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Design and Take Up of Austria's Coronavirus Short Time Work Model

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Design and Take-Up of Austria's Coronavirus Short-Time Work Model

Dennis Tamesberger[1,2] and Simon Theurl[3]

Abstract

Short-time work was frequently used in the EU during the COVID-19 pandemic to minimize crisis-related layoffs. This paper focuses on the short-time work (STW) scheme in Austria by exploring the characteristic features of the Austrian Coronavirus STW model and examining how it was utilized. We first give a historical overview of how STW developed in Austria before focusing specifically on the country's STW scheme – one of the most generous among the EU27 – during the course of the coronavirus pandemic. By analyzing relevant data, we identified three key periods in which STW was reformed and slightly modified. We also aim to show how STW take-up rates differ according to gender and sector. Moreover, we consider STW payments alongside sectors and are able to identify those sectors that see a greater benefit from STW. We conclude that the pandemic offered learning effects, thus allowing STW to be used more efficiently in the future by employers in times of crisis.

Keywords: COVID-19 crisis, unemployment, short-time work (STW), labor hoarding, ALMPs

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1. Introduction

The COVID-19 crisis has led to large distortions on labor markets. To avoid mass layoffs, many countries used, or are still using, short-time work (STW) (Baldwin and Weder di Mauro, 2020; Caldera et al., 2020; Giupponi and Landais, 2020; Schnetzer et al., 2020). An initial overview has shown that almost all of the EU countries have adopted STW, but these models differ quite widely from one nation to another (Schulten and Müller, 2020a). The idea behind STW is simple: in times of economic shock, STW pays subsidies to encourage firms to adjust the number of hours worked per employee instead of laying off staff. STW is thereby able to provide an advantage to firms, employees, and the society as a whole (Vroman and Brusentsev, 2009). Austria is an interesting case because the government and social partners[4] have implemented one of the most generous STW models in Europe. In Austria, the STW scheme was designed to offer simplified access and straightforward eligibility criteria. At the same time, labor market regulation in Austria is relatively weak, and in some sectors dismissals are quite common (Eppel and Marhinger, 2020), which could thwart the introduction of STW.

A high number of applications for short-time work has been received and Austria had one of the highest STW take-up rates in the EU (Schulten and Müller, 2020a). This allows Austria to enable a significant number of employees and apprentices to keep their jobs. At the same time, Austria has been hit severely by the COVID-19 crisis and was facing a deep recession with a significant spike in unemployment in 2020.

The aim of this paper is to complement international discussion on STW by shedding light on the Austrian coronavirus STW scheme as well as its strengths and weaknesses. We try to answer the following research questions:

- How can the Austrian coronavirus STW model be characterized?
- How was the Short-Time Work scheme utilized in Austria?

Given the coronavirus lockdown's varying impact on different economic sectors, it can be expected that the utilization of STW and the development of employment levels differ considerably across sectors. The Austrian labor market is segmented (Sengenberger, 1978) by gender, meaning that women and men partly work in different sectors (Bock-Schappelwein et al., 2021). As the COVID-19 crisis affected sectors and genders differently in Austria (Foissner et al., 2021; Steiber, 2021; Schönherr and Zandonella, 2020), it can be assumed

[4] In Austria, four interest groups representing employers and employees work together with the country's government to determine economic and social objectives. These are: Austria's Federal Economic Chamber, the Chamber of Agriculture, the Federal Chamber of Labour and the Trade Union Federation.

that the country also saw differences in STW utilization between men and women. Therefore, it is important to take the gender and sectoral differences into account.

The remainder of this paper is structured as follows: Section II offers a short literature review, Section III discusses the development of the Austrian STW models from a historical perspective, and Section IV describes the current coronavirus STW model in detail. In Section V we try to answer our second research question by presenting STW take-up rates by gender and sector, while Section VI focuses on STW payment (again differentiated by gender and sector). The final section attempts to draw some conclusions.

2. Existing literature on short-time work

2.1 Short-time work during the Great Recession

A substantial volume of literature is available on short-time work (STW) in Germany (e.g. Boeri and Bruecker, 2011; Brenke et al., 2011; Burda and Hunt, 2011; Crimmann et al., 2010; Dietz et al., 2011; Krugman, 2009; Herzog-Stein et al., 2018; Möller, 2010). Germany was hit hard by the 2008 financial and economic crisis but was able to keep unemployment relatively low due to the intensive use of short-time work. At the peak of the financial crisis, almost 1.5 million employees were in short-time work (around 3.9 % of all employees). Almost one in five firms with 500 or more employees used short-time work (Boeri and Bruecker, 2011). Short-time work was predominately implemented in the manufacturing sector, which can be partly explained by the fact that the main impact of the crisis in Germany was a drop in foreign demand, especially in the manufacturing sector. Despite the general success of STW in Germany, Brenke et al. (2011) find some indications that short-time work has also been used to compensate for seasonal employment losses, which was not the main objective of the scheme.

However, Germany was not the only country to use STW during the Great Recession. Around 25 of the 33 OECD countries had implemented STW schemes in the year 2009 (Cahuc and Carcillo, 2011). Japan (around 4% of all employees) and Italy (around 3% of all employees) also used it extensively (Boeri and Bruecker, 2011). In comparison, Austria used STW less intensively. At the peak of the crisis in Austria (April 2009), 37,348 or 1.2% of employees were in short-time work. One of the main reasons for the disparity in uptake is the different economic structures. In Austria, there is a far greater number of small- and medium -sized enterprises than in Germany that use short-time work less frequently. Despite the fact that Austrian tourism was heavily affected by the 2009 recession, short-time work has not played a significant role in this sector. Another reason is that protection against dismissal is stricter in Germany than in Austria, which made it more attractive for Austrian companies to fire and re-employ workers afterwards than to use short-time work. In a cross-country analysis of 20 countries between

2003 and 2010, Boeri and Bruecker (2011) show that countries with strict employment protection legislation and centralized wage bargaining structures tend to have higher STW take-up rates. Concerning the design of STW, countries where the costs for employers are low and the STW net replacement is high are associated with higher STW take-up rates. Lastly, the precondition of a social partnership agreement seems to be more difficult for firms in Austria than in Germany (Bock-Schappelwein et al., 2011).

2.2 The effects of short-time work

Concerning the effects of STW on the labor market, Hijzen and Venn (2010) used cross-country data for 19 OECD countries to analyze the impact of short-time work schemes during the 2008–2009 crisis. They used a difference-in-differences approach and showed that STW has played an important role in preventing many workers from becoming unemployed. The strongest effects were visible in Germany and Japan. There were around 235,000 and 415,000 jobs, corresponding to 0.8% and 0.9% of employees, saved in Germany and Japan respectively. The OECD (2010) points out that STW mainly helped to preserve permanent jobs. Cahuc and Carcillo (2011) came up with similar results. On the basis of the OECD quarterly database for 25 countries, they showed that STW was able to reduce layoffs during the 2008–2009 crisis. This effect is not significant in general, but it is for permanent workers. Moreover, Boeri and Bruecker (2011), in their cross-country analysis based on macro data, came to the conclusion that STW contributed significantly to a reduction in job losses during the Great Recession. But they pointed out that the number of jobs saved is smaller than the number of STW participants, which indicates deadweight costs. For example, the macro estimates of the number of jobs saved by STW are around 300,111 in Germany (around 1.5 million participants), 321,370 in Italy (around 748,000 STW participants) and 11,581 in Austria (around 37,000 participants).

Some economists point toward the risk of conserving structural problems in the economy by using STW beyond the period of economic shock (Eichhorst et al., 2020). In this debate, Balleer et al. (2016) make an interesting differentiation between discretionary change in STW policy and the effect of STW due to the business cycle (automatic components). In a case study for Germany, they combine micro- and macroeconomic evidence with macroeconomic modelling and show that STW acts as a powerful automatic stabilizer, but a discretionary change in STW policy has no effect on unemployment. Their counterfactual analysis concluded that the automatic component of STW has avoided a 1.29 percentage point increase in German unemployment, i.e. around 466,000 jobs were saved in the Great Recession. It is important to note that these effects only take place during economic downturns. In economic expansion periods, the effects are smaller and may turn negative (Gehrke and Hochmuth, 2019), meaning that STW subsidies should be timely and targeted to avoid deadweight costs.

2.3 Short-time work during COVID-19

STW has also been one of the main labor market policies to mitigate the effects of the COVID-19 economic crisis (Baldwin and Weder di Mauro, 2020; Caldera et al., 2020; Giupponi and Landais, 2020; Schnetzer et al., 2020). An initial overview has shown that 15 European countries have again adopted STW, but these models differ quite widely from one another (Schulten and Müller, 2020a). At the end of April 2020, there were more than 42 million applications for STW support in the EU27, which corresponds to roughly one quarter of the overall EU workforce. But the number of workers who are in fact affected by STW is smaller because companies apply for STW as a precautionary measure. France has the highest number, with 11.3 million workers participating (as recipients or applicants) in STW, followed by Germany (10.1 million) and Italy (8.3 million). In France (47.8 %) and Italy (46.6%), almost one in two members of the workforce is participating (as recipients or applicants) in STW. Furthermore, in small countries such as Slovenia, Croatia, Austria and Belgium, STW is used intensively to combat the labor market consequences of COVID-19 with around one third of the workforce on STW. Interestingly, in most eastern European countries and in Finland, STW does not play such an important role (Schulten and Müller, 2020b). A recent study for Germany (Herzog-Stein et al., 2021) shows that the COVID-19 STW model in Germany was more generous and had a stronger focus on securing household income on a broad basis in comparison to the German STW model during the Great Recession.

The fact that the European emergency rescue package focuses on STW shows the relevance of STW for the mitigation of mass layoffs in the COVID-19 crisis and its recognition by the European Commission. The new instrument for temporary Support to mitigate Unemployment Risks in an Emergency (SURE) is an additional temporary instrument to allow for Union financial assistance up to €100 billion in the form of loans to affected Member States, supporting national short-time work schemes and similar measures (EC, 2020).

3. History of STW models in Austria

STW has a long tradition in Austria and existed as far back as the 1920s (Schichl, 2010; Mendel, 2020). Since the country's liberation from the National Socialist regime in 1945, STW has been codified in the unemployment act (BGBl. Nr. 97/1946). However, STW has mostly played only a subordinate role in Austria (Table 1). In 1997, heavy rainfall led to floods in some parts of Austria and to an increase in STW expenditure up to €3.2 million. In 2002, the 9/11 terror attacks led to a drop in tourism, which hit gastronomy and accommodation services, a sector that accounted for around 5% of employment (153,164 employees) at the time. In 2002, 5,746 people were on STW and the relevant expenditure totaled €6.6 million (BMASK, 2009).

Table 1: Short-time work in Austria between 2002 and 2019

	Number of applications approved	Number of employees on STW	Expenditure in euros (thousand)
2002	148	5,746	6,644
2003	263	5,162	3,249
2004	9	480	864
2005	147	2,718	2,626
2006	166	818	849
2007	128	640	388
2008	1,151	8,232	1,008
2009	32,422	66,505	113,513
2010	12,155	23,706	54,873
2011	1,325	3,879	6,086
2012	1,361	4,161	4,041
2013	1,797	4,175	7,846
2014	1,265	3,756	7,484
2015	1,021	4,399	4,852
2016	926	2,411	4,622
2017	1,001	2,980	6,078
2018	410	1,772	3,479

Source: BMASK, 2013; BMASK, 2019

More extensive use of STW was made after the 2007/08 financial crisis hit the Austrian labor market. In 2009, the number of persons who received STW funding reached 66,505 and expenditure rose to €113.5 million (Table 1). In 2010, STW was used less and the number of those in receipt of STW funding fell to 23,706. In the same year, expenditure totaled €54.8 million. Between 2008 and 2010, STW has been mainly used by the industrial sector and by men.

Ten years later, when the COVID-19 crisis hit the Austrian labor market in May 2020, social partners could build on the experiences they gathered during 2009/10. Within a few days, they negotiated a comprehensive COVID-19 STW model. In comparison to the former STW model (Table 2), there were hardly any requirements to apply for STW. This was necessary and, together with some other adjustments, eased the application process for STW for small and medium enterprises.

Table 2: Comparison of STW between 2009 and 2020

	Great Recession STW I 2009	**COVID-19 STW I 2020**
Main condition	The company is in temporary economic difficulties that are not seasonal but caused by external factors that the company cannot influence. The company must endeavor to use all internal possibilities of labor time reduction (such as consumption of overtime savings, holiday savings from previous years). The company has informed the AMS regional offices about the employment difficulties six weeks in advance. During a consultation, the AMS checks if STW is justified and whether other measures could be taken. The labor council (if existing) must be included in the consultation. The existence of a labor council effectively replaces the consultation. A social partnership agreement is obligatory. This covers the duration of STW, the number of affected workers, the number of working hours lost, protection against dismissal after STW (maintenance duty). STW must be between 10–90% of normal working time. This must be fulfilled within the entire duration of STW and can also be blocked. The model thus became more flexible for enterprises as it allowed “0 working-hour weeks”.	Economic difficulties related to COVID-19 fulfill the requirements to apply for STW. The company must endeavor to use all internal possibilities of labor time reduction (such as consumption of overtime savings, holiday savings from previous years). In case of a prolongation, the **AMS should advise the enterprise to encourage** the consumption of three more weeks of holiday. A social partnership agreement is obligatory. This covers the duration of STW, the number of affected workers, the number of working hours lost, protection against dismissal after STW (maintenance duty). STW must be between 10–90% of normal working time. This must be fulfilled within the entire duration of STW and can also be blocked.

Receiver of subsidies	All employers except the state, political parties and labor-leasing enterprises. All employees with the exception of apprentices, part-time employees, members of the executive board.	All employers except the state and political parties. All employees who would qualify for unemployment benefits. Members of executive boards might qualify. Apprentices qualify.
Duration	Six months, can be prolonged twice up to 18 months.	Three months, one prolongation. Retroactive application back to March 1.
Amount of wage compensation	Compensation for STW hours in the amount of fictive unemployment benefits, which is about 55% of the previous net income (including social security contributions). No compensation for gross incomes above €3,214. Social partner agreements and/or works council agreements at enterprise level with higher remuneration were possible. In most of the cases, income compensations between 80% and 90% were actually granted.	Compensation is allocated on a sliding scale based on gross monthly earnings. <= €1,700; 90% of previous net earnings €1,700 – €2,685; 85% €2,686 – €5,370; 80% < €5,370, no compensation Apprentices receive full compensation.

Once the COVID-19 STW model became available, the number of enterprises applying for STW almost immediately reached an unprecedented high (Chapter 5.1.), pushing the administrative capacity of the Austrian labor market service (LMS), and the controlling function of the unions and the LMS, beyond their limits. Austria's chamber of commerce refused to deny financial support to its members. Social partners and the labor market service had been able to approve the applications for STW in an orderly manner in the past. Now they had to operate in a field of tension between the necessity of fast administration and the prevention of windfall effects. While the 2009 STW model had a heavier focus on preventing windfall effects (Mandl, 2011) and was therefore costlier and more restrictive for entrepreneurs, the first

COVID-19 STW model aimed at reducing the negative impact of the COVID-19-related lockdown, saving as many jobs as possible.

Table 3: STW application development

	Number of approved appraisals	Number of funded persons resulting from applications	Expenditure resulting from applications	Approved means (billion)
3/19/2020	374	8,031	59,366,396	0.4
4/7/2020	21,850	365,953	2,884,101,166	3
4/15/2020	55,364	741,771	5,631,168,924	5
4/22/2020	90,013	1,103,598	8,428,503,519	7
5/1/2020	109,545	1,344,404	10,231,045,135	10
5/20/2020	120,647	1,442,200	10,922,878,210	12

Source: Own calculations; BGBl. II Nr. 219/2020; BGBl. II Nr. 188/2020; BGBl. II Nr. 168/2020; BGBl. II Nr. 155/2020; BGBl. II Nr. 132/2020; BGBl. II Nr. 12/2020

The fast rise in the number of applications surprised policy makers, as the multiple adjustments made to the STW budget show (see Table 3 and Chapter 5.3). Rising expenditure, experiences with some legal defects concerning the interaction with other laws, and changing expectations regarding the end of the pandemic and economic recovery led to several smaller adjustments of the STW regulations (see Chapter 3.3). In addition to repairing legal defects, the further amendments entailed the granting of some benefits for a number of particular groups and sectors (especially gastronomy and tourism), changes to the method of calculating remuneration, and attempts to get a grip on deadweight losses and to reduce costs (since COVID-19 STW II ff.). Targeting possible deadweight losses, the amendments contained restrictions concerning the duration of STW subsidies, minimum working time, and lukewarm attempts to introduce costs for enterprises until summer 2021.

January 2021 once again saw negotiations regarding a further reform of STW. The government set itself the aim of reducing STW costs. Against the backdrop of increasing numbers of vaccinated people, decreasing levels of infection, and thus a positive economic outlook (see Chapter 3.2), concerns also rose about STW being a potential inhibitor of structural change. This time the government supported an introduction of costs for employers, resulting in a binary COVID-19 regulation in June 2021: enterprises reporting a loss in revenue during the previous

year could still make use of the COVID-19 STW III scheme; for all others, subsidies fell by 15% while remunerations to employees remained the same.

3.1. Key periods of the COVID-19 pandemic in Austria

To better understand the COVID-19 STW models and their impact, it is helpful to consider them alongside the regulations and actions the government took to curb the spread of the virus. It becomes clear that regulations had a strong impact on social and economic life and therefore on the labor market. For the purpose of analysis, we have combined COVID-19-related measures with the corresponding COVID-19 STW models for three key periods of the COVID-19 pandemic.

Table 4: Timeline of COVID-19 measures and actions

	Measures and actions	STW models
	STW I and the first lockdown (March 2020 to May 2020)	
3/10/2020	New announcements almost daily lead to panic buying and mass layoffs	
3/14/2020		COVID-19 STW I (3/1/2020 – 5/31/2020)
3/15/2020	COVID-19 Pandemic Law: first lockdown	
4/14/2020	Minimal relaxation of restrictions	
	STW II and the summer of relaxations (May 2020 to September 2020)	
5/1/2020	Further relaxations: shops comprising more than 400 square meters, hair salons, shopping centers reopened	
6/1/2020		COVID-19 STW II (6/1/2020 – 9/30/2020)
June 2020	Further relaxations for gastronomy and event sectors	

9/1/2020	High and rising incidence of COVID-19 infections; neighboring countries (Hungary, Switzerland, Germany) impose travel restrictions	
9/14/2020	Restrictions for entertainment sectors and gastronomy	
	STW III and the second lockdown (October 2020 to March 2021)	
10/1/2020		COVID-19 STW III Since Oct 1 (relaxation of minimum working hours)
11/3/2020	Decree for “light” lockdown comes into force: curfew (20:00–06:00); closing of restaurants, leisure facilities and museums	
11/14/2020	Second hard lockdown: non-essential shops are closed; curfew extended to whole day	
12/7/2020	Relaxations to enable Christmas shopping: shops, museums, and most schools (exception: upper grades) reopened	
12/26/2020	Third hard lockdown comes into force: schools, commerce (with the exception of essential shops) and museums closed again; all-day curfews	
2/7/2021	Relaxation of measures: schools, museums, commerce reopened under strict requirements	
March 2021	Further relaxations; distinct federal-state regulations; federal relaxations since June 2021	

Source: Chamber of Labor, 2020; Pollak et al., 2020a, 2020b and 2020c and 2021a and 2021b

After March 10 2020, the government began to make new announcements almost daily, increasing uncertainty among businesses and the population and leading to panic buying (Pollak et al., 2020a) and mass layoffs within a number of days (see Chapter 5). On March 15, the government passed the first COVID-19 Pandemic Law, limiting public life, shutting down business activities, and closing schools and (de facto, but not officially) kindergartens, which had a considerable impact on women and their options for labor market participation (Berghammer and Beham-Rabanser, 2020).

In spring and autumn 2020, the number of new infections fell, thus allowing relaxations of the restrictions (Pollak et al., 2020b). In May 2020, further relaxations followed and shops covering more than 400 square meters, hair salons, and shopping centers reopened. Schools (on May 4) and the gastronomy sector (on May 15) reopened under strict regulations, with further relaxations for gastronomy and the events industry following in June. This led to an improvement in (un)employment and increasing optimism about further economic developments.

The situation changed in August and Austria gradually drifted into a second lockdown, which lasted until spring 2021 (Pollak et al., 2020c). After August 14, COVID-19 infection rates began to rise again, reaching new highs. On September 1, Hungary, followed by Switzerland and Germany, imposed travel restrictions, which had negative impacts on tourism (Pollak et al., 2021a). On September 14, the government officially declared that the second COVID-19 wave had begun and imposed stricter regulations for the entertainment industry and gastronomy. On November 1, the government imposed a “light” lockdown, which came into force two days later, closing leisure facilities, restaurants, and museums and imposing a curfew between 20:00 and 06:00. On November 14, the government started the second “hard” lockdown, shutting down non-essential shops and extending the curfew to the whole day. Even though infections were at a high level, the government allowed some relaxation of the rules to allow Christmas shopping. Shops, museums, and most schools (except upper grades) were reopened and this lasted until December 26. The third “hard” lockdown continued until February 2, 2021, when museums and commerce reopened under strict requirements. In January 2021, a vaccination campaign aiming at vaccinating the majority of the population by summer 2021 launched, fueling hope for an end to the pandemic.

3.2.A detailed examination of the Austrian COVID-19 STW model(s).

The Austrian STW scheme is regulated through the labor market policy finance law[5] (AMPFG), the labor market service law[6] (AMSG), and a social partner agreement. As the

[5] *Arbeitsmarkförderungsgesetz* (AMFG).
[6] *Arbeitsmarktservicegesetz* (AmSG).

social partners negotiate labor contracts in Austria, the social partner agreement sets all the crucial parameters of the STW scheme, while the AMPFG and AMSG provide the budget. The LMS is a tripartite organization and responsible for drafting the guidelines and administering STW.

In order to receive STW support, the following three criteria need to be met:

(i) explanation of the firm's economic difficulties, which was met by all firms with a plausible link to the COVID-19 virus and its effects;

(ii) conclusion of a social partner agreement which regulates the framework conditions for STW in the company and must be approved by the respective bodies entitled to conclude collective agreements (typically trade unions and chambers of the economy);

(iii) application for COVID-19 STW allowance submitted to the LMS.

In contrast to former STW schemes, retroactive applications were possible through the various COVID-19 STW schemes.

The minimum and maximum time worked in order to be eligible for COVID-19 STW I support has been changed from 10–90% of regular working hours to 30–80% under the COVID-19 STW III scheme. Further working time reductions need to be set out in a company agreement. Companies that were directly affected by the second lockdown in November 2020 (for example, restaurants and hotels) could reduce working hours to zero in November 2020 or for the duration(s) of the lockdown(s) (see Table 4).

Mini-jobs (*geringfügig Beschäftigte*) and officials (*Beamte*) are excluded from the regular STW scheme, as are employees of public institutions and political parties. Employees of state organizations, such as federal museums, were subsequently included in COVID-19 STW.

The duration of STW I was three months with the option of a prolongation for a further three months (STW I). STW phase II allowed an extension for another three months, until the end of September 2020. In STW phase III (starting in October 2020), applications for STW were possible until March 31, 2021, and then from April to the end of June.

The calculation of STW subsidies is based on the net wage from the last month or if there are erratic wages it is based on the average of the last 13 weeks/three months prior to the start of STW (including all wage supplements). The level of subsidies depends on the original wage:

(a) 90% of the net wage if the gross wage was €1,700 or less;

(b) 85% of the net wage if the gross wage was between €1,700 and €2,685;

(c) 80% of the net wage if the gross wage was between €2,685 and €5,370.

(d) Apprentices receive 100% of the net wage.

(e) No subsidies if gross wage is higher than €5,370.

The insurance contributions are covered up to the same amount as before STW. The government pays for the hours not worked and the employer must pay for the actual hours worked.

The employer guarantees these amounts to the employees and must bear the costs corresponding to the actual hours worked. The employer receives an STW allowance for hours not worked which is fully covered by the state. In contrast to former STW schemes, where the state only covered 55% of STW allowances (including social security contributions after 4 months), there are no costs for the employer in the COVID-19 STW scheme.

The only additional obligation for employers is a dismissal protection, which is part of the obligatory social partner agreement. The dismissal protection for employees on STW lasts for the duration of STW plus one additional month. However, in exceptional cases where a compelling reason is offered, a deviating length can be agreed between employers and unions. There are no bans on paying out dividends or bonuses or on share buybacks or operating from tax havens. However, the public employment service is responsible for examining firms' applications and the actual time worked while on STW should there be suspicion of misuse.

In view of the renewed lockdown measures that came into force in November 2020, employees in the HORECA sector (hospitality industry), as well as in the cosmetics, hairdressing, and massage industry, will receive an additional €100 net per month as a bonus for November 2020 or for the lockdown period.

The STW III scheme foresees an obligation for workers on STW to undertake any training courses that employers may offer during the hours not worked. However, employers are not obliged to offer such training. Only a small number of applications have been received from firms for this qualification measure.

3.3.How COVID-19 STW works: an example

STW benefits are conditional wage subsidies which employers receive a posteriori after the actual utilization of STW became clear. If an enterprise and a worker qualify for STW benefits, the employer submits an application for STW benefits to the LMS and pays at least the formalized wages to the workers. After the employer submits the actual utilization of STW to the LMS, the latter pays the subsidies to the employer.

Table 5 (Schnetzer et al., 2020) illustrates two typical cases for the COVID-19 STW model in Austria. The left panel shows Mr. A, a white-collar worker who works in manufacturing and

usually earns a gross salary of €2,651 (€1,829 net income). Due to the COVID-19 crisis, his firm reduces average working time by an average of 90% for three months. In April, Mr. A does not work at all; in May, he works 10% and in June 20%. Despite economic fluctuations, Mr. A receives a stable net salary of €1,555 each month during the STW period. Each month, the employer pays the corresponding labor costs. After the provision of evidence on actual STW utilization, the employer receives STW subsidies from the LMS. Therefore, the employer faces total effective labor costs of approx. €1,044 during these three months.

Due to a notice period (four weeks), the labor costs would be around €3,751 in case of a dismissal by the employer. Furthermore, the employer would face additional hiring costs once the economic situation improves. Hence, the costs of dismissal are much greater than the labor costs under STW.

The right panel illustrates Mr. B, a blue-collar worker with a gross income of €1,751 (net €1,368). Even in this case, if the notice period is only two weeks, a dismissal would entail additional costs for the employer. Moreover, as STW compensation is based on a progressive income model, Mr. B faces a relatively lower income loss as he receives a higher wage substitution.

Table 5: Two examples of COVID-19 STW compensation

		Net monthly salary before COVID-19 short-time work: **€1,829**			*Net monthly salary before COVID-19 short-time work:* **€1,368**		
		April	May	June	April	May	June
		reducing working time to			**reducing working time to**		
		0%	**10%**	**20%**	**0%**	**10%**	**20%**
What does the employee earn during STW?	**Minimum net salary**	**€1,555**	**€1,555**	**€1,555**	**€1,163**	**€1,163**	**€1,163**
Comparison with unemployment benefits in the event of dismissal*		€1,200	€1,240	€1,200	€946	€977	€946
What does the employer pay during STW?	Labour cost	€3,482	€3,482	€3,482	€2,306	€2,306	€2,306
	STW subsidy from the AMS	€3,482	€3,134	€2,786	€2,306	€2,075	€1,845
	Effective labour cost	**€0**	**€348**	**€696**	**€0**	**€231**	**€461**
Comparison with labour cost in the event of dismissal: assumed notice period of four and two weeks respectively		€3,715			€1,227		
Additional cost of dismissal		€2,671			€535		

Sources: AMS STW calculator; gross-net calculator, unemployment benefits calculator, own calculations.
Notes: Lost hours per month = lost hours per week multiplied by 4.33. Rounding differences may occur. Because of the different number of days per month, unemployment benefits differ each month.

4. Used data

To describe the utilization of STW, we use data on STW, employment, unemployment, and GDP. Furthermore, we calculate an STW "take-up rate". The following section describes these data, their interpretation, and the indicator. Due to availability, we use data from March 2020 to 2021. Data from February 2021 and March 2021 might change slightly in the future as they will be updated.

Data on STW differ in "applications", "applications approved" and "utilization of STW/workers on STW". Due to the high number of applications, and as almost all firms met the criteria of COVID-19-related economic difficulties, there is little difference between "applications" and "applications approved". As we are interested in the impact of STW on "labor hoarding", we look at "applications approved".

Applications and applications approved are an a priori claim and therefore might differ from the a posteriori claim after the utilization of STW. Indeed, many enterprises applied for the maximum STW subsidies, especially at the beginning of the pandemic to be prepared for the 'worst case'. However, the crisis did not hit some enterprises as severely as expected. Moreover, it was possible to apply for STW subsequently, explaining how "utilization" in one month could exceed applications approved.

Data on payments have a time lag. They are allocated to the month in which enterprises made the claim for payments, i.e. payments in June 2020 represent STW subsidies from previous months, covering a period from March 2020 to May 2020.

Data on STW applications contain information about the enterprise, but not about the recipients. At the same time, data on the utilization contain information about the workers on STW but not about the enterprises who applied for the STW subsidies.

To analyze the dynamics on the labor market, we use inflows and outflows into employment and compare the year 2019 with 2020. We use temporary administrative data retrieved in June 2021. Employment, inflows, and outflows are always measured at the end of the month: Stock of Employment_t = Inflow_t – Outflow_t + Employment_(t-1).

To calculate the take-up rate, we use stock employment data from a different source. The STW data are provided by the public employment service[7]. The employment data are administrative data from the database of Austria's Federal Ministry of Labour, Family and Youth (BMAFJ; BaliWeb 2020). The take-up rate is calculated as follows: take-up rate = number of workers on

[7] We are indebted to Marius Wilk for his help and provision of STW data.

STW_t * 100 / number of employed people t. The STW take-up rate is differentiated by gender and sector.

We use administrative data to measure unemployment (UE). The definition differs from the definition of unemployment used by the International Labor Organization (ILO). In the national definition, a person counts as unemployed if he/she works only in “mini-jobs” (also referred to as *geringfügige Beschäftigung*; a form of marginal part-time employment), is registered as looking for work at the Public Employment Service (AMS) and if the person is, at the same time, immediately available to take up a job with at least 20 working hours per week. According to the national definition, people who are attending a training course at the Public Employment Service do not count as unemployed because they are not immediately available for work (Gumprecht, 2016). To obtain a more comprehensive picture, we also added the number of people in training.

5. Utilization of Short-Time Work in Austria

The COVID-19 crisis had a significant impact on the Austrian labor market, with a high unemployment rate while almost one third of the labor force was on STW. The following section shows how enterprises made use of STW, outlines differences between sectors and genders, and the development of costs.

1. Development of STW, employment, and unemployment

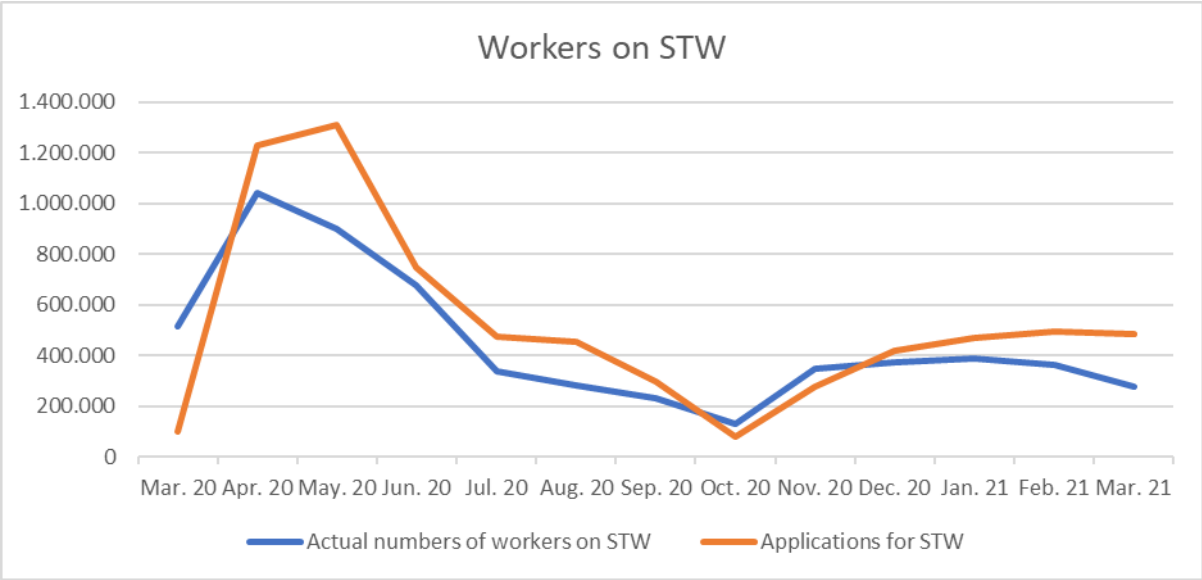
Figure 1 shows that there is a substantial difference between applications for STW and the actual number of workers[8] on STW in March 2020, when many employers were facing the harsh realities of the COVID-19 crisis. In sectors of the economy where the new COVID-19 STW model was not already well known, the number of actual workers on STW was above the original applications in March 2020. This was possible because the new COVID-19 STW model also allowed retroactive applications dating back to March 1, 2020. In subsequent months, these figures were usually reversed: firms registered far more workers for STW than ultimately ended up being necessary.

In line with changing COVID-19 measures (see Chapter 3.2.) and “learning effects”, the difference between the number of workers in STW and approved applications also reflects employers’ expectations. During the first relaxations of COVID-19-related restrictions in April, the actual number of workers on STW decreased while STW applications still rose. As employers applied for STW a priori but the actual utilization happens a posteriori, this reflects

[8] “Workers” collectively refers to blue-collar (*Arbeiter*) and white-collar (*Angestellte*) workers.

the employers' negative expectations and uncertainty during turbulent times that lasted until June. The largest difference between applications and utilization was in May, when there were around 1.3 million applications for STW and 897,000 workers finally on STW. Hence, STW worked as a form of insurance for the worst-case scenario, and it had a stabilizing function because employers dismissed fewer employees.

Figure 1: Number of workers on STW



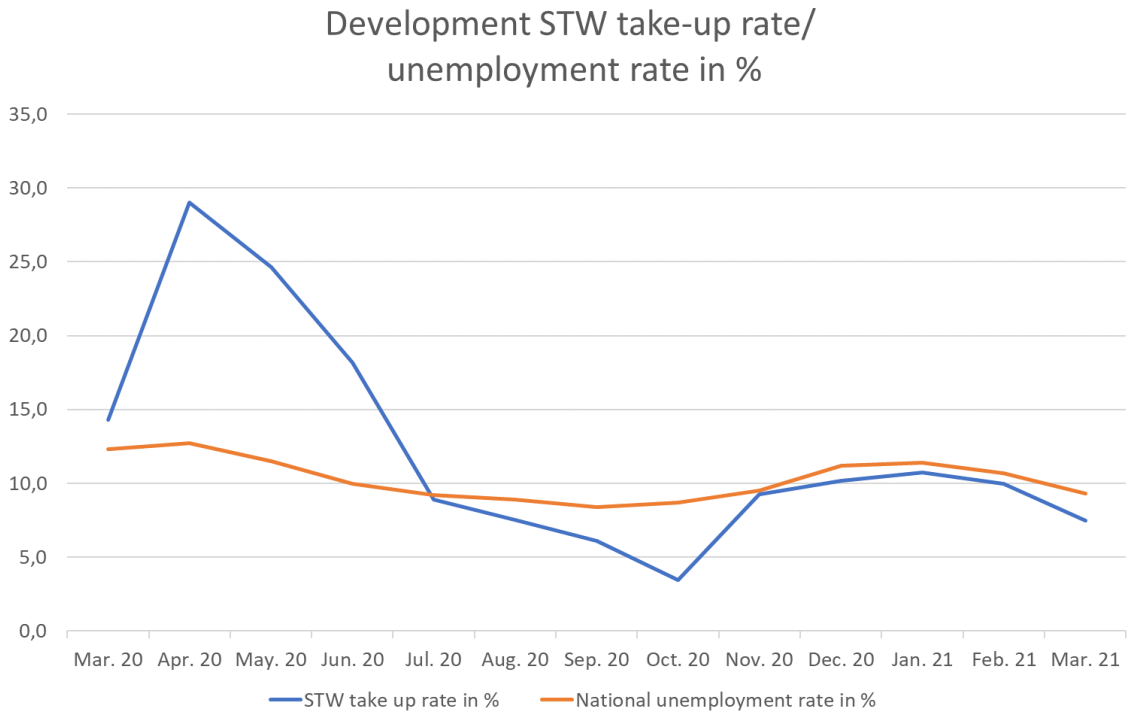
Source: AMS Data Warehouse; BMAFJ, 2021
Note: data for February and March are preliminary and may change after the final clearing.

Figure 2.2 compares STW take-up rate and the unemployment rate (national method). It shows that Austria was severely hit by the COVID-19 economic crisis. In April 2020, around 571,000 people were unemployed or in training – the highest unemployment figure since 1945. The unemployment rate (national method) rose to 12.7%. At the same time, around one million people were on STW and the STW take-up rate was around 29.1%, meaning that almost one in three employees was in STW. In May, there was still high utilization of STW during the first lockdown (see Chapter 2.3). The number of workers on STW decreased significantly until the second wave of COVID-19 hit and the second lockdown was imposed in November 2020. Unemployment still increased considerably at the end of 2020, yet the STW take-up rate has not reached the levels of spring 2020.

An explanation for the lower STW take-up could be that the government introduced new, more attractive subsidies for firms during the second lockdown, such as the *Umsatzersatz* (BMDW, 2021). The *Umsatzersatz* compensates up to 80% of the previous year's revenue with the only requirement being that the employer suspended all contract terminations while receiving subsidies. Again, the take-up rate corresponds with changing COVID-19 regulations and

reflects the uncertainty and panic that characterized the beginning of the pandemic as well as the more experience-based expectations that were widespread during the second lockdown. Until June, employers learned how to make use of STW and they understood how COVID-19 measures would impact their businesses, altogether leading to much more rational behaviour. June also marks the endpoint of the STW I scheme, the starting point of STW II, and corresponds with a relaxation of the COVID-19 measures. In October, when the take-up rate fell to 3.4%, STW scheme II ended and, even though there were hardly any differences to STW III new applications/ or an active prolongation were necessary. Finally, the STW take-up rate only fell below 6% for one month, and after the initial shock of the first lockdown, it remained quite stable at 10%. Given the exceptionally long duration of STW, this seems to be quite high.

Figure 2.2: Development of STW and unemployment



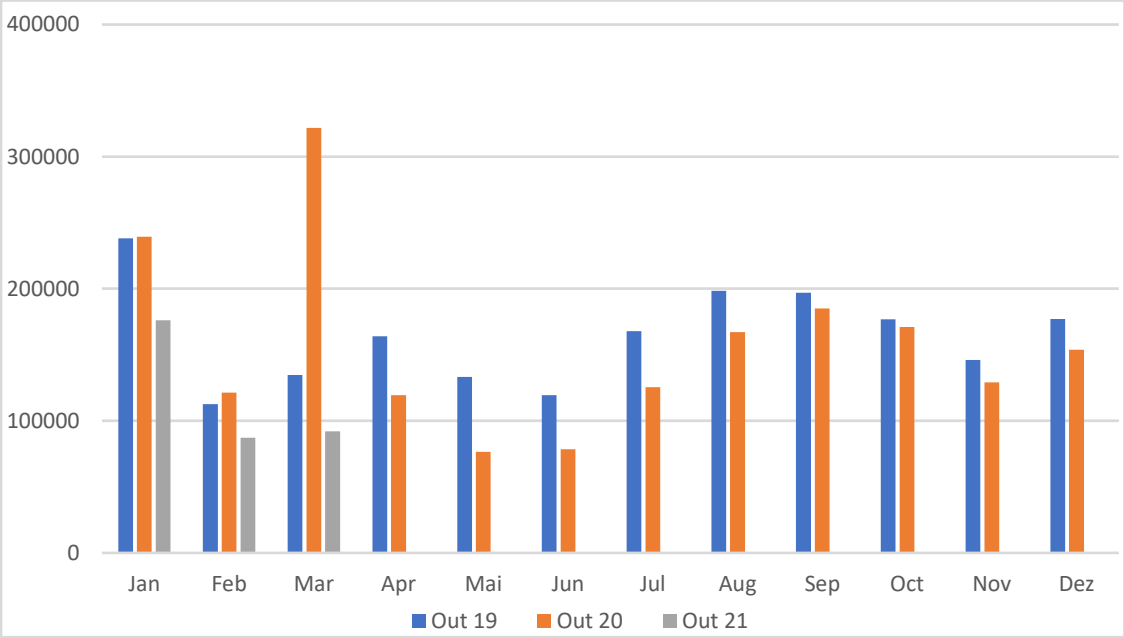
Source: AMS Data Warehouse; BMAFJ, 2021; BaliWeb 2020, own calculations

Note: take-up rate = workers on STW as a percentage of all employees

Figure 2.3 and Figure 2.4, which show employment out- and inflows, demonstrate how STW led to the anticipated labor hoarding during the whole observation period. After a peak of dismissals in March 2020, employment outflows remained below their level of 2019, which was

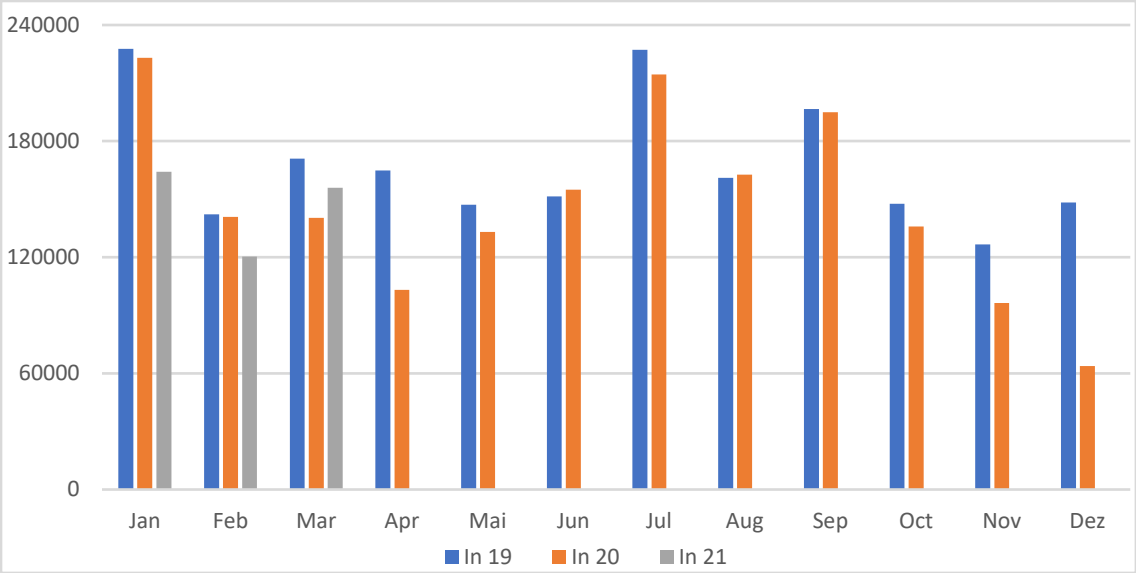
a year of economic upturn (Figure 2.3). At the same time, the figures show a low level of new employment (inflows) in the years 2020 and 2021 (Figure 2.4). Low hiring in 2020 and 2021, after the mass layoffs of March 2020, resulted in a high unemployment rate. After the first lockdown, the difference between outflows in 2019 and 2020 is considerable. While mass layoffs in March could be added to possible explanations for the relatively low number of dismissals that followed, the figures for the second wave are quite striking. The dynamic of hiring and firing slowed down, suggesting an even more considerable impact of STW on labor hoarding. If there is a "learning effect", i.e. if employers learned how to make use of STW and policy makers provide a similar STW scheme during economic shocks, there might be fewer panic-driven layoffs in future crises. However, better dismissal protection, or any form of "experience rating" (Eppel and Mahringer, 2020), could also prevent panic-driven layoffs and would increase the efficiency of STW schemes.

Figure 2.3: Employment: outflows



Source: AMS Data Warehouse; WIFO.

Figure 2.4: Employment: inflows

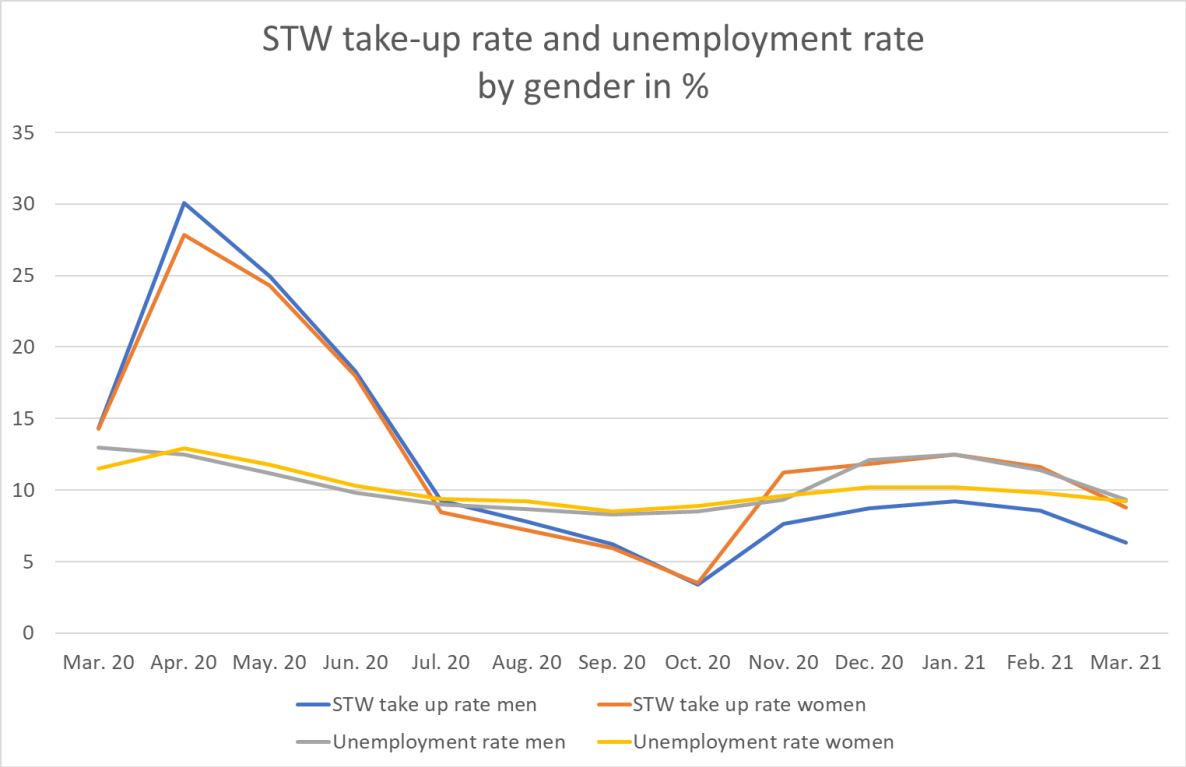


Source: AMS Data Warehouse; WIFO.

2. Difference by gender

Figure 3 shows that there were different developments by gender. To see how the crisis's impact varied according to gender, we compare the unemployment rate with the STW take-up rate. In the first month of the COVID-19 pandemic, men were more heavily affected by the crisis as suggested by the numbers of men on STW and unemployment. In April 2020, the STW take-up rate of men was around 30%, while that of women was around 27.8%; the two did not align before October 2020. At the same time, the unemployment rate of women was steadily higher than the unemployment rate of men between April and October, indicating that women were more severely affected by the crisis. After November 2020, which was when the second lockdown began (see Chapter 3.2), the STW take-up rate of women remained consistently higher than that of men. However, unemployment among women rose significantly until the lockdown ended in February 2021. The high unemployment rate of men in the winter months (December, January, February) is not primarily caused by COVID-19 lockdowns but by seasonal unemployment in the construction industry. Finally, in March 2021, the unemployment rate of women and men was equal, meaning that throughout the ongoing COVID-19 crisis, women were more affected by layoffs, although the situation improved slightly during the second lockdown.

Figure 3: Development of STW and unemployment by gender

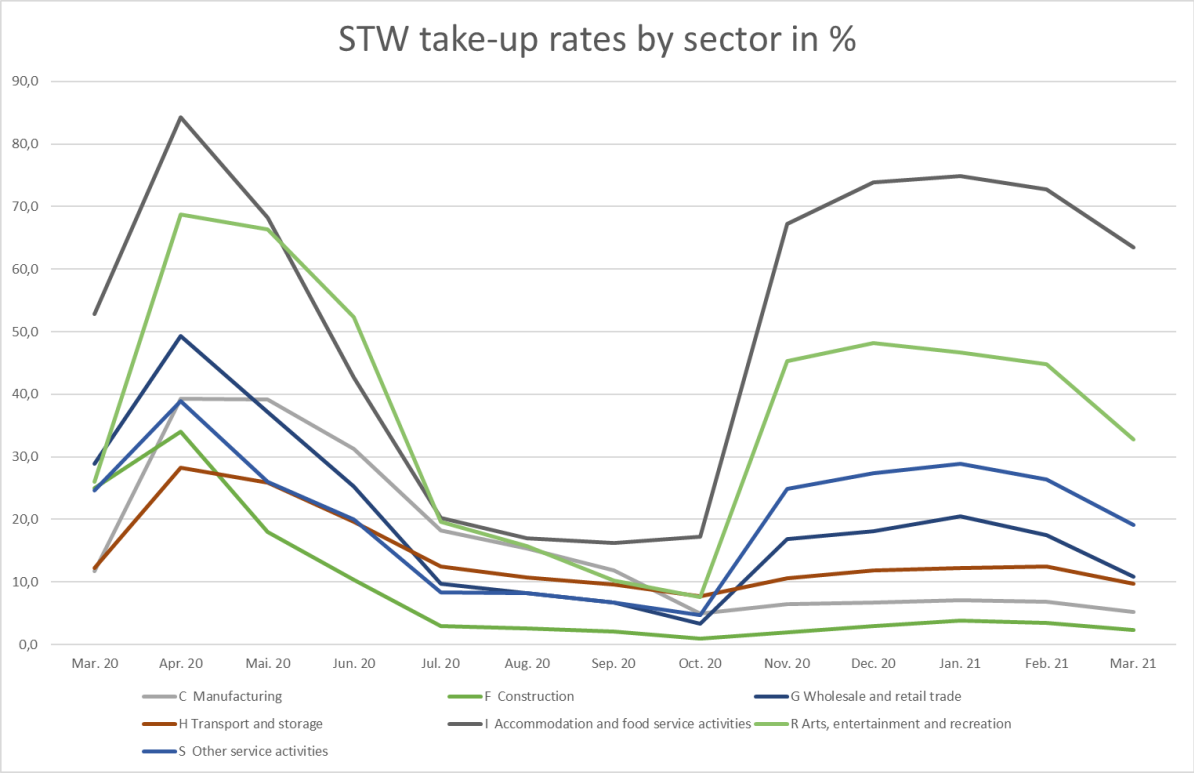


Source: AMS Data Warehouse; BMAFJ 2021; BaliWeb 2020; own calculations

Note: take-up rate = workers on STW as a percentage of all employees

One main reason for the observed gender differences lies in labor market segregation (Sengenberger, 1978). In Austria, men and women work in quite different sectors (Bock-Schappelwein et al., 2021). The highest STW take-up rates are observed in April 2020 in the accommodation and food industry (84%) and in the arts sector (68.7%). Furthermore, the manufacturing and wholesale sector had very high STW take-up rates of around 40% or more. In addition to these sectors, the construction industry, a sector that mainly employs men, also had high take-up rates. This partly explains the high STW take-up rates of men at the beginning of the COVID-19 crisis. During the second lockdown, it was yet again the accommodation and food industry, as well as the arts sector, that had to use STW intensively. Moreover, other service activities, such as repairing personal and household goods, had high STW take-up rates. In contrast to the beginning of the COVID-19 crisis, the manufacturing and the construction sectors used STW relatively little.

Figure 3: STW take-up rates by sector in %

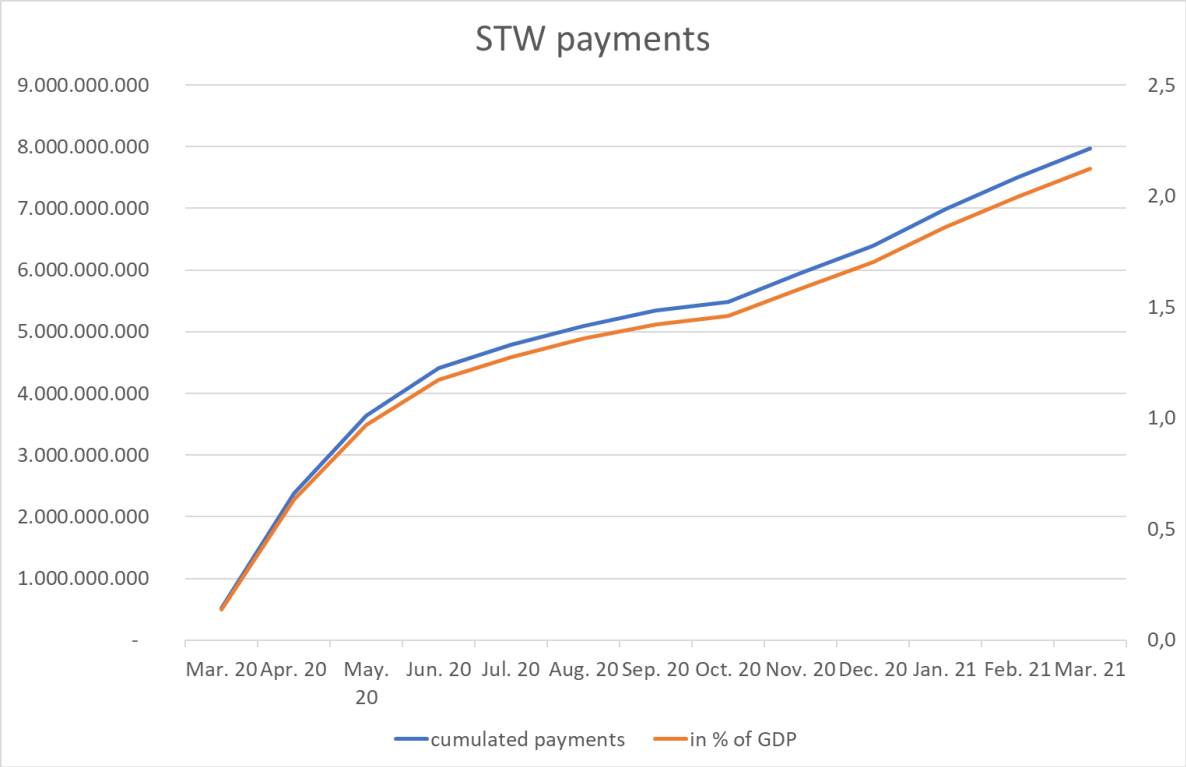


Source: AMS Data Warehouse

3. STW payments

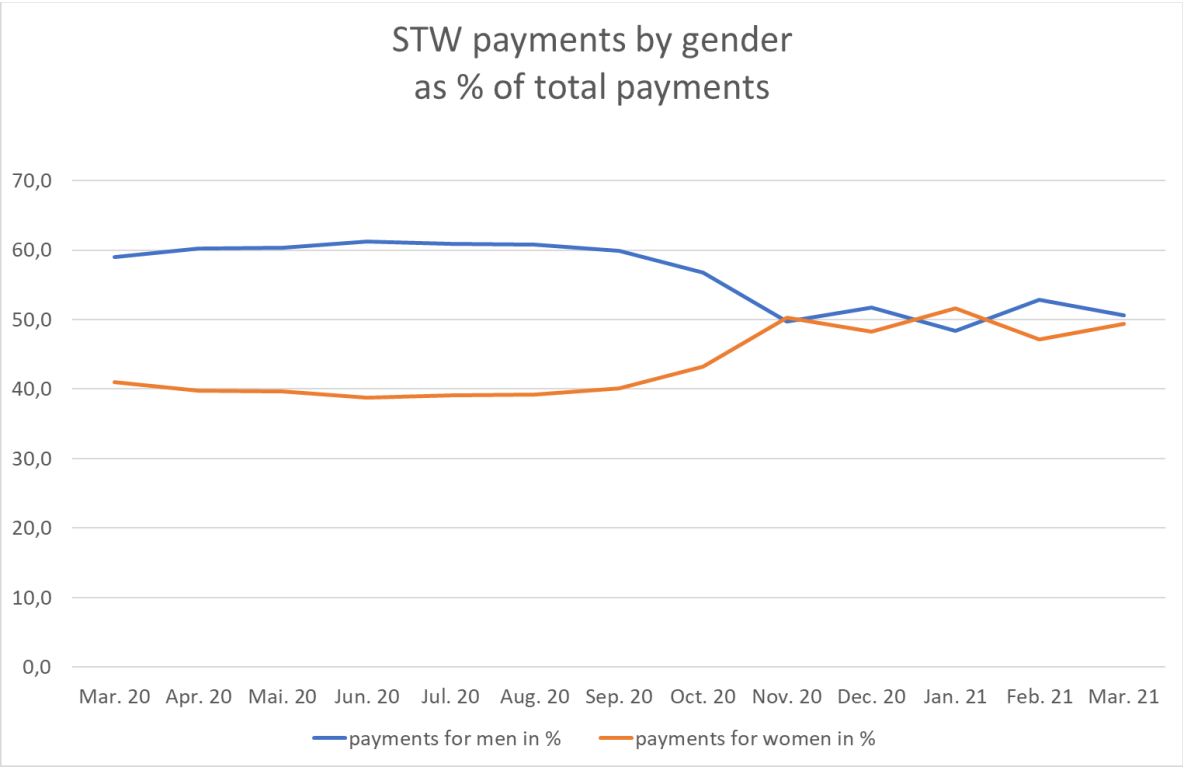
In 2020, the budget for STW was increased several times (see Chapter 3). The realized payments for STW increased continuously and in March 2021 reached around €8 billion, which is roughly 2.12% of Austria's GDP (Figure 4). The bulk of the STW payments, €4.6 billion or 57.2%, went to men and only €3.4 billion or 42.8% to women. This can be explained by the uneven manner in which the COVID-19 crisis affects different genders but also by the different income levels as well as different part-time employment rates between men and women. Again, it is obvious that since the second lockdown women have been heavily affected by the COVID-19 crisis, as demonstrated by men and women receiving almost equal STW payments during the winter months (Figure 5). Interestingly, the average STW payment per person increased from €1,112 (men) and €881 (women) in March 2020 to €1,864 (men) and €1,530 (women) in March 2021. This shows that the actual hours not worked and the affected sectors have changed during the course of the crisis.

Figure 4: STW payments



Source: AMS Data Warehouse; Statistik Austria; own calculations

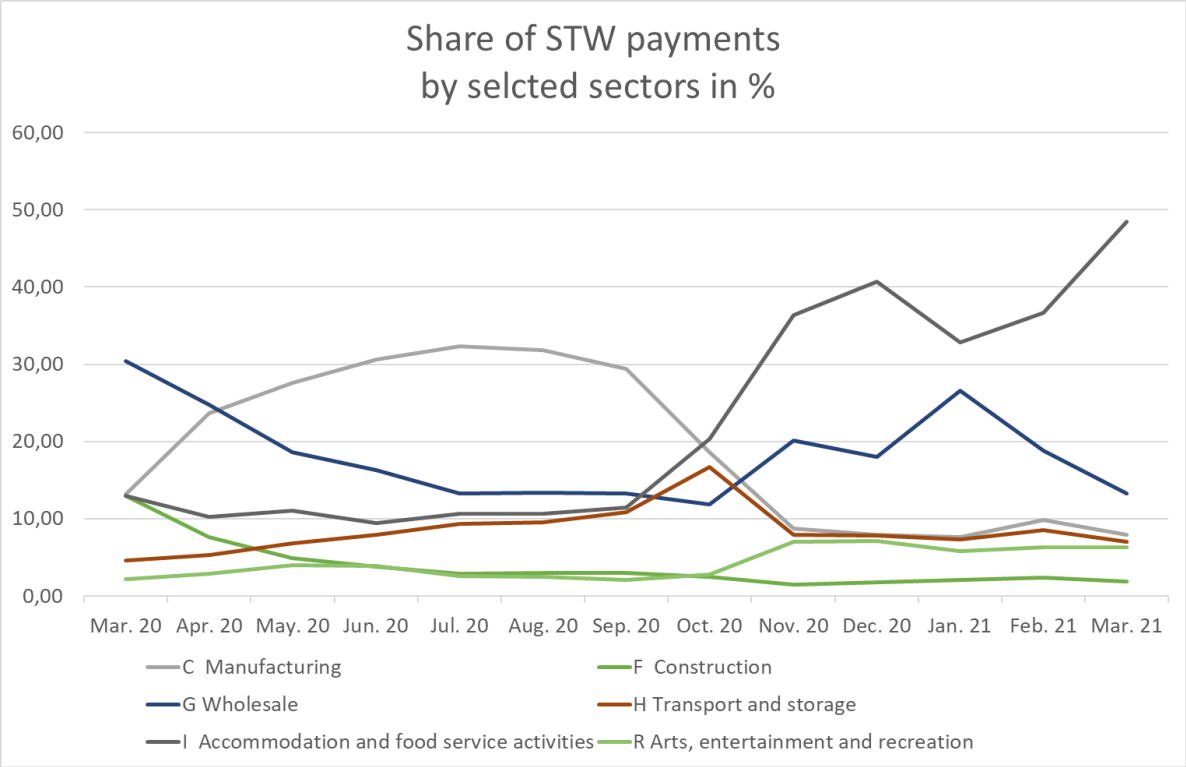
Figure 5: STW payments by gender



Source: AMS Data Warehouse; Statistik Austria; own calculations

Until March 2021, most payments went to the manufacturing sector (20.32% of all STW payments) and to the wholesale and retail trade sector (20.16%), followed by accommodation and food service activities (around 19.59%). But Figure 6 also shows that different sectors made use of STW to varying degrees during different periods. At the beginning of the coronavirus crisis, it was the wholesale sector that had made considerable use of STW; when the COVID-19 relaxations were implemented between the summer and October of 2021, STW payments in this sector went down to around 12%. During the second lockdown, STW payments in the wholesale sector went up again but have decreased significantly since January 2021. This decrease, which came despite the lockdown, could be an indication that this sector was able to adjust to the challenges of the COVID-19 crisis, for example by focusing more heavily on online sales. The accommodation sector and food services, however, received around 11% of total STW payments until September 2021, with STW payments then increasing sharply and peaking, in the absence of winter tourism, at 48.5%. There was an interesting development in the utilization of STW in the manufacturing sector too. Here, STW payments were between 24% and 32% until September 2021. Since October 2021, STW payments to the manufacturing sector went down continuously and reached the lowest value of 7.89% in March 2021. It seems that the manufacturing sector is less sensitive to COVID-19 lockdowns and depends more on the situation regarding orders or on international supply chains, which were mainly interrupted at the beginning of the COVID-19 crisis.

Figure 6: STW payments by sector



Source: AMS Data Warehouse; Statistik Austria; own calculations

6. Conclusion

This article aimed to outline the characteristic features of the Austrian Coronavirus STW model and provide an initial overview of its utilization. The impact of the COVID-19 crisis on the Austrian labor market took on new dimensions and reached unprecedented levels. To curb the spread of the virus, the government ordered several lockdowns, shutting down all non-essential businesses, schools, and museums, and imposed curfews. These measures did help bring down the rate of infection, but they also affected the Austrian labor market. After the first lockdown, unemployment skyrocketed to historic levels. To prevent this figure from rising further, Austrian social partners negotiated a comprehensive STW model. Within the first three months, until the end of May 2020, applications for STW included about 1.3 million workers – almost 40% of the Austrian labor force.

This paper discussed the differences between previous STW models in detail and contextualized the COVID-19 STW schemes against the backdrop of changing crisis management. We also provided a detailed examination of differences between sectors and genders.

The COVID-19 STW model is comprehensive with relaxed requirements and generous subsidies for employees. In contrast to former models, it offers a full reimbursement of

subsidies to the employer, which are then passed to the employees. As the model was easily accessible and entailed no costs for employers, it had a broad impact on labor hoarding, prevented increasing unemployment, and therefore contributed to stabilizing the economy in times of crisis. Even though the model came with high fiscal costs, these must be considered alongside the opportunity costs of unemployment (Figerl et al., 2021) and multiplier effects due to lower income in the case of unemployment. However, little requirements increase the danger of deadweight losses. Countries like Sweden and Denmark try to minimize deadweight losses by banning the distribution of dividends for companies under STW schemes (Schulten and Müller, 2020b).

We highlighted three key periods of the pandemic, which correspond to three reforms of the COVID-19 STW model. The first began with the lockdown in March 2020 and can be characterized as a time of high uncertainty. The second episode stretched from May 2020 to October 2020 and began with the summer of hope, relaxations of restrictions, and a quite optimistic outlook that lasted until the beginning of a second wave of COVID-19 infections in September. The third key moment, from November 2020 to March 2021, marks a long lockdown (of changing degrees) but experience-based decision-making and the prospect of emerging vaccinations. During all three periods, the crisis affected women more severely than men. Women were also more prone to unemployment. During the first two periods mentioned, more men were on STW. During the last period, STW was more heavily utilized for female workers, i.e. women became unemployed less often, although they were more heavily affected by the second period of lockdown. We explain this through Austria's segmented labor market and the crisis affecting sectors differently.

The utilization of STW in various sectors changed throughout the three periods. The general high level and the difference between a priori measured applications and a posteriori measured utilization shows how STW also functioned as a form of insurance in times of uncertainty. Over time there might have been a "learning effect" and employers did seem to have a much more prepared response during the second period of lockdown. Possibly, in the case of future crises, STW may function even more effectively as a high number of employers have learned how to use the measure. Especially smaller enterprises gained experience with STW during the COVID-19 crisis and might use it more extensively during future economic turbulences and crises.

However, a better dismissal protection or any form of "experience rating" (Eppel and Mahringer, 2020) would increase the efficiency of STW schemes because the opportunity costs of layoffs increase. This is especially true in sectors with low income and low employment protection, which would especially benefit women.

Finally, data on employment in- and outflows show that STW had the anticipated impact of labor hoarding. So far, experiences with STW again proved that the scheme is capable of preserving employment and stabilizing the economy during times of uncertainty.

To prevent possible deadweight losses, there should be an a posteriori evaluation of STW subsidies. This would not affect applications and STW still would function as a form of insurance. If an enterprise makes a profit, they automatically reduce a posteriori subsidies that will be paid to enterprises. To guarantee liquidity, STW subsidies could be made dependent upon enterprise profits and granted as a negative-interest credit. For example, should a crisis arise, an employer would receive STW subsidies as a negative-interest credit of minus 20% per year. If the enterprise makes any profit in the year subsequent to STW, it would be obliged to use 50% of its profits to repay the STW loan.

References

Baldwin R and Weder di Mauro B (2020) *Mitigating the COVID Economic Crisis: Act Fast and Do Whatever It Takes.* London: CEPR Press.

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

BaliWeb (2020) Online database retrieval system containing labor market information managed by the Section III analysis, forecasting, and research team at the Austrian Federal Ministry for Labour, Family and Youth. Available at: https://www.dnet.at/bali/ (accessed January 26, 2021).

Berghammer C and Beham-Rabanser M (2020) Wo bleibt die Zeit? Bezahlte und unbezahlte Arbeit von Frauen und Männern in der Corona-Krise, Austrian Corona Panel Project. Corona Blog. University of Vienna. Available at: https://viecer.univie.ac.at/corona-blog/corona-blog-beitraege/blog57/ (accessed November 2, 2020).

BMASK (2009) Aktive Arbeitsmarktpolitik in Österreich 1994-2009. Available at: http://www.forschungsnetzwerk.at/downloadpub/bmask_dokumentation_aktive_amp_oesterreich_1994_2009_.pdf (accessed June 28, 2021).

BMASK (2013): Aktive Arbeitsmarktpolitik in Österreich 1994-2013. Available at: https://broschuerenservice.sozialministerium.at/Home/Download?publicationId=27 (accessed June 28, 2021).

BMASK (2019): Aktive Arbeitsmarktpolitik in Österreich 2014-2019. Available at: https://broschuerenservice.sozialministerium.at/Home/Download?publicationId=447 (accessed June 28, 2021).

Bock-Schappelwein J, Mahringer H and Rückert E (2011) *Kurzarbeit in Deutschland und Österreich*. Vienna: WIFO.

Bock-Schappelwein J, Huemer U and Hyll W (2021) Beschäftigung 2020: Bilanz nach einem Jahr COVID-19-Pandemie. *WIFO Research briefs* 1/2021. Available at: https://www.wifo.ac.at/jart/prj3/wifo/resources/person_dokument/person_dokument.jart?publikationsid=66814&mime_type=application/pdf (accessed June 16, 2021).

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

the Great Recession. *Economic Policy* 26(68): 697–765.

Bundesministerium Digitalisierung und Wirtschaft (2021) Unterstützung für Unternehmen. Available at: https://www.bmdw.gv.at/Themen/International/covid-19/Unterstuetzung-fuer-Unternehmen.html#Umsatzersatz (accessed June 16, 2021).

Burda Mand Hunt J (2011) What explains the German labor market miracle in the Great Recession? *Brooking Papers on Economic Activity*, SFB 649 Discussion Papers: 1–39.

Brenke K, Rinne U and Zimmermann KF (2011) Short-time work: The German answer to the Great Recession. *International Labour Review* 152(2): 287–305.

Cahuc P and Carcillo S (2011) Is short-time work a good method to keep unemployment down? *Nordic Economic Policy Review* 1(1): 133–165.

Caldera A, Maravalle A, Rawdanowicz L and Sanchez Chico A (2020) Strengthening automatic stabilisers could help combat the next downturn. Available at: https://voxeu.org/article/strengthening-automatic-stabilisers-could-help-combat-next-downturn (accessed May 31, 2020).

Chamber of Labor (2020) Corona Kurzarbeit. Available at: https://www.arbeiterkammer.at/interessenvertretung/arbeitundsoziales/arbeitszeit/Neues_Kurzarbeitsmodell.html (accessed June 23, 2021).

Crimmann A, Wiesner F and Bellmann L (2010) *The German work-sharing scheme: an instrument for the crisis*. Conditions of Work and Employment Series No. 25. Geneva: ILO.

Dietz M, Stops M and Walwei U (2011) *Safeguarding jobs in times of crisis: lessons from the German experience*. ILO Discussion Paper 207. Geneva: ILO.

Eichhorst W, Marx P and Rinne U (2020) Manoeuvring Through the Crisis: Labour Market and Social Policies During the COVID-19 Pandemic. *Intereconomics* 55(6): 375–380.

Eppel R and Mahringer H (2020) Die Chancen und Risiken eines Experience rating in der Arbeitslosenversicherung. *Perspektiven der Wirtschaftspolitik* 21(1): 90–103.

European Commission (EC) (2020) Proposal for a Council regulation on the establishment of a European instrument for temporary support to mitigate unemployment risks in an emergency (SURE) following the COVID-19 virus outbreak, COM 2020 139 final, 2020/0057 (NLE).

Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2020%3A139%3AFIN (accessed May 31, 2020).

Figerl J, Tamesberger D and Theurl S (2021) Umverteilung von Arbeit(-szeit): Eine (Netto)Kostenschätzung für ein staatlich gefördertes Arbeitszeitverkürzungsmodell. *Momentum Quarterly* 10 (1): 3–19.

Foissner F, Glassner V, Theurl S (2021) Krisengewinner Patriarchat? Wie die COVID-Arbeitsmarktkrise Frauen trifft. In: Filipic U and Schönauer A (eds) *Ein Jahr Corona: Ausblick Zukunft der Arbeit.* Wien: Kammer für Arbeiter und Angestellte für Wien, pp. 56–68. Available at: https://www.ssoar.info/ssoar/handle/document/72645 (accessed June 25, 2021).

Gehrke B and Hochmuth B (2019) Counteracting Unemployment in Crises: Non-Linear Effects of Short-Time Work Policy. *Scandinavian Journal of Economics* 123(1): 144–183.

Giupponi G, Landais C (2020) Building effective short-time work schemes for the COVID-19 crisis. Available at: https://voxeu.org/article/building-effective-short-time-work-schemes-covid-19-crisis (accessed May 31, 2020).

Gumprecht D (2016) Arbeitslos ist nicht gleich arbeitslos. Internationale und nationale Definition von Arbeitslosigkeit in Österreich. *Statistische Nachrichten* 5/2016: 336–347.

Herzog-Stein A, Lindner F and Sturn S (2018) The German Employment Miracle in the Great Recession: the Significance and Institutional Foundations of Temporary Working Time Reductions. *Oxford Economic Papers* 70(1): 206–224.

Herzog-Stein A, Nüß P, Peede L and Stein U (2021) Germany's Labour Market in Coronavirus Distress – New Challenges to Safeguarding Employment. IMK Working Paper 209.

Hijzen A and Venn D (2011) *The role of short-time working schemes during the 2008-2009 recession*. OECD Working Paper 115.

Krugman P (2009) Germany's job, unemployment miracle can teach the US. *New York Times*, November 17.

Mandl I (2011) Kurzarbeitsbeihilfe in Österreich. *Wirtschaft und Gesellschaft* 37 (2): 293–314.

Mendel M (2020) So sah die Kurzarbeit vor 100 Jahren aus. In: ÖGB. Available at: https://www.oegb.at/cms/S06/S06_0.a/1342631169292/home/so-sah-die-kurzarbeit-vor-100-jahren-aus (accessed June 26, 2021).

Möller J (2010) The German labor market response in the world recession – demystifying a miracle. *Zeitschrift für Arbeitsmarktforschung*. 42(4): 325–36.

OECD (2010) Moving Beyond the Jobs Crisis. In: OECD (eds) *Employment Outlook*. Paris: OECD, pp. 15–102.

Pollak M, Kowarz N and Partheymüller J (2020a) Chronology of the Corona Crisis in Austria - Part 1: Background, the way to the lockdown, the acute phase and economic consequences. In: Corona Blog. University of Vienna. Available at: https://viecer.univie.ac.at/en/projects-and-cooperations/austrian-corona-panel-project/corona-blog/corona-blog-beitraege/blog51/ (accessed March 3, 2021).

Pollak M, Kowarz N and Partheymüller J (2020b) Chronology of the Corona Crisis in Austria - Part 2: From the first easing of measures towards restoring normality. In: Corona Blog. University of Vienna. Available at: https://viecer.univie.ac.at/en/projects-and-cooperations/austrian-corona-panel-project/corona-blog/corona-blog-beitraege/blog60/ (accessed June 23, 2021).

Pollak M, Kowarz N and Partheymüller J (2020c) Chronology of the Corona Crisis in Austria - Part 3: A calm summer and the beginning of the second wave. In: Corona Blog. University of Vienna. Available at: https://viecer.univie.ac.at/en/projects-and-cooperations/austrian-corona-panel-project/corona-blog/corona-blog-beitraege/blog79/ (accessed June 23, 2021).

Pollak M, Kowarz N and Partheymüller J (2021a) Chronology of the Corona Crisis in Austria - Part 4: Lockdowns, mass testing and the launch of the vaccination campaign. In: Corona Blog. University of Vienna. Available at: https://viecer.univie.ac.at/en/projects-and-cooperations/austrian-corona-panel-project/corona-blog/corona-blog-beitraege/blog100-en/ (accessed June 23, 2021).

Pollak M, Kowarz N and Partheymüller J (2021b) Chronology of the Corona Crisis in Austria - Part 5: Third Wave, Regional Lockdowns and the Vaccination Campaign. In: Corona Blog. University of Vienna. Available at: https://viecer.univie.ac.at/en/projects-and-cooperations/austrian-corona-panel-project/corona-blog/corona-blog-beitraege/blog112-en/ (accessed June 23, 2021)

Schichl O (2010) Kurzarbeit in Österreich. Historische Entwicklung, Ziele und Konsequenzen für die Personalpolitik. Master thesis. University of Graz, Austria. Available at: https://www.grin.com/document/153621 (accessed June 28, 2021).

Schnetzer M, Tamesberger D and Theurl S (2020) Mitigating mass layoffs in the COVID-19 crisis: Austrian short-time work as international role model. Available at: https://voxeu.org/article/mitigating-mass-layoffs-covid-19-crisis-austrian-short-time-model (accessed May 31, 2020).

Schönherr D and Zandonella M (2020) Arbeitsbedingungen und Berufsprestige von Beschäftigten in systemrelevanten Berufen in Österreich – Sonderauswertung des Österreichischen Arbeitsklima Index, Wien: Kammer für Arbeiter und Angestellte für Wien. Available at: https://www.arbeiterkammer.at/interessenvertretung/arbeitundsoziales/arbeitsmarkt/AK_Studie_Arbeitsbedingungen_in_systemrelevanten_Berufen.pdf (accessed November 23, 2020).

Schulten T and Müller T (2020a) Kurzarbeitergeld in der Coronakrise. *WSI Policy Brief* 38 (4/2020): 1–17. Available at: https://www.boeckler.de/pdf/p_wsi_pb_38_2020.pdf (accessed May 31, 2020).

Schulten T and Müller T (2020b) Ensuring fair short-time work - a European overview. European Economic, *Employment and Social Policy* 7/2020: 1–12. Available at: https://www.etui.org/Publications2/Policy-Briefs/European-Economic-Employment-and-Social-Policy/Ensuring-fair-Short-Time-Work-a-European-overview (accessed May 31, 2020).

Sengenberger W (1978) *Der gespaltene Arbeitsmarkt. Probleme der Arbeitsmarktsegmentation.* Frankfurt/New York: Campus Verlag.

Steiber N (2021) *Die COVID-19 Gesundheits- und Arbeitsmarktkrise und ihre Auswirkungen auf die Bevölkerung.* Wien: Kammer für Arbeiter und Angestellte für Wien. Available at: https://resolver.obvsg.at/urn:nbn:at:at-akw:g-3618996 (accessed June 25, 2021).

Vroman W and Brusentsev V (2009) Short-time compensation as a policy to stabilize employment. University of Delaware. Available at: https://www.urban.org/sites/default/files/publication/30751/411983-Short-Time-Compensation-as-a-Policy-to-Stabilize-Employment.PDF (accessed May 31, 2020).