 1 are less likely to have made ends meet (fairly) easily. The differences are about 5 p.p. (OLS and Logit) and 6.5 p.p. (matching), with all coefficients being statistically significant at the 1% level. As in Panel A, the negative impact is even more pronounced in CATI 2, with reductions of around 10 p.p. for all three estimation methods.

The effects of STEA on making ends meet are similar to the income effects. Individuals receiving STEA are about 5.7 p.p. less likely to make ends meet (fairly) easy in CATI 1. Using a propensity matching approach, we find no statistically significant effect of STEA in CATI 1. In CATI 2, the sign turns positive. However, none of these findings reach statistical significance.

To summarize our results: Being hit by STW made employees significantly worse off both in terms of their quantitative and their qualitative economic situation, and in both observed time periods. We find a significantly negative effect of STEA on both outcome measures in the first time period. In the later time period, this turns around but remains statistically insignificant. We interpret this result as a learning effect, similar to the results in Section 4: fewer employees received STEA and they were better targeted, so STEA was able to improve their economic situation.

Table 4. Effect of STW and STEA on the change of the economic situation in affected households

Difference in equivalized household income (in €)

		CATI 1 (2020)		CATI 2 (2021)	
		OLS	**Match.**	**OLS**	**Match.**
(A)	**Δ**	**-126.5*** **		**-402.1*** **	
	β	-99.6***	-95.6***	-179.1***	-179.9***
STW	**N**	4,619	4,619	2,997	2,997
	N STW	952	952	323	323
(B)	**Δ**	**-180.7**		**11.2**	
	β	-212.6***	-296.1***	29.9	167.3
STEA	**N**	950	908	323	291
	N STW	173	173	111	107

Difference in making ends meet (fairly) easily (in p.p.)

		CATI 1 (2020)			CATI 2 (2021)		
		OLS	**Logit**	**Match.**	**OLS**	**Logit**	**Match.**
(C)	**Δ**	**-6.3****			**-18.7*** **		
	β	-5.1***	-5.0***	-6.5***	-10.9***	-9.6***	-10.0***
STW	**N**	5,889	5,889	5.889	4,709	4,701	4,709
	N STW	1,260	1,260	1,260	525	522	525
(D)	**Δ**	**-4.4**			**2.9**		
	β	-5.7**	-5.7**	-6.2	5.4	6.2	3.3
STEA	**N**	1,238	1,238	1,186	525	501	514
	N STW	251	251	251	182	179	181

Source. Own calculations, based on SHARE release 9.0.0.

Note. Δ indicates the unconditioned mean difference between income in CATI 1 and CATI 2. β are the coefficients from regressions in which we use that difference as the dependent variable, conditioning on a set of characteristics. CATI 1 refers to the period between the onset of the pandemic and CATI 1, CATI 2 refers to the period between the two telephone interviews. STEA is conditional on having STW in that period.

We use household equivalized income, dividing total household income by 1 for the first person in the household, plus 0.5 for every additional household member. Respondents are part of the sample conditional on having been employed during the outbreak of the pandemic.

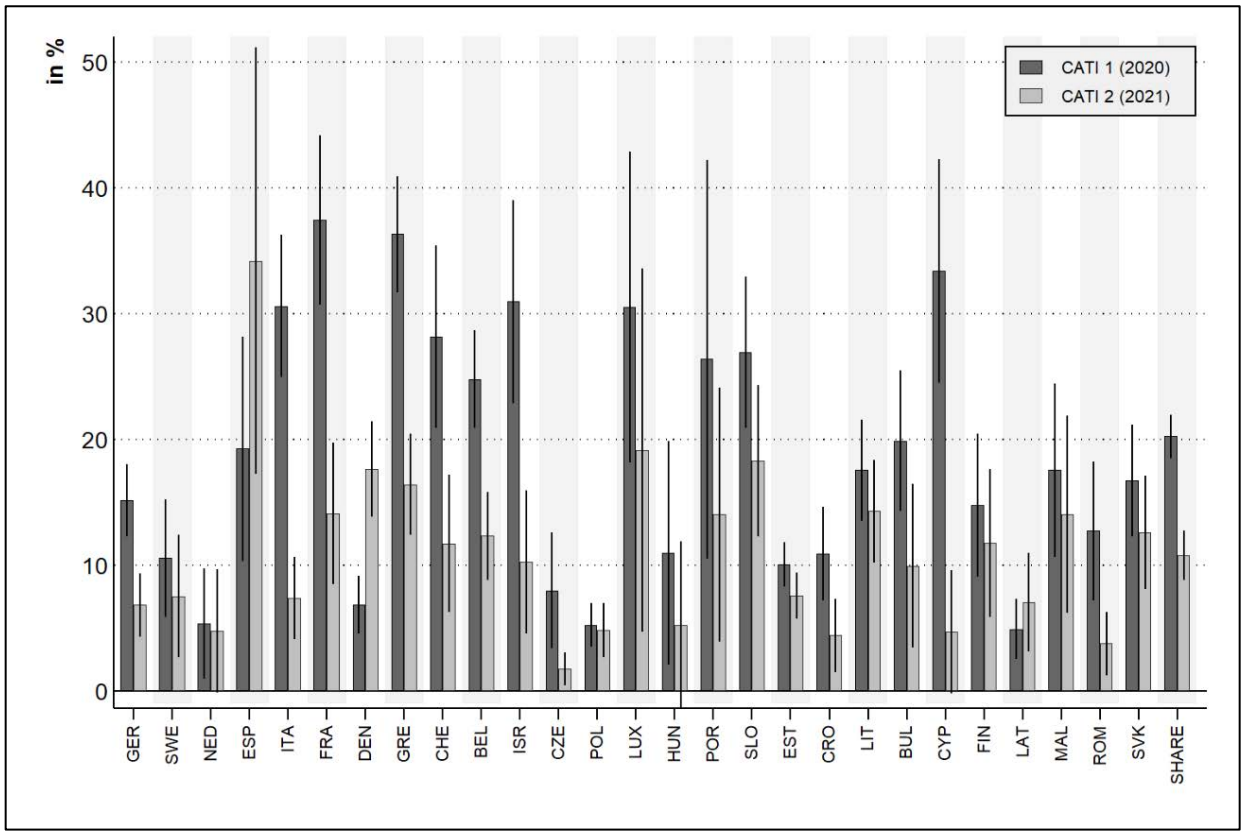
Significance levels: p<0.1 (*), p<0.05 (**), p<0.01 (***). The coefficients from the Logit model are marginal effects. N STW = Number of observations with short-time work, N STEA = number of observations with STEA receipt.

The statistical insignificance is likely due to the small sample size (less than 200 respondents received STEA) and the noisiness of the data. Specifically, we cannot distinguish whether the month with the lowest household income was from a period before the receipt of STEA. This means, respondents with financial help could have reported a low monthly income although this situation was later improved by receiving STEA. This limitation makes it challenging to draw definitive conclusions about the timing and impact of financial aid on the household's economic situation.

6. Unstable employment effects

In this section, we examine the impact of STEA on the employment situation of elderly workers in Europe. As mentioned in the introduction, there are concerns that STEA may lead to longer-term employment instability.

Figure 8. Unstable Employment in the SHARE countries



Source. Own calculations, based on SHARE release 9.0.0.
Note. The graph shows the share of respondents reporting unstable employment, defined as becoming unemployed, being furloughed, or having to close the own business.
Total number of observations: N_{CATI1}=11,661, N_{CATI2}=7,988. Cross-sectional weights were applied. Vertical lines represent confidence intervals.

Figure 8 presents the proportion of respondents who experienced unstable employment, defined as becoming unemployed, being furloughed, or having to close their own business – during two periods: from the outbreak of COVID-19 to CATI 1 and from CATI 1 to CATI 2. During the first four months of the pandemic, an average of 20% of all respondents reported being in unstable employment. This percentage decreased to 11% between 2020 and 2021.

However, these averages conceal the large variation across countries. In France, Greece, Israel, Luxembourg, and Cyprus, over 30% of respondents reported being affected by unemployment,

furloughs, or business closures during the initial period surveyed in 2020.[6] By 2021, these figures had notably decreased to around 15% in France and Greece, to 10% in Israel, to 20% in Luxembourg, and even to only 5% in Cyprus. In countries like the Netherlands or the Czech Republic, rates of unstable employment were relatively low in 2020 and decreased even further in 2021. Conversely, unstable employment increased in Spain, Denmark and Latvia.

The key question of this section is whether STEA has contributed to unstable employment on the individual level. Table 6 provides an initial exploration of the relationship between receiving STEA in the early months of the pandemic and experiencing unstable employment from summer 2020 to summer 2021. Among respondents who had their working hours reduced and received STEA during CATI 1, 12.1% subsequently faced unstable employment. In contrast, only 7.2% of those who had reduced hours but did not receive financial assistance reported unstable employment during the same period.

Table 6. Unstable employment and receipt of short-time employment aid

	In 2020 (CATI1)	**In 2021 (CATI2)**
	Unstable Employment	No Unstable Employment
Received STEA	12.1%	87.9%
Did not receive STEA	7.2%	92.7%

Source. Own calculations based on SHARE release 9.0.0.
Note. We define unstable employment as becoming unemployed, being furloughed, or having to close the own business. Conditional on having been employed during the outbreak of the pandemic and having reduced working hours.

However, this interpretation does not take the selectivity issues into consideration that already marred the analysis in the preceding section. The about 20% of individuals who received STEA in 2020 are most likely not a random selection but were already vulnerable before the pandemic due to observable characteristics (e.g., were less educated, had a lower income, or had experienced unemployment) or unobservable characteristics (e.g., expectations, risk aversion, etc.). Since this selection is endogenous, using weights to adjust the results in Table 6 will not cure this problem.

To account for the selection effects, we use the same econometric methodology as in Section 5. First, we utilize a standard linear regression model where we condition on variables that we expect to influence the likelihood of experiencing unstable employment, such as educational attainment, income, and employment history. Second, as our outcome of interest is binary, we further offer results from a

[6] As mentioned in Section 3, the questionnaires in France and Luxembourg included not only unemployment, furloughs, or business closures but also short-time employment aid. This can potentially explain the high numbers in these countries.

logistic regression. Both approaches address the problem of observed heterogeneity. Third, we use propensity score matching, matching individuals who received STEA with those who did not, based on similar characteristics. This approach allows us to make more accurate comparisons by evaluating only those individuals who are comparable in key aspects.

As opposed to Table 6, our analysis now refers to the longer term, defined as unstable employment, as reported in CATI 2 and extended by periods of unemployment between summer 2021 and Wave 9 (end of 2021, beginning of 2022), which is the most recent data available.

Panel A in Table 7 displays our results. The OLS model indicates that individuals who received STEA are 11.9 p.p. more likely to report experiencing unstable employment. This effect is statistically significant at the 1% level. We observe relatively similar results from the logistic regression, where the marginal effect suggests a higher probability of 9.8 p.p., again statistically significant on the 1% level. When we apply the matching strategy, the effect strengthens, with the likelihood being increased to 15.7 p.p. for respondents who received short-time employment aid compared to their counterparts. This coefficient is also statistically significant at the 1% level.

Table 7. Regression results: Effect of STEA receipt on subsequent unstable employment

	Probability of unstable employment					
	(A) All countries			**(B) Selected countries**		
	OLS	**Logit**	**Match.**	**OLS**	**Logit**	**Match.**
β	0.119***	0.098***	0.157***	0.111***	0.088***	0.154***
SE	0.032	0.027	0.045	0.038	0.033	0.052
N	936	927	894	674	645	633
N unstable	149	149	143	104	103	98
R^2	0.117	0.131	0.171	0.131	0.137	0.197

Source. Own calculations based on SHARE release 9.0.0.
Note. Covariates included in the regressions: Age, age², education, marital status, gender, years of prior unemployment, equivalized household income, dummy for self-employment. All specifications further include industry- and country-fixed-effects. Conditional on having been employed during the outbreak of the pandemic and reduced working hours in CATI 1. Selected countries exclude those countries where unstable employment may have included STEA receipt.
Significance levels: p<0.1 (*), p<0.05 (**), p<0.01 (***).

In Panel B, we refine our analysis by excluding data from interviews in specific countries where the question on unstable employment phrased in a way that may have also included STEA. This was the case in the French interview version in Belgium; all interviews in Bulgaria, Switzerland, France, Italy, and Luxembourg.[7] This adjustment should more accurately measure the impact of STEA on subsequent employment outcomes and avoid a tautology. This results in a reduced sample size from approximately 900 to 650 respondents. Despite the smaller sample, the magnitude of the coefficients remains essentially unchanged from our earlier findings. They indicate statistically significant effects of STEA on unstable employment of almost the same size as in Panel A.

7. Summary and Conclusions

This paper described the prevalence and analyzed the effects of short-time employment aid (STEA) policies during the COVID-19 pandemic across the European countries that are represented in the SHARE data. We showed that reduced working hours were a widespread challenge across Europe. Nevertheless, we observed a large variation in the usage of STEA across the SHARE countries. In countries in which access to STEA was relatively easy, employer contributions were low, and replacement rates were comparably high (such as France, Italy or Switzerland), we observed relatively high utilization rates. Result #1 is therefore that the economic incentives worked as expected.

Result #2 is that working hour reductions tended to hit those respondents who were vulnerable in the first place, i.e. workers with lower education, previous spells of unemployment, lower income, and self-employment. As Result #3, we found that in general, targeting of STEA was successful in helping those who were most affected by enforced short-time work, much better in summer 2021 than in summer 2020, obviously after a learning process.

Whether the recipients of STEA were made better off by STEA is less clear. A clean analysis is difficult since the STEA recipients are a selection of already vulnerable individuals and there is no clean experiment since STEA was universal in each of the SHARE countries. We actually found statistically significant negative effects of STEA on the recipients' equivalized household income and a lesser ability to meet ends than among non-recipients in the initial period of the pandemic. A year later, this

[7] See Section 3, Footnote 3.

effect turns around to become positive but remains insignificant. This lukewarm efficacy is our Result #4 and contradicts earlier findings (e.g., Giupponi & Landais 2023).

As Result #5, our analysis also highlights potential adverse effects in the longer run. While STEA may have provided necessary short-term relief, our evidence shows that STEA has significantly increased the likelihood of unstable employment among STEA recipients later on. This finding supports the notion that STEA keeps unproductive firms alive that would have otherwise exited the market earlier. Specifically, individuals who have received STEA in the first months of the pandemic had a higher likelihood of reporting unemployment, furloughs, or business closure in the following years, including the first post-pandemic wave of SHARE. This suggests that while STEA prevented immediate job losses, it may have delayed the inevitable restructuring needed in certain sectors.

Overall, while STEA appears to have provided reasonably targeted support during the pandemic at least after a learning process, it is essential for policymakers to consider its long-term implications.

Our analyses have several limitations. First, they are limited to older workers, i.e., age 50 and older. One the one hand, protecting these workers was particularly important since their health was considered to be more threatened by the pandemic than that of younger workers. On the other hand, our results should not be generalized to the entire workforce. Second, while our main result of adverse long-run effects is statistically significant and robust, the short-run effects are surprisingly weak. One explanation are the small sample sizes, another may be heterogeneity across jobs not captured by the industry fixed-effects. A third reason may be the imprecision by which the main policy variable is measured. Particularly in the beginning of the pandemic, STEA-type programs were quickly set up. Hence, respondents may not have been aware which benefits they have actually received, and the SHARE questionnaire may have failed to precisely identify STEA-type programs from other subsidies. In any case, we think that the absence of a convincingly large positive short-run effect strengthens our conclusion that policymakers need to be careful with applying STEA-type policies: if they are not targeted well and finished on time, they may do long-term damage.

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