



AUSTRIA

SELECTED ISSUES

September 2021

This Selected Issues paper on Austria was prepared by a staff team of the International Monetary Fund. It is based on the information available at the time it was completed on August 3, 2021.

Copies of this report are available to the public from

International Monetary Fund • Publication Services
PO Box 92780 • Washington, D.C. 20090
Telephone: (202) 623-7430 • Fax: (202) 623-7201
E-mail: publications@imf.org Web: <http://www.imf.org>
Price: \$18.00 per printed copy

International Monetary Fund
Washington, D.C.



AUSTRIA

SELECTED ISSUES

August 3, 2021

Approved By
European Department

Prepared by Michelle Hassine, Manasa Patnam, and
Nujin Suphaphiphat

CONTENTS

THE COVID-19 IMPACTS ON AUSTRIA	2
A. Introduction	2
B. Austria’s Economic Scarring: Lessons from the Past	3
C. Firm Dynamism and Productivity in Austria—The Role of Credit	9
D. Equity Gap in Austria—Issues and Policy Recommendations	14

FIGURE

1. Pre-Pandemic Structural Labor Market Issues and Long-Term Unemployment	6
---	---

TABLE

1. 2019–2020 Change in Corporate Equity by Firm Size and Sector	16
---	----

References	21
------------	----

ANNEXES

I. Data Sources and Calculations	19
II. Selected COVID–19 Related Federal Budget Spending Measures(Cash Basis), 2020-20	

THE COVID-19 IMPACTS ON AUSTRIA

The COVID-19 pandemic adversely affected the Austrian economy. Evidence from previous crises suggests that economic scarring is common and driven by labor market hysteresis, impaired corporate balance sheets, and deteriorating productivity. As the recovery takes hold, policies aiming at preventing potential rise in long-term unemployment, as well as addressing skills and regional mismatches can foster job creation and promote efficient reallocation of labor. Targeted equity-like instruments and an effective insolvency framework can help rehabilitate corporate balance sheets while allowing nonviable to efficiently exit the market.

A. Introduction

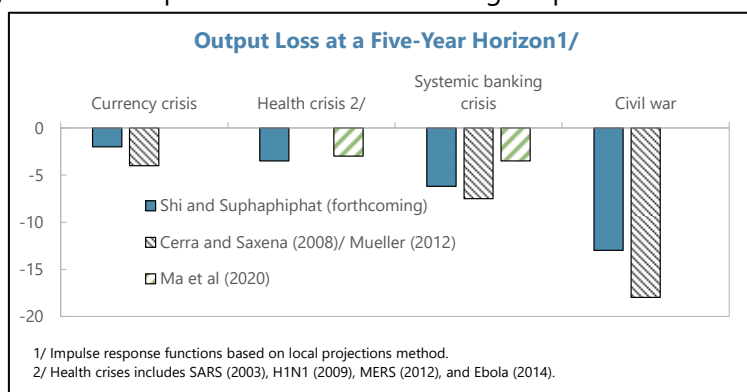
1. **The COVID-19 Pandemic led to a severe recession in Austria.** Measures aiming at containing the health crisis—including social distancing, lockdowns, and closures—significantly disrupted the economy. Austria’s real GDP growth plummeted by 6.3 percent in 2020. Unemployment surged, firms’ production and services were severely disrupted, especially in contact intensive sectors such as tourism, and productivity dwindled. On the demand side, private consumption and investment plunged.
2. **The unprecedented policy response has helped cushion the economic ramifications of the pandemic.** The short-term work scheme (STWS)—large in size and scope—supported employment. Loan moratoria and unemployment bonuses helped smooth consumption and protect income. Government grants to firms in the form of a fixed-cost subsidy, turnover replacement, and hardship funds, as well as public loan guarantees, provided much needed liquidity to firms.
3. **However, the long-term impacts of the Pandemic are yet to unfold and subject to high uncertainty.** Continued policy support to the economy and ongoing structural transformations accelerated by the pandemic have clouded the long-term impacts on the economy. While the lifeline support to the economy is essential, it attenuates the full economic shifts resulting from the pandemic. Liquidity support to firms temporarily restrained corporate insolvencies and non-performing loans. The extension of STWS masked true unemployment. In addition, the pandemic has catalyzed changes in long-term economic trends, be it through the rise of telework or the acceleration of automation and digitalization. Those factors inevitably have implications on the labor market, corporate sector, and overall productivity.
4. **The paper aims to present the possible channels leading to persistent effects of the Pandemic.** Section B documents a long-term impact of different types of crises and reviews contributing channels and their implications for Austria during the current pandemic. Leveraging from previous crises, Section C sheds lights on how credit and firms’ dynamic play a role in productivity changes in Austria. Finally, drawing from a rich firm-level dataset, Section D presents the changes in firms’ corporate balance sheets during COVID–19, highlighting the role of equity.

B. Austria's Economic Scarring: Lessons from the Past¹

Economic scarring is common after a large crisis. Sources of economic scarring from the current pandemic could include: labor hysteresis from structural transformation which accelerated during the crisis, a potential rise in long-term unemployment, and deterioration in corporate balance sheets among others. Nonetheless, the unprecedented support could help mitigate economic scarring. Going forward, policies should aim at securing the recovery and facilitating the efficient reallocation of labor and capital through active labor market policies and solvency support for viable firms in order to replenish corporate balance sheets.

5. Previous studies show that economic scarring from a large crisis is common, but the magnitudes differ across crises.

Many countries experience economic scarring—a persistent output loss compared to the pre-crisis trend—after a large crisis, such as the Asian crisis, the Global Financial Crisis (GFC), health crises, and civil wars.² The magnitudes of the losses varied greatly, ranging from less than 5 percent (currency crises and previous health crises) to over 10 percent (civil wars). Countries experiencing systemic banking crises, including the GFC, are shown to have a cumulative output loss of about 6 percent below the pre-crisis trend.



6. Supply, demand, and policy factors can all play a role in explaining economic scarring.³

Supply factors include employment losses that do not recover later (labor market hysteresis) and deterioration in physical and human capital accumulation. Demand-side channels include persistently suppressed consumption and investment as a result of weakened household and corporate balance sheets and higher precautionary savings from heightened uncertainty. Policy factors—including fiscal and monetary policy—have been found to either mitigate or aggravate economic scarring.

7. This section assesses potential economic scarring from the current pandemic for Austria.

The COVID-19 pandemic has been an unparalleled shock to the economy where the path of recovery is very uncertain. Nonetheless, reviewing channels of scarring from previous crises could provide helpful information as to how the pandemic could affect the economy in the medium term. The analysis presents the current impacts of the pandemic on Austria's economy and highlights

¹ By Nujin Suphaphiphat

² Shi and Suphaphiphat (forthcoming), Cerra and Saxena (2008), Mueller (2012), and Ma et al (2020) use local projections method to assess the impact of output after several crises while Blanchard, Cerutti, and Summers (2015) use a non-parametric approach to measure the effects of recessions.

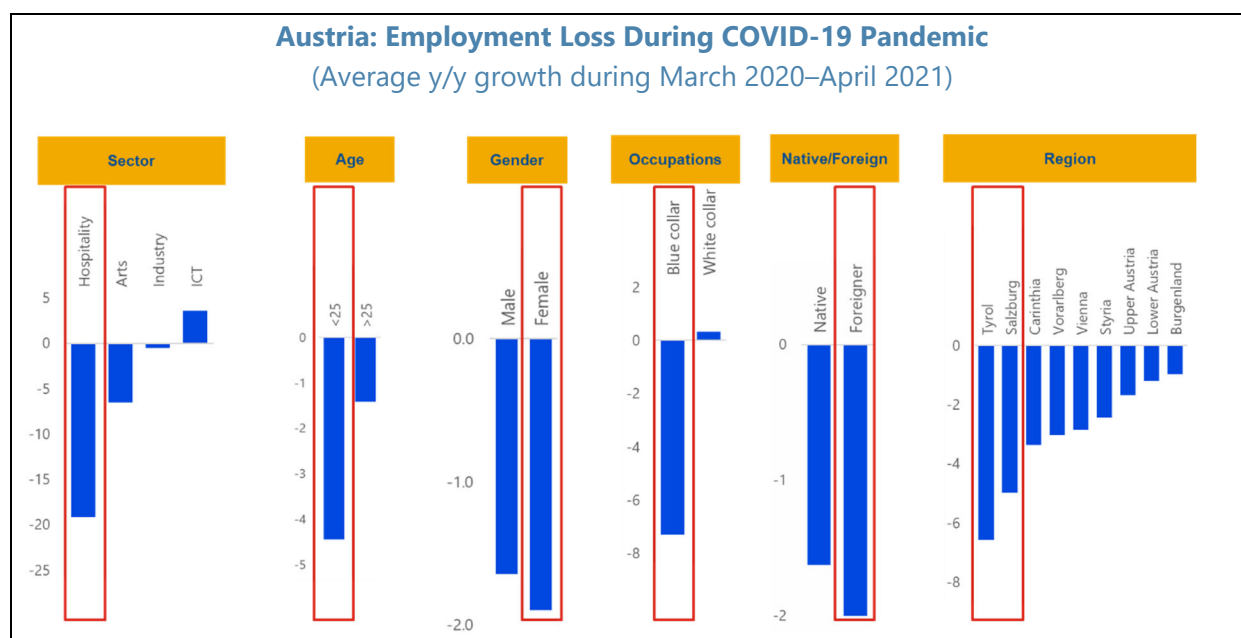
³ Shi and Suphaphiphat, Economic Scarring from a Sectoral Perspective: Facts, Channels, and Policy Implications (forthcoming).

main factors that contribute to economic scarring in the labor market, the corporate sector, and through productivity.

Labor Market and Human Capital Accumulation

8. The pandemic has disproportionately affected vulnerable segments of the labor force.

Notwithstanding the short-term work scheme (SWTS), repeated waves of the pandemic and associated lockdowns severely impacted workers in contact-intensive sectors and regions. In particular, employment in hospitality and arts declined by almost 20 percent during the pandemic (compared to pre-crisis levels), while workers in tourism-oriented regions, such as Tyrol and Salzburg, also suffered from job losses. Similar to previous crises, young, female, blue-collar and foreign workers were disproportionately hit by the pandemic, compared to older, male, white-collar, and native workers.

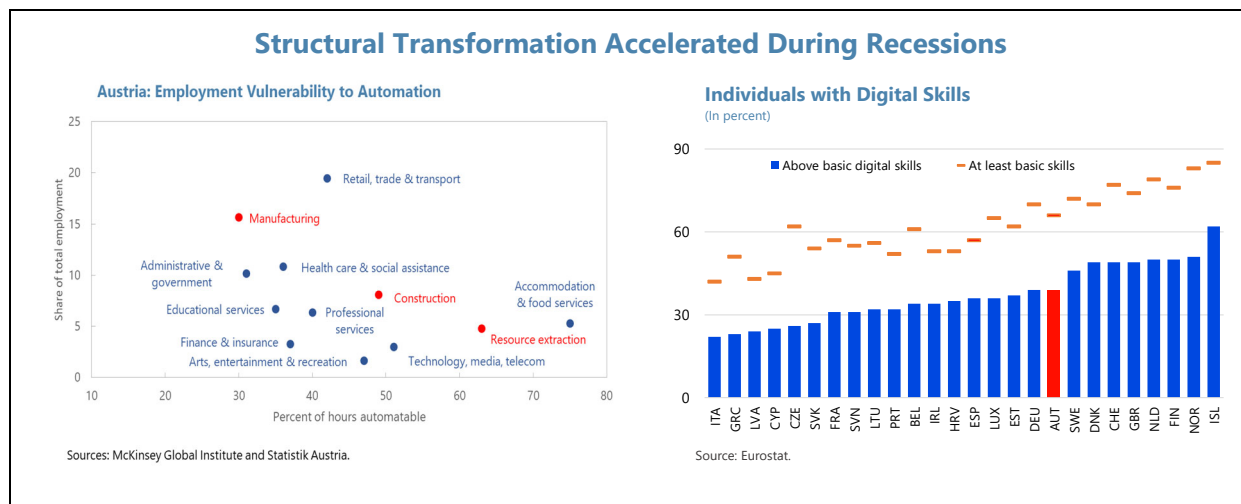


9. Structural transformations accelerated by the pandemic could amplify unemployment in vulnerable sectors.

Previous studies show that employment in routine occupations fell significantly during recessions and did not revert back to pre-crisis levels.⁴ For example, Jaimovich and Siu (2015) found that over the past four decades, almost 90 percent of jobs in routine occupations were lost within a 12-month window of identified recessions. In addition, during the recoveries, these middle-skill, highly routinized jobs did not rebound, in contrast to high- and low-skill occupations. This job polarization coincided with the period when the pace of innovation in automation technologies accelerated. The COVID-19 pandemic has potentially accelerated the adoption of technology, automation, digitalization, and new ways of work (including teleworking), and will have a profound impact on the economy and the labor market in the future. In Austria,

⁴ Jaimovich and Siu (2015), and Eden and Gaggl (2016).

about 15 percent of total employment is in the sectors where more than 50 percent of working time could be automatable. Therefore, workers in these sectors—including accommodation and food services, resource extraction, technology, media, and telecoms, and construction—are at risk of being replaced by automation. If this trend accelerates in the aftermath of COVID-19, many displaced workers may have to transition to new industries and occupations, potentially extending their unemployment. Moreover, digital transformation will accelerate a growing demand for basic and advanced digital skills, exacerbating a digital skill gap that already exists prior to the pandemic.⁵ In Austria, 74 percent of Austrian firms reported having difficulty hiring ICT specialists, while less than 40 percent of the Austrian population is equipped with above-basic digital skills.

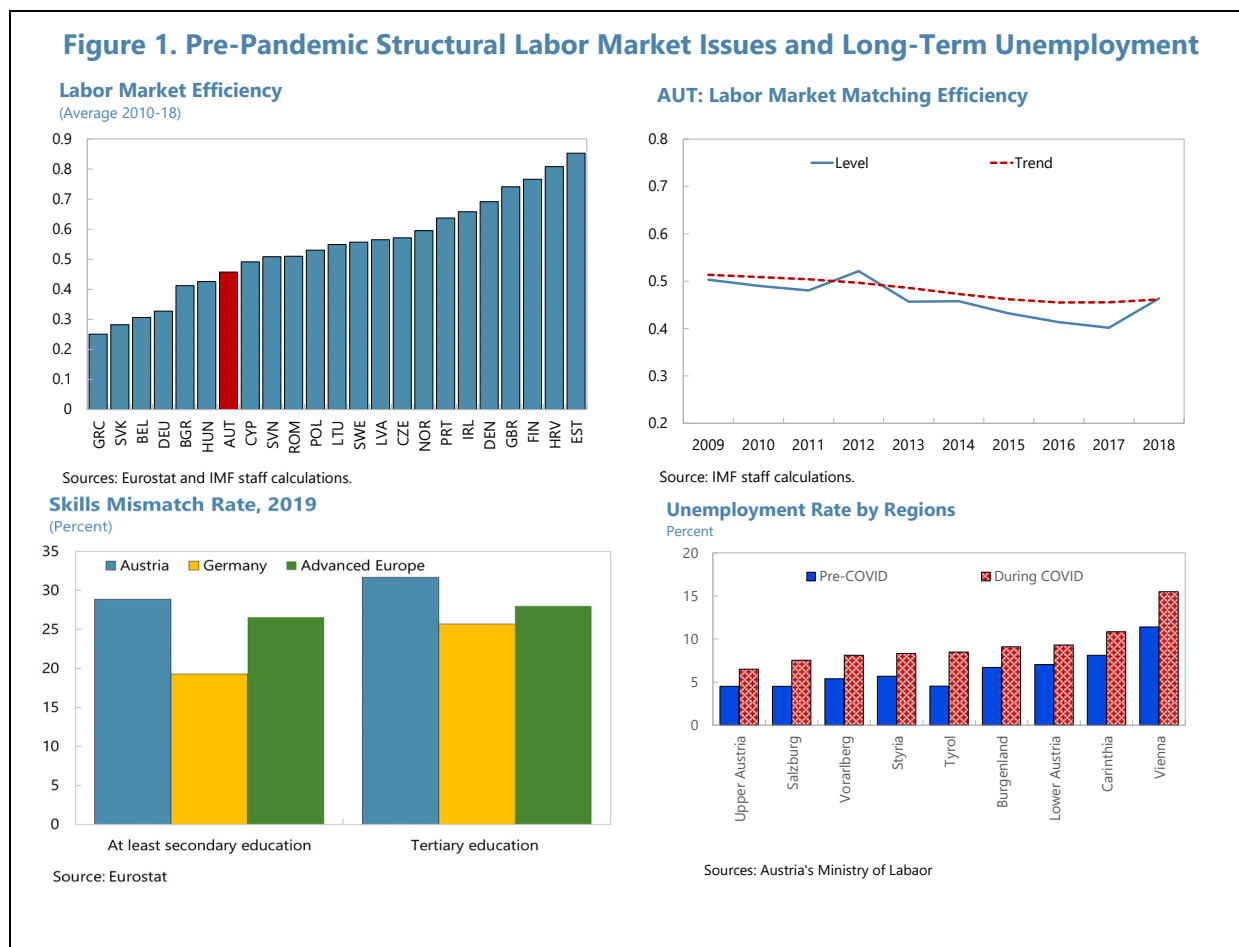


10. Job disruption from the pandemic, compounded by longstanding labor market issues in Austria, could lead to a rise in long-term unemployment (LTU), dampening human capital accumulation. Empirical studies show that rising long-term unemployment could lead to skill erosion and a higher probability of exiting the labor market, stalling human capital accumulation and creating economic scarring. Even if these workers can reintegrate into the labor market, lifetime earnings for the long-time unemployed are significantly lower.⁶ In addition, long-term unemployment could suffer from health and social consequences of job loss. Evidence shows that unemployment increases mortality rates among men by 50 to 100 percent the year after job loss and by 10–15 percent over the following 20 years. After the GFC, long-term unemployment became a main challenge in Europe, where the share of long-term unemployed rose from about 30 percent to 50 percent during 2008–13. The rise in LTU was associated with declining labor market matching efficiency and widening skill mismatch. In Austria, the share of LTU rose almost 10 percentage points during 2008–17 before reverting to the pre-crisis level in 2019 amid declining labor market matching efficiency and widening skills and regional mismatches. The job disruption induced by the

⁵ The report by the European Commission shows that digital technologies are used in all types of jobs, including in sectors not traditionally related to digitization such as farming, health care, vocational training and construction.

⁶ Davis and Don Watcher (2011) and The Hamilton project.

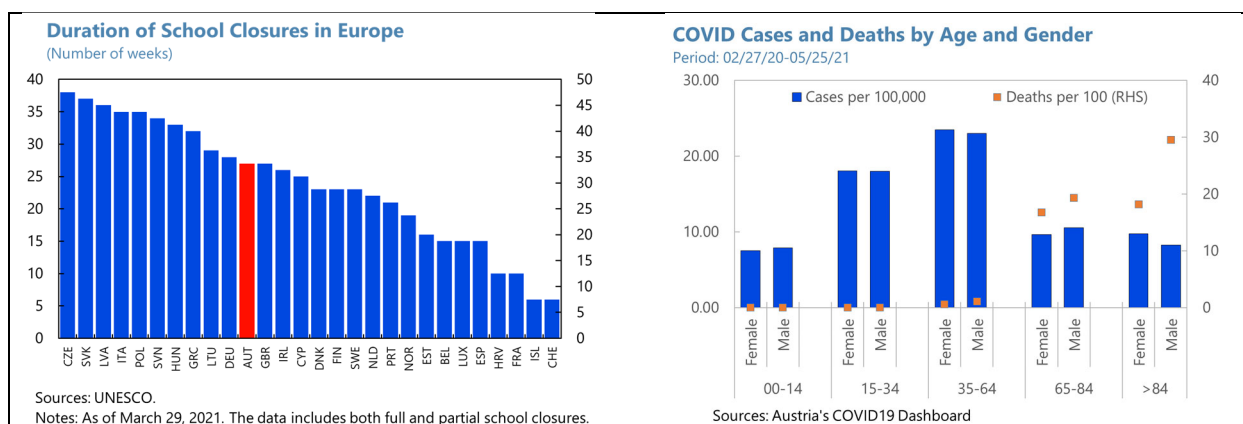
pandemic, together with structural issues prior to the pandemic, could prolong unemployment and hamper human capital accumulation.



11. School closures and potential long-haul consequences from the COVID-19 infection could have long-term implications on human capital, deepening economic scarring. The pandemic could produce a significant and protracted loss of labor productivity. First, school closures during the pandemic caused a significant disruption to learning of the future labor force. Studies suggest that the cost of school closures during COVID could be substantial to the economy in the long run.⁷ Analyzing the impact of learning loss during the World War II, Ichino and Winter-Ebmer (2004) find that children in countries with war experienced a sizable earnings loss 40 years later. Second, while a good healthcare system and stringent safeguard measures resulted in a low death rate caused by the pandemic, its long-haul health consequences yet to be fully understood and could have implications on human capital accumulation.

Long-Term Implications on Human Capital Accumulation from the Pandemic

⁷ Some modelling suggests that the cost to the US in future earnings of four months of lost education is \$2.5 trillion—12.7 percent of GDP (<https://www.brookings.edu/blog/education-plus-development/2020/04/29/the-covid-19-cost-of-school-closures/>). (<https://uh.edu/~adkugler/Ichino%26Winter-Ebmer.pdf>)



Private Sector Balance Sheets and Firms' Productivity

12. Weakening corporate balance sheets and heightened uncertainty could delay capital accumulation through suppressed investment (See Section C). Despite ample liquidity support for firms, the corporate debt-to-income ratio has surged, and the equity gap has widened, weakening balance sheets. Previous research shows that highly leveraged firms invest less, and experience a sharper decline in assets during recessions and lower asset growth during normal times.⁸ The gradual unwinding of support could give rise to liquidity shortages, intensify insolvency rates, dampen investment, and negatively affect economic growth in the long run. For Austria, the stimulus policies, notably investment premium grants, could counteract this, encouraging firms to invest more and helping to alleviate economic scarring.

13. Massive government interventions may create “zombie firms” in the long run, leading to a decline in productivity (See Section D). The experience from the GFC shows that government interventions may allow firms to survive but may also create ‘zombies’—i.e. firms that in normal circumstances would exit because of poor performance, freeing resources for better use in the process, generating resource misallocation.⁹ A BIS study shows that the share of zombie firms—firms that are unable to cover debt servicing costs from current profits over an extended period—rose dramatically after the GFC across advanced economies, from 5 to 12 percent during 2000–17. A higher share of zombie firms weakened economic performance as they are generally less productive, create barriers to entry, and crowd out growth of more productive firms.¹⁰

14. The exit of young firms during recessions limits innovative potential and lowers average productivity. While the impact of the pandemic on firm exits is not yet fully recognized, past crises show that the exit of infant businesses during recessions could lower average productivity in the long run. In contrast to the conventional view that recessions improve resource

⁸ <https://www.imf.org/en/Publications/WP/Issues/2020/12/18/Leverage-Shocks-Firm-Level-Evidence-on-Debt-Overhang-and-Investment-49965> and https://www.oecd-ilibrary.org/sites/39a88ab1-en/1/3/2/2/index.html?itemId=/content/publication/39a88ab1-en&_ga=2.106851846.480201739.1626553369-1901642403.1607058223&_csp=c8d2c0401e354b876a307e4d7900ec10&itemIGO=oecd&itemContentType=book

⁹ <https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.31.3.151>

¹⁰ https://www.bis.org/publ/qtrpdf/r_qt1809g.htm

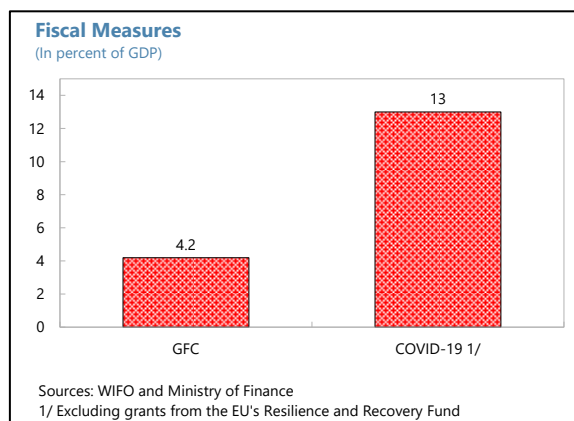
allocation as unproductive businesses would exit the market (cleansing effects), empirical studies show that scarring effects from recessions often dominate as infant businesses tend to appear unproductive in the short run, but have the potential to reveal high productivity in the future.¹¹

Policy Factors

15. Unprecedented policy support to the pandemic has helped mitigate economic

scarring. Fiscal policy has been found to either aggravate or mitigate economic scarring. Evidence during the European debt crisis shows that excessive fiscal austerity deepens recession in the short run and has negative consequences on growth and productivity in the long run as it discourages capital investment and adoption of new technologies.¹² The negative effects of austerity are particularly pronounced when it distorts labor income. On the other hand, Ma et al (2020) show that countries that spent more during the first year of the health crisis (particularly on healthcare) experienced a milder impact on GDP and unemployment.¹³ For

Austria, the policy response during the COVID-19—at least three times larger than that of the GFC—should help mitigate economic scarring. It protected private balance sheets, absorbing corporate losses and protecting household incomes, preventing mass unemployment and a wave of bankruptcies.



Policy Implications

16. Labor market policies should aim at facilitating labor reallocation and preventing

long-term unemployment. This includes higher spending on effective active labor market policies (ALMPs), closing digital gaps, and supporting public employment services.

- *Implementing effective active labor market policies.* Country experiences show that successful ALMPs often include combination of policies. For Austria, higher spending on training such as language, hiring subsidies, and relocation grants would help address skills and regional mismatches.
- *Promoting digital skills and infrastructure:* As digital transformation has been accelerated during the pandemic, it is apparent that the ability to leverage digital technologies is essential to promote resilience of the economy and of individuals in the future. There is scope for Austria to strengthen digital competencies, including investing in digital infrastructure such as expanding

¹¹ Ouyang (2009) https://www.economics.uci.edu/files/docs/faculty_review/scarring1.pdf

¹² Bianchi et al (2019) <https://www.econstor.eu/bitstream/10419/200172/1/1667903462.pdf>

¹³ Ma et al (2020) <https://www.federalreserve.gov/econres/ifdp/files/ifdp1295.pdf>

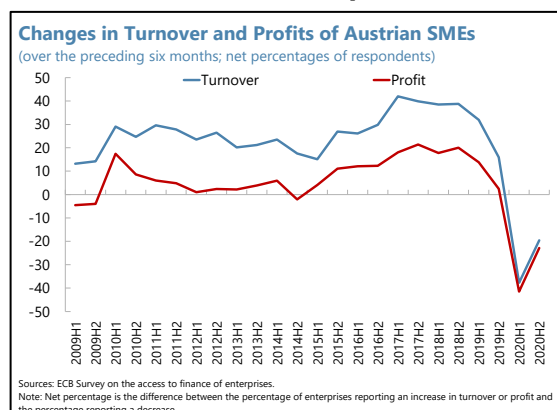
broadband access, promoting digitalization of businesses, and integrating digital skill development into school curriculum and training programs.

- *Stepping up the role of public employment services:* Public employment services can play an important role in matching jobs, particularly for vulnerable segments of labor force and the long-term unemployed.¹⁴ Country experiences show that personalized coaching programs and post-monitoring program after job replacement can help improve job search and job retention.

17. Policies should aim at supporting corporate sector balance sheets while minimizing the risk of creating zombie firms. The unwind of emergency support in forms of loan moratoria and lifeline measures has put many firms at risk of insolvency. Policies targeted to “viable” firms such as equity, hybrid, and quasi equity support would help repair the corporate balance sheets and mitigate economic scarring (see Section D on key considerations for the choice of equity instruments). Solvency support should be complemented by an effective set of insolvency and debt restructuring tools in order to ensure efficient reallocation of capital. These include out-of-court restructuring mechanisms and simplified insolvency procedures for small and medium enterprises.

C. Firm Dynamism and Productivity in Austria—The Role of Credit¹⁵

18. The COVID-19 crisis adversely affected the financial health of Austrian corporates. The pandemic and associated containment policies produced a sharp fall in turnover for Austrian firms, especially amongst small and medium enterprises (SMEs) and service sector firms. While state support policies buffered immediate liquidity needs by firms, several vulnerable SMEs, especially those in crisis-affected sectors could face solvency pressures from increased debt and lower equity positions.



19. A key question is how the build-up of debt can affect firms’ productive capacity as well as economy-wide business dynamism in the aftermath of the crisis. While credit provides crucial support to a firm’s production process, it can also weigh on its capacity to invest and its future productive potential. The extent of such a debt overhang, whereby a buildup of debt deters new investment (as the benefits may accrue to creditors), becomes especially binding during downturns (Lamont, 1995). In addition, excessive debt can lead to the creation and sustenance of so-called “zombie firms” which have persistently high levels of indebtedness but low profits. The existence of zombie firms can also generate economy-wide negative spillovers through credit congestion effects and hinder the efficient allocation of resources towards more dynamic, higher productivity firms (Cabellero et. al., 2008). These credit distortions may reduce the efficacy of resource reallocation

¹⁴ Suphaphiphath and Miyamoto (2020), <https://sciendo.com/pdf/10.2478/izajolp-2021-0003>

¹⁵ By Manasa Patnam

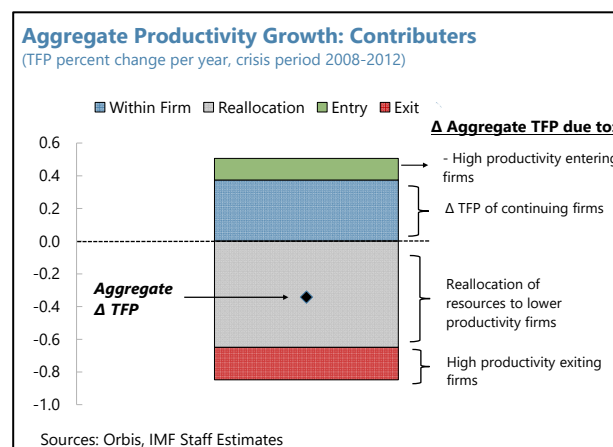
dynamics in recessions, which would otherwise present strong Schumpeterian opportunities to replace less with more efficient firms (see for e.g. Barlevy, 2003; Caballero and Hammour, 2005).

20. Changes to aggregate productivity can be decomposed into the firm-specific factors as well as factors related to firm entry and exit dynamism. Using data on SMEs from ORBIS¹⁶ for estimation, we analyze factors affecting aggregate productivity employing the dynamic decomposition method proposed by Melitz and Polanec (2015). More formally, the change in productivity, as measured using the Akerberg et. al. (2015) method, can be decomposed as follows:

$$\Delta P_t = \Delta \bar{P}_{Ct} + \Delta cov_{Ct}(\theta_{it}, p_{it}) + \theta_{Et}(P_{Et} - P_{Ct}) + \theta_{Xt}(P_{C(t-\tau)} - P_{X(t-\tau)}) \quad (1)$$

where P_t represents the aggregate productivity level in year t ; Δ denotes changes between $t - \tau$ and t ; and C , E , and X denote the group of continuing, entering, and exiting firms¹⁷; θ_{it} and p_{it} is the value-added market share and firm productivity level. θ_{Gt} is the share of group G and P_{Gt} and $\Delta \bar{P}_{Gt}$ are the corresponding weighted and unweighted average productivity ($G = C, E, X$). The first term captures the contribution of within-firm productivity changes of continuing firms. The second term reflects the inter-firm resource reallocation. The last two terms capture the contribution of entering and exiting firms, respectively.

21. Experience from the previous crisis suggests that firm dynamism did exert a “cleansing effect” in Austria, but this effect was dampened by resource misallocation effects. Productivity declined by 0.3 percent per year during the Global Financial Crisis (GFC) period (2008–2012). This loss can be decomposed into the following components: First, a dominant +0.4 percent within-firm adjustment effect which reflects the ability of continuing firms to adjust production process in response to the shock. Second, a -0.1 percent firm dynamism effect, whereby higher productivity firms exited (-0.2 percent loss) and higher productivity firms entered (+0.1 percent gain). Finally, a -0.6 percent inter-firm reallocation effect which exerted a strong negative influence on aggregate productivity from resource reallocation from the most to least



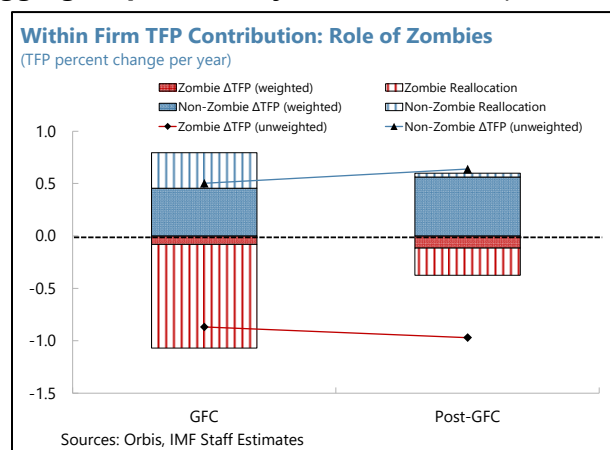
¹⁶ ORBIS data were cleaned following steps that are based on Kalemli-Ozcan et al (2015) and Gopinath et al (2017). SMEs i.e., enterprises employing less than 250 persons, comprise 99.9 percent of firms in the non-financial sector, and generate 55.8 percent of value added and 64.1 percent of employment (EBA, 2019).

¹⁷ Firm entry and exit are coded as follows (see also Diez et. al., 2021 for a similar method using ORBIS data): a firm entry is captured based on the firm's age relative to the beginning of the sample period i.e., whether it was incorporated after the starting year of the crisis and post-crisis time periods. This is additionally verified by checking the reporting of its balance sheet data. Firm exit is determined by examining whether the firm reported balance sheet data at the start of the sample period and ceased to do so by the end of the period. This is additionally verified by checking its activity status. The observed entry and exit rates vary by time period, but for the post-crisis period we find that it is about 5 and 6 percent respectively and similar to those obtained by the OECD (2019) for the same time period.

productive firms. Qualitatively, these results differ to those obtained from other European countries. Ben-Hassine (2019), finds large internal productivity losses during the crisis period, for all French firms, indicative of the difficulties experienced by firms in France in adjusting their production scale rapidly and effectively. Carreira and Teixeira (2016) find a dominant negative within-firm effect with a positive effect exerted by resource reallocation and entering firms in Portugal during the crisis (2008–2012).

22. The productivity loss for continuing firms is significantly larger for firms with excessive debt, exerting a sizeable drag on aggregate productivity. A further decomposition of

the within-firm adjustment is made based on two types of firms: zombie firms i.e., firms aged ten years and above with interest coverage ratio below 1 for two successive years (see Beer et. al. 2021),¹⁸ and the remaining non-zombie firms.¹⁹ The total incumbent adjustment effect of +0.4 percent can be disaggregated into the change in productivity of +0.5 percent and -0.1 percent from non-zombie and zombie firms respectively. The latter effect exerts a material drag on aggregate productivity despite the



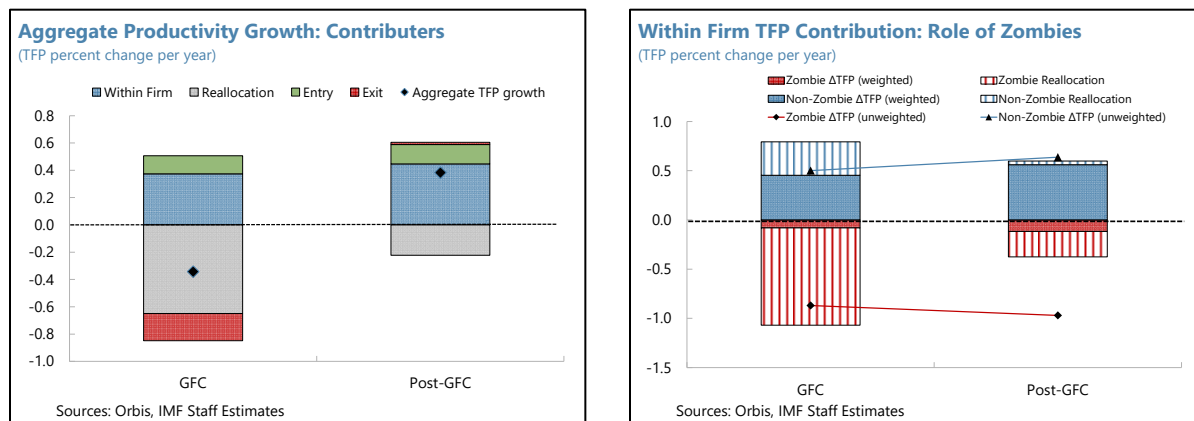
small share of zombie firms. This is because, while zombies SMEs represent 6 percent of all incumbent SMEs, they experience a mean productivity loss relative to the gain of non-zombie firms. Further, the -0.6 percent of inter-firm reallocation can also be explained by a positive allocative efficiency from non-zombie firms (+0.3 percent), weighed down by a negative allocating efficiency from zombie firms (-1 percent).

23. These results mirror the evidence found on debt overhang issues in European countries. For instance, Duval et. al (2020) shows also that firms with weaker pre-crisis balance sheets experienced a highly persistent decline in post-crisis productivity growth accounting for about one-third of the within-firm productivity slowdown. In similar vein, Kalemli-Ozcan et al. (2019) find that firms with higher leverage reduce investment more. More recently, Demmou et. al., 2020 also find that firms that entered the GFC with a higher financial leverage ratio experienced a sharper decline in investment. Overall, comparing crisis and post-crisis years, the results suggest that reallocation dynamics exert a dominant role in determining aggregate SME productivity, but its role decreases post-crisis. This is linked to the fact that zombie firms experience productivity losses and

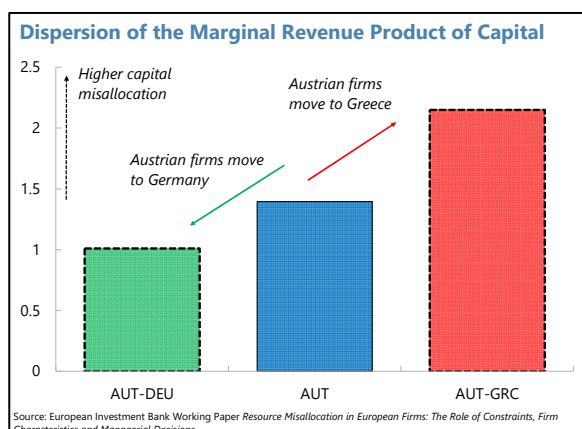
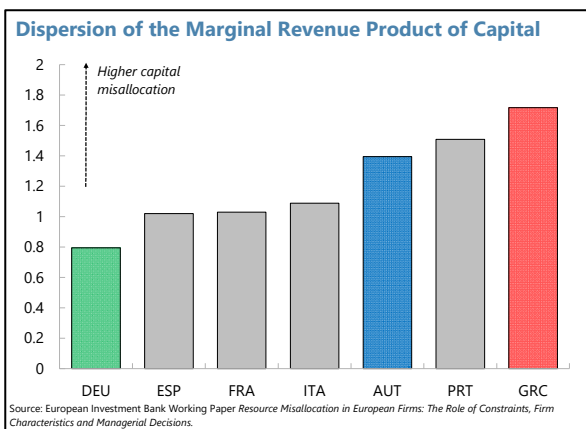
¹⁸ Like Beer et. al. 2021, we find that the share of zombies declines over time in Austria. In our data this share, amongst SME firms, is about 8 percent in 2009 and falling to 3.5 percent in 2017.

¹⁹ This decomposition can be obtained by splitting the first two terms of Equation (1), the unweighted firm productivity mean ($\Delta \bar{P}_{ct}$) and inter-firm resource allocation ($\Delta cov_{ct}(\theta_{it}, p_{it}) = \sum_i (\theta_{it} - \bar{\theta}_t)(p_{it} - \bar{p}_t)$), by the two types of firms. The decomposition of the unweighted productivity mean is equivalent to regressing the within-firm adjustment on a dummy indicator for whether a firm is classified as a zombie and re-weighting the coefficient by the zombie share. The decomposition of the inter-firm resource allocation term centers the market-share and productivity, based on the entire sample of continuing firms.

congest reallocation by increasing their market share despite lower productivity. This could suggest that reallocation frictions may have lessened in the post-crisis years (relative to crisis years) and could exert less of a negative effect on aggregate productivity in the aftermath of the COVID-19 crisis.

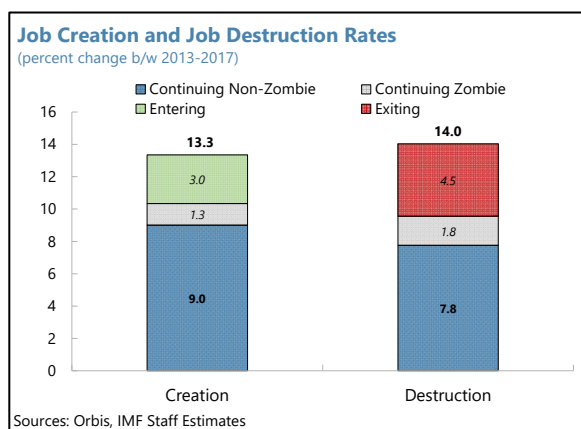


24. The differential contribution of zombie firms points to the role of capital in resource misallocation effects. To gauge this, we explore a more direct proxy of capital misallocation, the dispersion of marginal revenue productivity of capital (MRPK). A high MRPK dispersion across firms within a country would imply that productivity gains can be reaped by reallocating capital from firms with low MRPK to firms with high MRPK. Recent survey data, based on firm margins of adjustment across a broad range of countries, suggests that dispersion is high for Austria and lends confirmation to the capital channel (see Gorodnichenko et. al., 2018). For instance., in 2016 the dispersion of MRPK was estimated to be around 1.4, higher than that of Germany or Italy and similar to that obtained for Portugal. Based on this analysis, a counterfactual experiment of relocating Austrian firms to either Germany or Greece sheds insights on the extent of capital allocation gains or losses from reducing financial frictions. The figure below shows that if Austrian firms were to move to the German environment, capital misallocation could fall by 28 percent. One of the factors that could explain the difference between the German and Austrian environment with regards to capital allocation are size-dependent credit access frictions (Gopinath et. al. 2016). Indeed, our data sample reveals that zombie firms, which are less productive than other firms, are significantly larger in size and could as a result have more favorable access to credit. Other factors where Austria lags, include inadequate digitalization that present barriers to entry and less efficient insolvency frameworks which hampers firm exit (World Bank, 2019).



25. In terms of labor reallocation, there is substantial turnover across firms, but zombie firm employment is not sufficiently dynamic.

The text figure shows the long-run job creation (destruction) rates in Austria using the post-crisis sample period. This is calculated as the ratio of job creation (destruction) flows to the average employment of years 2017 and 2013 (see Davis et al., 1996). We find that about 14 percent of the jobs present in 2013 were *eliminated* by 2017, relative to 13.3 percent jobs *created* within the period. Net Job creation during the post-crisis period (b/w 2013–2017) was therefore slightly negative (-0.7 percent). Continuing firms



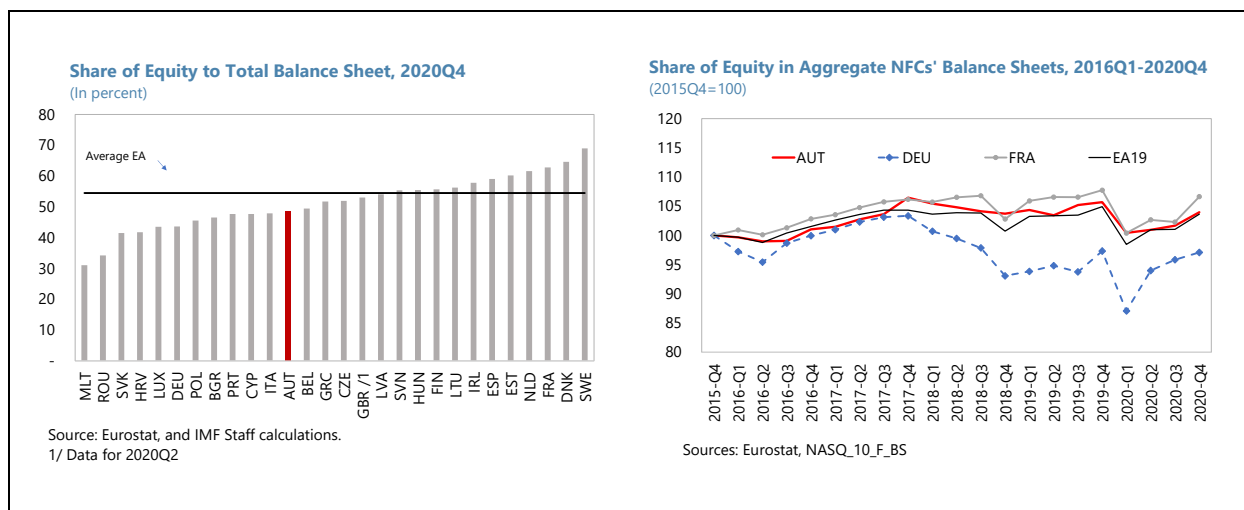
contribute a major part to both job creation and destruction and have a net positive creation rate. Job dynamics linked to entering and exit firms is also substantial, contributing to over a quarter of the job turnover. Zombie firms however have a (remaining) small share in job dynamics with a net negative creation rate. While the share of employment by zombie firms in overall employment is high, at about 12 percent, their contribution to labor allocation is disproportionately low. This suggests that, in addition to capital, zombie firms may also be preventing labor from reallocating to other, more productive, firms.

26. Overall, the results indicate that firm dynamism can contribute positively to aggregate productivity, but this effect is dampened by inefficient resource allocation. Zombie firms experience higher productivity loss and congest resources. In terms of the balance sheet effect from the crisis, staff estimates a weakening of solvency in Austria concentrated around service-sector and small-sized firms, leading to an equity gap of approximately 1 percent of GDP (see also section D), which is the amount needed to resolve the financial difficulties of firms that were solvent before the crisis (see Ebeke and others, 2021). Policies should therefore be aimed at protecting balance sheets, avoiding zombification, and boosting firm dynamism.

D. Equity Gap in Austria—Issues and Policy Recommendations²⁰

This analysis finds that for the Austrian corporate sector the equity shortfall associated with the COVID-19 crisis during 2020 was milder in comparison with other European countries. Policy measures have provided substantial support to corporate liquidity and have so far helped limit the adverse impact on corporate balance sheets. At end-2020, the aggregate decline in equity reached about 1–2 percent of GDP, but it may have been distributed unevenly across sectors and firm sizes. Paradoxically, firm-level data show that smaller SMEs may have suffered much less than larger corporations, possibly due to support under state aid rules and to the magnitude of the measures.

27. Austrian firms have, on average, relatively low equity-to-asset ratios compared to the euro area average. The Eurostat dataset for non-financial corporations shows that the shares of equity in balance sheets differ markedly across Europe, ranging from about 30 percent of total asset in Malta to almost 80 percent in Sweden. A wide degree of variation could reflect national rules on incorporation, ease in accessing external funding, types of instruments qualified for equity capital, and national preferences. For Austria, the average share of equity to total assets for Austrian firms has been relatively stable at below 50 percent, compared to the euro area average of 53 percent.

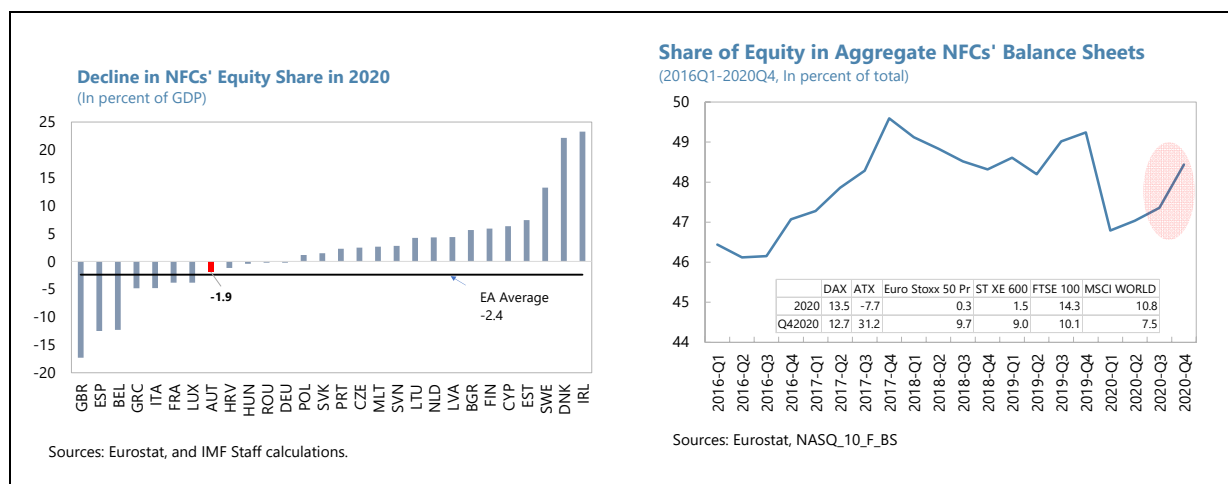


28. In 2020, the equity position in Austrian firms contracted only moderately. Euro area equity declined by 2.4 percent of GDP (weighted average). The country dispersion could be explained by the level and quality of equity instruments when the crisis hit, the ability of the corporate sector to protect balance sheets and mobilize additional resources from shareholders, and the policy response.²¹ At the onset of the crisis, the share of equity for Austria declined sharply in 2020:Q2 before a rapid recovery in Q4, partly reflecting valuation effects. In particular, the valuation of the Austrian stock exchange—represented by the headline market indicator ATX—appreciated by

²⁰ By Michelle Hassine.

²¹ Policies combined support to liquidity, tax deferrals, loan moratoria on interest and/or capital, public guarantees, and subsidies. See Annex II.

more than 30 percent in 2020:Q4. Compared to 2019, the overall equity position in Austria's corporate sector contracted by EUR 8 billion in 2020 or about 1.9 percent of GDP, according to Eurostat data. A recent study by the OeNB found that during 2020 the gross operating surplus of the Austrian NFCs declined by 1.4 percent in real terms.²²



29. A more granular database confirms the overall decline in equity level for the Austrian firms, but the magnitudes of losses differ across firm sizes and sectors. The Thomson Reuters database, which contains about 3,670 Austrian private companies with available end-2020 equity data (Table 1), shows that the Austrian private corporate sector had an aggregate 0.7 percent of GDP reduction in the share of equity-to assets during the pandemic.²³ However, the concentration of equity losses varied significantly across firm sizes and sectors. In particular,

- **SMEs (below 50 employees) experienced a mild equity gain during the pandemic.** The aggregate change in equity capital reached about EUR 0.3 billion, or below 0.1 percent of GDP. Losses were concentrated on wholesale trade, manufacturing and transportation, and warehousing. In contrast, firms in real estate have significantly strengthened their equity position.
- **On aggregate, firms in the middle segment of the SMEs (51–250 employees) increased their equity position, but the overall result masks large heterogeneity across sectors.** Compared to end-2019, an equity position for this segment increased by EUR 2.8 billion or 0.7 percent of GDP in 2020. The largest increases were in retail trade and manufacturing.

²² OeNB Financial Stability Report 41, June 2021 provides data and evidence that corporate balance sheets were able to sustain the crisis. A recent IMF's EUR Working Paper (Arena and al., 2021) finds median cash buffers of non-financial corporation remained high in the European corporate sector.

²³ The discrepancy between a decline of 1.9 percent of GDP in the Eurostat dataset and the granular sample could be explained by the role of public enterprises, whose aggregate equity (measured in the micro dataset) declined by EUR 4.3 billion (1.1 percent of GDP) during 2020. It should be noted that public companies are excluded from fixed-cost subsidies and subsidies compensating losses in sales.

Table 1. 2019–2020 Change in Corporate Equity by Firm Size and Sector

	Full-time employees	Number of firms	2019-2020 Aggregate change in equity	
			In Mln euro	in Pct of 2019 GDP
All firms	456,673	3,672.0	-2,956.3	-0.7
<i>Firms Below 51 Employees</i>				
Total	51,478	2,262.0	286.1	0.1
Accommodation and Food Services	1,238	44.0	56.1	
Administrative and Support and Waste Management	1,436	94.0	32.7	
Construction	9,048	278.0	42.4	
Information	620	29.0	-14.4	
Manufacturing	10,590	375.0	-81.2	
Mining, Quarrying, and Oil and Gas Extraction	605	18.0	28.2	
Other Services (except Public Administration)	200	15.0	1.3	
Professional, Scientific, and Technical Services	2,300	104.0	6.7	
Real Estate and Rental and Leasing	1,370	212.0	454.4	
Retail Trade	7,734	294.0	18.8	
Transportation and Warehousing	3,611	136.0	-40.3	
Utilities	374	27.0	-0.7	
Wholesale Trade	11,388	587.0	-214.7	
Other	964	49.0	-3.1	
<i>Firms with 51-250 Employees</i>				
Total	116,710	1,089.0	2,844.5	0.7
Accommodation and Food Services	4,295	37.0	4.0	
Administrative and Support and Waste Management	5,533	50.0	78.8	
Construction	24,794	240.0	53.5	
Information	2,501	25.0	11.2	
Manufacturing	35,636	309.0	1,119.8	
Mining, Quarrying, and Oil and Gas Extraction	618	6.0	24.6	
Other Services (except Public Administration)	1,013	8.0	4.1	
Professional, Scientific, and Technical Services	6,951	65.0	-1.4	
Real Estate and Rental and Leasing	1,227	10.0	11.1	
Retail Trade	9,653	102.0	1,431.9	
Transportation and Warehousing	6,124	59.0	14.7	
Utilities	1,130	9.0	13.2	
Wholesale Trade	14,531	144.0	76.0	
Other	17,235	169.0	79.1	
<i>Firms Above 250 Employees</i>				
Total	288,485	321.0	-6,086.9	-1.5
Accommodation and Food Services	5,323	11.0	17.9	
Administrative and Support and Waste Management	13,496	20.0	1.7	
Construction	38,097	38.0	-19.2	
Manufacturing	128,802	136.0	-6,608.3	
<i>Of Which:</i>				
Basic Materials	40,550	43.0	-2,753.8	
Consumer Cyclical	15,243	20.0	40.2	
Consumer Non-Cyclical	17,631	18.0	-138.8	
Energy	296	1.0	2.7	
Healthcare	5,898	4.0	-45.4	
Industrials	38,553	44.0	-1,810.0	
Technology	10,631	6.0	-1,903.3	
Professional, Scientific, and Technical Services	9,370	15.0	33.0	
Retail Trade	29,667	35.0	-743.3	
Transportation and Warehousing	13,858	13.0	21.0	
Utilities	13,113	7.0	1,327.4	
Wholesale Trade	17,823	28.0	3.4	
Other	18,936	18.0	-120.5	

Sources: Refinitiv Datastream; and IMF staff calculations.

- **The crisis-related equity loss is concentrated among larger manufacturing firms.** Based on 321 firms above 250 employees, aggregate equity contracted by 1.5 percent of GDP in 2020. Notably, manufacturing lost EUR 6.1 billion, mainly in basic materials, industrial, and technology.

30. Policy support has been effective in assisting corporate balance sheets, particularly for SMEs.

- **Support under EU's State aid rules:** At the outset of the crisis, the EU relaxed its State Aid rules, allowing countries to implement support policies for hard hit companies and small firms in the forms of, among others, direct grants, public guarantees, public and private loans with subsidized interest rates. Austrian companies have significantly benefitted from the schemes, where 21,000 companies receiving EUR 2.3 billion in direct grants during March 2020–April 2021. The threshold for direct support was originally capped at EUR 0.8 million per corporation per year but later on raised to EUR 1.8 million.²⁴ In addition, the EU also approved public guarantees scheme for SMEs, providing working capital loans to cover their short-term liabilities.²⁵
- **Domestic support:** Support to the corporate sector has helped ease short-term liquidity pressure (See Annex II for main support measures to non-financial corporations).²⁶ Eligibility for these policy measures aimed to support healthy companies prior to the pandemic. For example, in order to receive support through tax and social security contributions, fixed-cost subsidy, the loss-carry back, and short-term work scheme (STWS), firms were required to have no tax arrears and were in good standing with adequate liquidity buffers. Additionally, the support to household income and employment—chiefly through the STWS, subsidies to families, and to unemployed—helped maintain private consumption.

31. Looking forward, consideration should be given to public recapitalization program to support corporate solvency.

As the recovery progresses, policy support should aim at rehabilitating corporate balance sheets. While the EU Temporary State Aid Framework provides overarching guidelines for the design of national solvency support programs, other features should be considered to ensure efficient use of public resources.²⁷

- **Tradeoffs among potential instruments.** Possible support mechanisms (in order from strongest to weakest) include grants, equity instruments, hybrid instruments, and quasi-equity. Studies suggest that quasi-equity instruments are more suitable for SMEs with a large presence

²⁴ For further information, the corporate database on EU State Aid by country and firm is available from <https://webgate.ec.europa.eu/competition/transparency/public/search>

²⁵ 100 percent guarantees for loans up to EUR 500,000 and 90 percent for loans up to EUR 25 million.

²⁶ The new generation of solvency support schemes in the EU is discussed by Ebeke and al. (July 2021).

²⁷ See the EUR paper on policy options for solvency support. <https://www.imf.org/-/media/Files/Publications/covid19-special-notes/en-speical-series-on-covid-19-solvency-support-for-enterprises.ashx>

of private financial investors, while grants or subordinated/convertible loans may be the only option for micro firms.

- **Private sector involvement for viability assessments.** Leveraging the expertise of private institutions may help lower outlays and reduce uncertainties through risk sharing. The public sector should nonetheless provide macro scenarios with sectoral details.

32. Apart from recapitalization programs, other policies can play a key role toward equity financing in the medium term. While solvency support could provide immediate relief for firms, encouraging firms to rely on equity financing in the future can help prevent over-indebtedness in the corporate sector. Potential options include:

- **Allowance for corporate equity (ACE).** Tax incentives allow the deductibility of interest on loans, but comparatively no tax incentive to support equity. An allowance for corporate equity (ACE) provides a tax deduction on new equity. Based on the EcoAustria analysis, a notional cost of equity—set at the three-month money market rate augmented by 2 percentage points—would support annual additional real growth by about 0.2 percentage point.²⁸
- **Corporate profit tax:** Lowering corporate income tax and taxation on retained capital, and using amortization rules to reduce the cost of investment would raise firms' profits, the main source for internal funding, and may generate additional capital.
- **Debt-to equity conversion.** The Financial Accounting Standards Board (FASB) simplified the delineation between liability instruments and equity. The new accounting standards issued in 2020 for convertible instruments and contracts are expected to help corporations use convertible instruments more extensively.

33. An efficient insolvency framework can improve resource reallocation. A recent IMF Staff Discussion Note (SDN) finds that developing a comprehensive set of tools to allow the restructuring of corporate debt would strengthen corporate solvency.²⁹ Effective insolvency rules should be able to liquidate non-viable companies and restructure viable ones and allow them to operate. The recent transposition of the EU Insolvency Directive should strengthen Austria's insolvency framework by reducing uncertainties surrounding a likely increase in bankruptcies.³⁰ The Directive creates a simplified restructuring plan with a broad range of creditors from the moment of a likely insolvency. Debtors need to set up a plan and a majority of financial creditors suffices to complete the pre-insolvency procedure. The Directive also highlights the importance of giving a second chance to honest entrepreneurs who failed.

²⁸ EcoAustria is using a cap at EUR 1 million with a maximum relief of EUR 250,000 per year, which tends to steer support towards SMEs.

²⁹ <https://www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2021/03/25/Insolvency-Prospects-Among-Small-and-Medium-Sized-Enterprises-in-Advanced-Economies-50138>

³⁰ See Schwaiger, 2021 for insolvency estimates in Austria.

Annex I. Data Sources and Calculations

Sources use aggregate data compiled from Eurostat’s quarterly corporate sector aggregate balance sheets and a micro dataset with granular end-of year data.

- 1. The aggregate dataset (Eurostat): Eurostat produces quarterly series from ECB data for the financial flows and stocks for the non-financial sector (S.11), which includes those public enterprises non included in general government since they are funded on own resources.** The account is a subset of the quarterly national accounts presented using the ESA2010 classification, principles for residency and recording in accrual. The data are retrieved as aggregate series nasq_10_f but do allow no ulterior breakdown by sector, size by assets / number of employees.¹ The financial statements include balance sheet items drawn from total equity and total liabilities for all the corporate sector—private as well as public companies. The research is using quarterly data from Q1 2016 to Q4 2020. Valuation of stocks are reported in valuation as reported at end-of period. Aggregates cover the whole corporate sector—private and public firms alike—and no further breakdown is available by sector and/or size.
- 2. The micro dataset: The Refinitiv Datastream is a data-rich firm-level database with granular data on private and public corporations, which can be clustered through various criteria including firm size and sector.** Notably, firms are self-selecting to facilitate access to investors and may overrepresent companies that have a good equity base and sound balance sheet. The firms in the sample are private non-financial corporations incorporated in Austria whose end-2020 and end-2019 equity and asset data were available.
- 3. Year-on year change in equity: it is calculated as the year-on year change in the ratio of equity to assets for each company i (for the whole country aggregate in the Eurostat dataset) in percentage points, which applied to the initial 2019 asset position provides the change in equity (Δ^i) for each corporation.** The aggregate for each firm by size group serve to assess the equity change in share of GDP.

$$\left(\frac{Equity}{Assets}\right)^i_{2020} - \left(\frac{Equity}{Assets}\right)^i_{2019} = d^i$$

$$\Delta^i = d^i \times (Assets)^i_{2019}$$

¹ The Eurostat dataset for S.11 NFC sector is available from https://ec.europa.eu/eurostat/databrowser/view/nasq_10_f_bs/default/table?lang=en

Annex II. Selected COVID–19 Related Federal Budget Spending Measures (Cash Basis), 2020

(In EUR billion)

Short term work schemes (STWS)	5.5
CoFag-managed programs	4.2
of which:	
Fixed-cost subsidy	0.9
Lockdown revenue replacement subsidy	2.9
compensation for lost sales (<i>Verlustersatz</i>)	0.3
Tax reduction and forbearance	2.5
Hardship fund	1.0
Mobility and infrastructure adjustment	0.3
Local support to Provinces and regional organizations	0.2
Support to communal and local investment	0.3
Support to corporate liabilities (guarantees)	6.6
Total	20.6
<i>In percent of GDP</i>	5.5
Sources: BMF (Austrian Ministry of Finance)'s <i>Monatserfolg Dezember 2020 sowie Covid-19 Berichterstattung</i> and BMF's <i>Entwicklung des Bundeshaushalts Jänner</i> , May 2021	

References

- Arena M., Chen R., Cuevas A., Foda K., Gracia B., Xue Liu E., Pienkowski A., Roehler C., Shi Y., Sun S., Weber S., and Xu C.X., *Who Bore the Brunt of the Pandemic in Europe?*, June 2021
- Banerjee, R., Noss, J., and Vidal Pastor, J.M., 2021 *“Liquidity to solvency: transition cancelled or postponed?”* BIS Bulletin, March
- Barlevy, G., 2003. Credit market frictions and the allocation of resources over the business cycle. *Journal of Monetary Economics*, 50(8), pp.1795–1818.
- Beer, C., Ernst N., and Waschiczek, 2021. “The share of zombie firms among Austrian non-financial companies,” Oesterreichische Nationalbank Working Paper.
- Ben Hassine, H., 2019. *Productivity Growth and Resource Reallocation in France: The Process of Creative Destruction*. *Economie et Statistique*, 507(1), pp.115–133.
- BMF, 2021a, Monatserfolg Dezember 2020 sowie COVID-19 Berichterstattung.
- BMF, 2021b, Entwicklung des Bundeshaushalts Jänner, May 2021.
- Boot, A., Carletti, E., Kotz, H.-H., Krahn, JP, Pelizzon, L., Subrahmanyam, M., 2020, *Corona and Financial Stability 4.0: Implementing a European Pandemic Equity Fund*, April.
- Caballero, R.J. and Hammour, M.L., 2005. The cost of recessions revisited: A reverse-liquidationist view. *The Review of Economic Studies*, 72(2), pp.313–341.
- Caballero, R.J., Hoshi, T., and Kashyap, A.K., 2008. Zombie lending and depressed restructuring in Japan. *American Economic Review*, 98(5), pp.1943–77.
- Carreira, C. and Teixeira, P., 2016. Entry and exit in severe recessions: lessons from the 2008–2013 Portuguese economic crisis. *Small Business Economics*, 46(4), pp.591–617.
- David, C., Faquet, R. and Chakir, R., 2020. *Quelle Contribution de la Destruction Créatrice aux Gains de Productivité en France Depuis 20 Ans*, Direction générale du Trésor, N° 2020/5.
- Demmou, L., Franco, G. and Stefanescu, I., 2020. Productivity and finance: the intangible assets channel—a firm level analysis, OECD.
- Diez and al., 2021, *Insolvency Prospects Among Small-and-Medium-Sized Enterprises in Advanced Economies*, April
- Duval, R., Hong, G.H. and Timmer, Y., 2020. Financial frictions and the great productivity slowdown. *The Review of Financial Studies*, 33(2), pp.475–503.
- EcoAustria, 2021, *Maßnahmen zur Stärkung des Eigenkapitals Studie zu den Maßnahmen zur Stärkung von Eigenkapital mit speziellem Fokus auf steuerliche Absetzbarkeit von fiktiven Eigenkapitalzinsen, May—Studie im Auftrag des Bundesministeriums für Finanzen;* at https://ecoaustria.ac.at/wp-content/uploads/2021/05/Endbericht_Eigenkapitalverzinsung.pdf
- Ebeke, C H, Jovanovic N., Valderrama L., and Zhou J., March 2021, *Corporate Liquidity and Solvency in Europe during COVID-19: The Role of Policies*, IMF Working Papers, No. 2021/056.

- Ebeke C., Miniane J., Papi L., Patnam M., Saxegaard M., Tulin V., and Valderrama L., July 2021, *Solvency Support for Enterprises: Key Considerations and Preliminary Lessons from European Programs*, July, at <https://www.imf.org/-/media/Files/Publications/covid19-special-notes/en-speical-series-on-covid-19-solvency-support-for-enterprises.ashx>
- G30 Report, 2021. Reviving and Restructuring the Corporate Sector Post Covid, at https://group30.org/images/uploads/publications/G30_Reviving_and_Restructuring_the_Corporate_Sector_Post_Covid.pdf
- Gopinath, G., S. Kalemli-Ozcan, L. Karabarbounis, and C. Villegas-Sanchez 2017. Capital Allocation and Productivity in South Europe." *Quarterly Journal of Economics* 132 (4): 1915–1967.
- Gorodnichenko, Y., Revoltella, D., Svejnar, J. and Weiss, C.T., 2018. Resource misallocation in European firms: The role of constraints, firm characteristics, and managerial decisions. EIB Working Paper 2018/06.
- International Monetary Fund 2016, *Tax Policy, Leverage and Macroeconomic Stability*, at <https://www.imf.org/en/Publications/Policy-Papers/Issues/2016/12/31/Tax-Policy-Leverage-and-Macroeconomic-Stability-PP5073>
- International Monetary Fund, 2020, "*World Economic Outlook—October 2020*".
- Kalemli-Ozcan, S., Laeven, L. and Moreno, D., 2018. Debt overhang, rollover risk, and corporate investment: Evidence from the european crisis (No. w24555). National Bureau of Economic Research.
- Kalemli-Ozcan, S., B. Sorensen, C. Villegas-Sanchez, V. Volosovych, and S. Yesiltas, 2015. How to Construct Nationally Representative Firm Level Data from the ORBIS Global Database. NBER Working Paper No. 21558.
- Lamont, O., 1995. Corporate-debt overhang and macroeconomic expectations. *The American Economic Review*, pp.1106–1117.
- Levinsohn, J. and Petrin, A., 2003. Estimating production functions using inputs to control for unobservables. *The review of economic studies*, 70(2), pp.317–341.
- Melitz, M.J. and Polanec, S., 2015. Dynamic Olley-Pakes productivity decomposition with entry and exit. *The Rand journal of economics*, 46(2), pp.362–375PWC, New convertible debt accounting guidance (updated August 2020), at <https://www.pwc.com/us/en/services/audit-assurance/accounting-advisory/new-convertible-debt-accounting-guidance.html>
- Petutschnig, M., & Runger, S., 2017, *The effects of a tax allowance for growth and investment—Empirical evidence from a firm-level analysis*. WU International Taxation Research Paper Series, No. 2017–09. at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3024190
- Schwaiger, W. 2021. *Corona-Pleitewelle: Wie viele Ausfalle sind tatsachlich zu erwarten? Predictive Default Study*. Marktanalyse. Creditreform in Kooperation mit TU Wien
- World Bank, 2019. Doing business Report. The World Bank.
- WiFo, 2021, Kaniowski S., Pektanov A., Url T., *Ex-Post-Analyse der Wirkungen des Covid-19-Manahmen-paketes auf die Uneternehmensliquiditat*, May