COVID-19 Country Comparison – The economic impact of the crisis management in Austria and Sweden

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Affidavit

I hereby affirm that this Bachelor's Thesis represents my own written work and that I have used no sources and aids other than those indicated. All passages quoted from publications or paraphrased from these sources are properly cited and attributed.

The thesis was not submitted in the same or in a substantially similar version, not even partially, to another examination board and was not published elsewhere.

30.05.2021

Date

Abstract

2020 marked the first year of an unprecedented global health crisis. The outbreak of COVID-19 is not only reflected in medical, but equally in economic dimensions. The EU acted jointly in selected decisions concerning travel bans and vaccination procurement, but the majority of policies was decided on country level.

The author aims to investigate the sequence and effects of national policy making on selected economies. The two focus countries Austria and Sweden are juxtaposed with regard to their governmental policy making and their macroeconomic developments. The author opted for these two countries with Austria as home country and a particular familiarisation with its policies as opposed Sweden, which is known to follow a different approach. While Austria fights the pandemic based on a series of mandatory restrictions, which were legally imposed, Sweden introduced a set of "soft" recommendations approved by the majority of the Swedish population. This distinction of policies entailed effects for the populations and the economies of these countries, which will be explored.

Based on a selection of economic indicators, the paper analyses quarterly changes and discusses particular disruptions. It strives to explore differences and presents preliminary explanations for specific country effects. The analysis is based on a quantitative methodology. To this end the author selected a set of macroeconomic indicators provided by EUROSTAT. This approach ensures homogeneous indicator definitions and a timely provision of quarterly reported data. The selection covers GDP, external balance of goods and services, household expenditures and employment developments in Austria and Sweden during 2020.

The author will review current research and will partially replicate correlations. However, a thorough discussion will provide pros and cons of current literature findings and will point at critical methodological aspects of EUROSTAT data. This paper will assess the initially declared country strategies to fight the pandemic. The analysis is expected to offer alternative views on the policy narratives and explanations for macroeconomic developments in Sweden and Austria.

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List of Abbreviations

COVID-19 – Corona Virus Disease 2019

EEA – European Economic Area

EU – European Union

EU-27 – European Union

EUROSTAT - Statistical Office of the European Communities

GDP – Gross Domestic Product

NUTS - Nomenclature des Unités territoriales statistiques

Q1 – First Quarter

Q2 – Second Quarter

Q3 – Third Quarter

Q4 – Fourth Quarter

PHA – Public Health Agency

US – United States

WHO – World Health Organization

1 Introduction

"There is no end in sight to the spread of the virus, the loss of jobs, the disruption of education, the upheaval to our lives." (Guterres, 2020)

"We should enhance solidarity and get through this together. We should follow the guidance of science, give full play to the leading role of the World Health Organization, and launch a joint international response ... Any attempt of politicizing the issue, or stigmatization, must be rejected." (Xi, 2020)

These two citations by two of the world's most influential leaders reflect the dimension of COVID-19 – a pandemic, which holds the world hostage for more than a year and continues to do so. Out of the multiple levels affected by the corona virus, the author will concentrate on the macroeconomic factors of two specific European countries.

This paper will investigate the policy handling in Austria, the author's home country, and its economic impact, as compared to Sweden, which has been known to act differently. The author will begin by giving an outline of the global pandemic. In a next step, the author will provide a chronology of actions taken by both Sweden and Austria. The author will continue by explaining the key research goal and the research approach. After the literature review section, the author will formulate a set of research questions and related hypotheses. Based on the quantitative methodology, the author will discuss the main findings and draw preliminary conclusions. The analysis of this paper focuses on 2020, the first year of the pandemic, where both Austria and Sweden were exposed to the spread of the Corona virus as of March 2020. The discussion therefore covers the economic development of one year including ten months of the crisis but will not expand further than that. Given the novelty and the complexity of this subject, the author will concentrate on discussing a small selection of economic indicators and will not be able to include a 360° perspective on the COVID-19 challenges for each country. Despite these limitations, this paper expects to contribute to a deeper understanding of the relationship between politics and

economic development, notably concerning the specific responsibility of leaders in a crisis.

1.1 Background

1.1.1 COVID-19 as global threat

It was December 31, 2019, when the Chinese government confirmed the outbreak and treatment of an unknown disease in the region of Wuhan, with the first reported death eleven days later (Taylor, 2021). As of January 2020, the disease started to spread across the world. It reached Japan, South Korea, and Thailand by January 21, 2020 (Taylor, 2021). One day later, the first case was reported in the USA (Taylor, 2021). By the end of January, the Trump administration released travel restrictions from China (Taylor, 2021). On February 14, 2020, the first death was reported in Europe, where a Chinese tourist died in a hospital in Paris (Taylor, 2021). From then on, the virus spread all over Europe with the first reported case in Sweden by January 31, 2020 (Ludvigsson, 2020) and the first two cases in Austria on February 25, 2020 (Risak; 2020). The World Health Organization (WHO) named this new sickness COVID-19, an acronym standing for corona virus disease 2019 (Taylor, 2021). It refers to a highly infectious new virus, attacking the human respiratory tract and organs, leading to sever long-term effects and deaths (WHO, 2021). By April 5, 2021, WHO reported 131.020.967 cases worldwide, including 2.850.521 deaths (WHO, 2021)

	Population	**Population Density (Km^2)**	**COVID-19 Cases**	**COVID-19 Deaths**
Sweden	10.389.806	25	813.191	13.498
Austria	8.901.064	109	555.411	9.189

Table 1: COVID-19 Country Overview: Population Comparison of Austria and Sweden

The population figures, based on EUROSTAT 2020 data are compared to the most recent COVID-19 statistics from the WHO. This comparison reveals a significantly higher number of deaths in Sweden as compared to Austria. This Thesis aims to

explore the measures taken by the Austrian and the Swedish governments and to investigate their impact on the economic developments during 2020 in the respective countries.

1.2 Sequence of events from a country perspective

Prior to detailing the development of the disease and the political reactions to it, the author will start by presenting the two strategic country goals with respect to COVID-19. "The COVID-19 pandemic is testing our society. In recent months, the Swedish government has presented a range of different measures. The government's overarching goal is to safeguard people's lives and health and to secure the health care capacity" (Prime Minister's Office, 2020). For Sweden, it was the protection of the elderly and the avoidance of an overload in the healthcare system according to state epidemiologist Lars Tegnell (Pierre, 2020). It is therefore important to note that Sweden did not focus on reaching herd immunity in the first place (Pierre, 2020), but on protecting their vulnerable population and on the healthcare system. The Swedish strategic plan included eight key goals, such as (Ludvigsson, 2020):

- Flattening the infection curve
- Protect population 70+
- Continue education for kids and teens
- Avoid a breakdown of the healthcare system
- Grant nationwide supply
- Communicate with society
- Explain the rationale of actions and decisions
- Ensure timeliness of measures

As opposed to Sweden, Austria decided to follow a stricter path of governmental regulations to fight the pandemic. In a governmental press conference on March 30, 2020, Austria's Minister of Health declared the primary goal to bring infections down (Wolf, 2020). In addition, the Federal Chancellor announced to protect especially the vulnerable groups among the Austrian population, such as elderly and people with medical conditions (Wolf, 2020).

These two priorities differ from each other and entail different governmental priorities and decisions, as will be outlined in the following timeline details.

1.2.1 First Quarter 2020

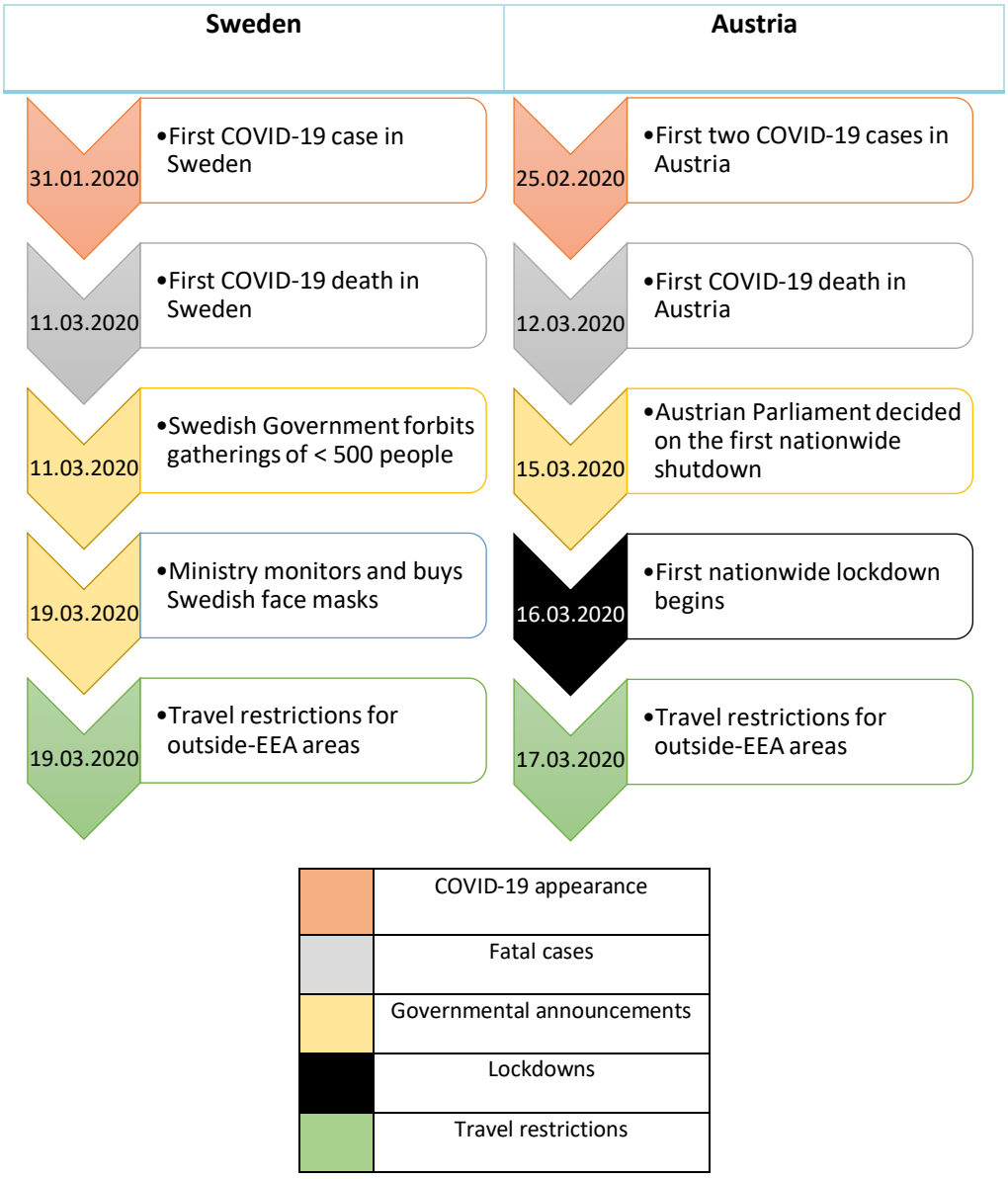

Figure 1: Country timeline overview first quarter 2020

1.2.1.1 Sweden

The first COVID-19 case appeared in Sweden on January 31, 2020, from a traveller coming from Wuhan, China (Ludvigsson, 2020). After this isolated appearance, it took one month, before the first cluster was reported in Gothenburg on February 27 (Folkhälsomyndigheten, 2020). During March, many Swedes, who had used their spring holidays to travel, were diagnosed with pneumonia of unknown cause (Fokus, 2020). The Swedish Public Health Agency (PHA) started testing the sick travellers with COVID-19 symptoms, declaring that these cases were all related to travel to high-risk zones and that there was no evidence of community transmission (Folkhälsomyndigheten, 2020).

On March 6, 2020, the first COVID-19 cases in Stockholm appeared, which seemed to be caused by community transmission – a fact that caused the PHA to adapt the disease risk assessment to very high (Folkhälsomyndigheten, 2020). On March 11 the first Swede died through COVID-19 (Statista, 2021). The first reaction of the Swedish Government on March 11 was to release an ordinance, prohibiting public gatherings of more than 500 people (Ministry of Justice, 2020). This was the very same day, when the WHO qualified COVID-19 as pandemic (Cucinotta & Vanelli, 2020) and Sweden phased the first fatal case of COVID-19 (Claesson, 2020). On March 13, the Swedish Government appointed a COVID-coordinator focusing on economic social and labour related questions (Ministry of Enterprise and Innovation). As of March 17, the Swedish colleges and universities switched to remote learning (Ludvigsson, 2020). Furthermore, the Swedish Government recommended against any travel that is not indispensable and agreed on a credit guarantee facility to mitigate potential losses for the Swedish flight and the shipping industry (Ministry of Finance & Ministry of Infrastructure, 2020). On March 19, the Ministry of Health and Social Affairs informed about current disease monitoring measures and the purchase of additional face masks and medical equipment from Swedish production (Ministry of Health and Social Affairs, 2020). However, this additional equipment was exclusively dedicated to medical and social care staff (Ministry of Health and Social Affairs, 2020). The Prime Minister addressed the nation with encouraging words, but without lockdown orders

(Prime Minister's Office, 2020). As of this day, travel restrictions to and from outside-EEA areas took place based on EU-provisions (Ministry of Justice, 2020). Apart from these selective health care and economic support measures, no further significant restrictions were initiated by the Swedish Government during the first quarter 2020.

1.2.1.2 Austria

After 189 suspected COVID-19 cases tested negatively, the first two patients tested positively were reported in Austria on February 25, 2020 (Risak, 2020). One day before the Federal Chancellor had underlined the importance of being prepared (Bundeskanzleramt, 2020).

On March 12, 2020, the first patient fell victim to COVID-19 (Pollak et al., 2020) and three days later the Austrian Parliament unanimously decided on the first nationwide shutdown (BGBl 102/2020). This decision legalised the prior alignment of the Government effective as of March 16 (Pollak et al., 2020). These temporary restrictive measures limited the constitutional rights of the Austrian citizens but were established to prevent the disease from spreading. The set of obligations included the closure of all non-critical infrastructure, as well as remote teaching for schools and universities (BGBl 102/2020). In addition, came curfews and the obligation to wear face masks in shops along with hand-disinfection and social distancing (BGBl 102/2020). Austria also enforced the EU-travel ban to and from outside-EEA areas (Bundeskanzleramt, 2020). Specific regions with high infection numbers, like Tyrol, were quarantined as of March 18 (Pollak et al., 2020).

1.2.2 Second Quarter 2020

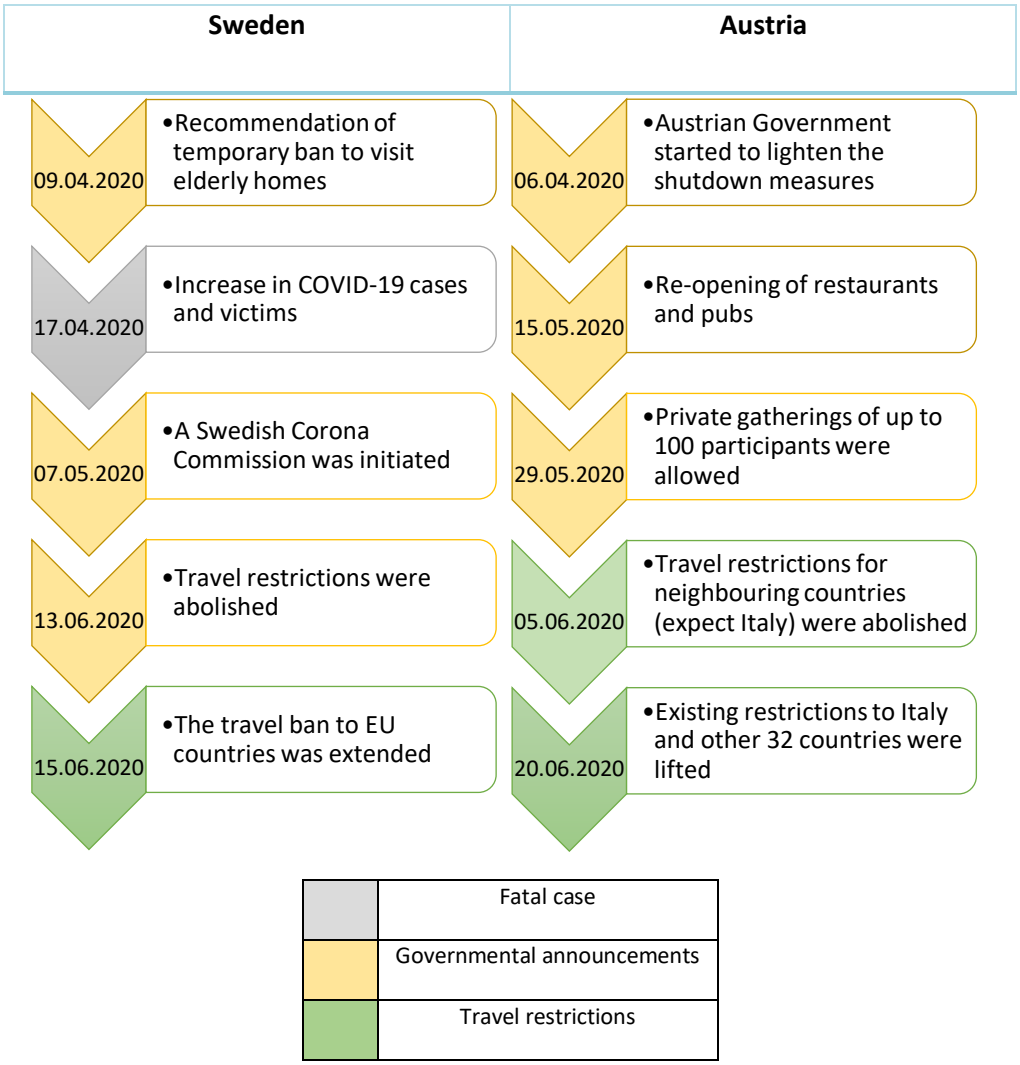

Figure 2: Country timeline overview second quarter 2020

1.2.2.1 Sweden

On April 1, 2020, the PHA emphasised its recommendation for social distancing to prevent infection spreading and underlined the importance of general hygiene measures (Ludvigsson, 2020). On April 9, the Health Minister released a set of recommendations, including the temporary ban to visit homes for the elderly

(Ministry of Health and Social Affairs, 2020). After its introduction in March, the Swedish Government emphasised its testing efforts as of April 17, with Sweden facing an exceptional increase in COVID-19 cases and victims throughout April (Ludvigsson, 2020). The Prime Minister communicated the strategic direction of Swedish COVID-19 measures, which lacked specific details (Prime Minister's Office, 2020). A Swedish Corona Commission was initiated on May 7, starting its work on July 1 (Ludvigsson, 2020).

Despite WHO recommendations to wear face masks on public transportation on June 5, 2020, the Swedish Government did not follow this approach (Ludvigsson, 2020). It only commended its usage for health and elderly care (Ludvigsson, 2020). Travel restrictions were abolished as of June 13 (Ludvigsson, 2020). Remote working remained recommended (Ludvigsson, 2020). Repeated opinion polls revealed that the vast majority (98% in the first survey, respectively 87% in the follow-up survey) of Swedes followed social distancing recommendations, although they were not legally enforceable (Ludvigsson, 2020). The travel ban to EU-countries, which had entered into effect as of March 19, was extended until June 15, while intra-country travel within Sweden remained possible (Ministry of Justice, 2020).

1.2.2.2 Austria

On April 6, 2020, the Austrian Government started to gradually lighten the shutdown measures (Pollak et al., 2020). While shops and federal parks started to re-open, restaurants, museums, theatres, and schools remained closed (Pollak et al., 2020). In addition, wearing masks became mandatory in all shops and public transportation (Pollak et al., 2020). Moreover, Austria introduced travel restrictions to neighbouring countries, preliminarily suspending its Schengen obligations (Schengenvisainfo news, 2020). It had already closed its borders to Italy on March 11 due to exploding infections in Northern Italian regions (Schengenvisainfo news, 2020) Furthermore Austria expended its restrictions to and from Germany, Switzerland, Liechtenstein, Slovenia, and Czech Republic (Schengenvisainfo news, 2020).

As part of the gradual re-opening following low infection numbers inside Austria, restaurants and pubs started to re-open on May 15, 2020 (Pollak et al., 2020). On May 18 schools began their face-to-face teaching under hygiene restrictions, while universities remained in remote mode (Pollak et al., 2020). As of May 29, private gatherings (e.g., marriages, funerals) of up to 100 participants were allowed (Pollak et al., 2020). May 31 was confirmed as the day of the lowest number of infections in Austria (5) (Pollak et al., 2020).

The travel restrictions for neighbouring countries, especially for Italy, were abolished as of June 5, 2020 (Schengenvisainfo news, 2020). As of June 20, existing restrictions to Italy and other 32 countries were lifted despite their slightly rising infection numbers (Schengenvisainfo news, 2020) (Pollak et al., 2020).

1.2.3 Third Quarter 2020

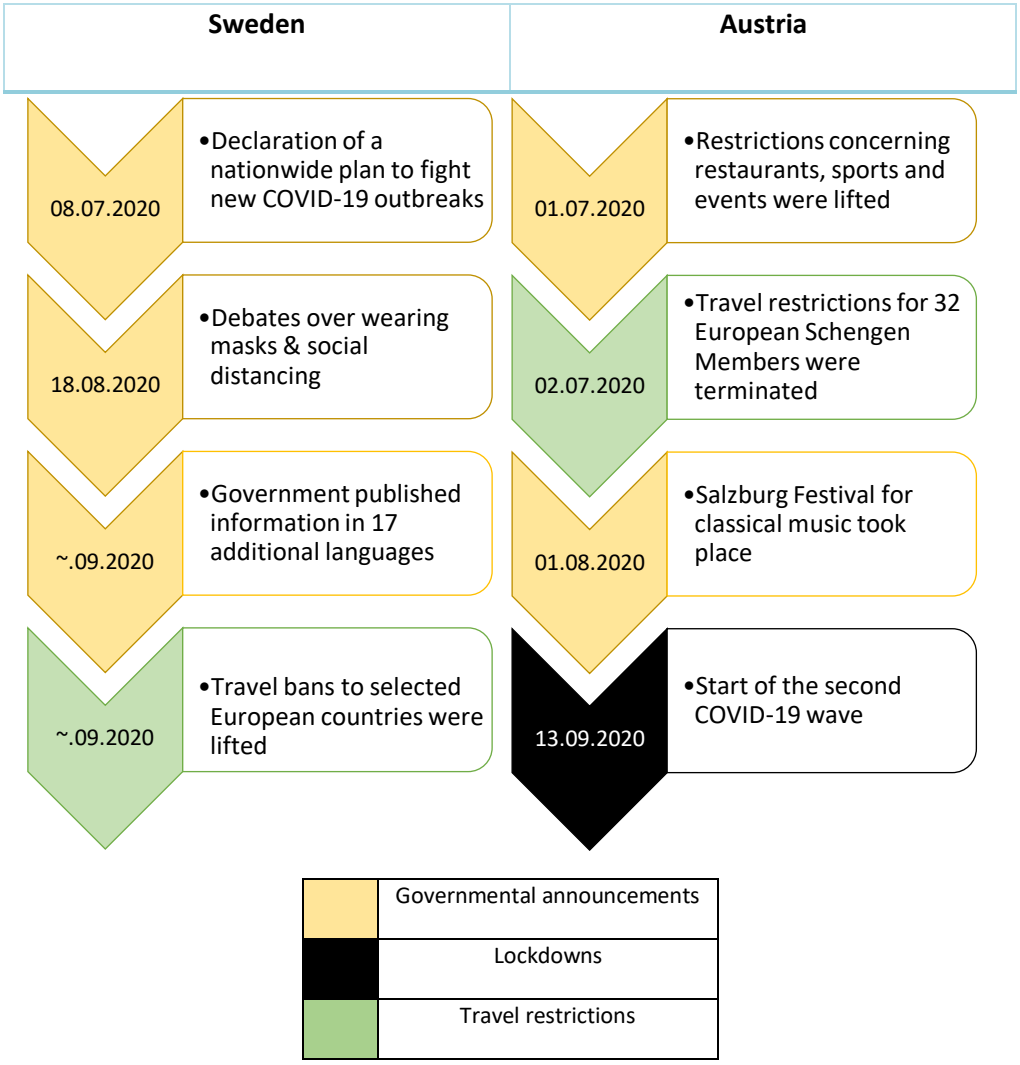

Figure 3: Country timeline overview third quarter 2020

1.2.3.1 Sweden

In the light of falling infection figures, the Corona Commission emphasised the overall strategic direction to balance the infections rather than to try a "Zero-COVID strategy" on July 1, 2020 (Ludvigsson, 2020). Their focus was the protection of particularly vulnerable groups, e.g., elderly or people with prior health conditions (Ludvigsson, 2020). Despite many counterexamples, Sweden decided to leave most schools open (Ludvigsson, 2020). On July 8, the Ministry of Health and Social Affairs declared the preparation of a nationwide plan to fight new COVID-19 outbreaks (Ministry of Health

and Social Affairs, 2020). In addition, Sweden put emphasis on testing. While access to testing was made available for a wider public, Sweden faced equipment shortcomings due to export restrictions by some countries, including cases of quality constraints (Ludvigsson, 2020).

On August 1, 2020, the authors Jonung and Nergelius in the newspaper Dagens Nyheter flagged an important legal prerequisite. Since 1974, the Swedish population is constituently entitled to move freely and to leave their country. This constitutional entitlement likely resulted in the government's reluctance to release shutdowns or far-reaching mobility restrictions (Ludvigsson, 2020). In August, debates over wearing masks and physical distancing triggered higher awareness, especially with pupils returning to school and public transportation schedules being increased after the summer break (Ludvigsson, 2020). As of mid-August, universities, and colleges re-opened (Ludvigsson, 2020).

In September 2020, wearing masks was recommended in specific settings, as was remote work at home, wherever possible (Ludvigsson, 2020). With many COVID-19 patients in Sweden belonging to ethnic minorities, the government started to publish information in 17 additional languages other than Swedish and English, to live up to their information strategy (Ludvigsson, 2020). During September, the travel bans to selected European countries were lifted one by one (Government Offices of Sweden, 2020).

1.2.3.2 Austria

On July 1, 2020, the restrictions concerning restaurants, sports and events were relieved, while the infection numbers exceeded 100 (Pollak et al., 2020). Likewise, travel restrictions for 32 European Schengen Members were terminated effective July 2, until end September, while they were kept in place for all other countries (including negative testing, quarantine) (Schengenvisainfo news, 2020). During July and August, Austria started to face regional COVID-19 clusters, which led to the re-introduction of the obligation to wear masks (Pollak et al., 2020). The Multiannual Financial Framework (MFF) for reconstruction, including subsidies for severely hit countries and

special loans was agreed upon on EU-level on July 21 (Pollak et al., 2020). Austria returned to mandatory masks as of July 23, following the rising infection development (Pollak et al., 2020).

The only large cultural festival that took place in Austria, was the Salzburg Festival for classical music from August 1, 2020, until August 30, 2020 (Pollak et al., 2020). However, it was performed on a smaller scale and under strict hygiene measures (Pollak et al., 2020).

The nationwide infection numbers continued to rise with Austrians returning from vacation abroad, who spread the virus. In addition, testing was intensified, which contributed to higher reported numbers (Pollak et al., 2020). Also, the average age of the COVID-19 patients fell, and by and large, they observed a milder course of the disease. All in all, despite rising numbers, Austria had fewer intensive care patients and deaths (Pollak et al., 2020).

In the light of the regional differences of the infection situation, Austria decided to introduce a traffic light system on a regional basis and weekly updates (Pollak et al., 2020). It was intended for information purposes and did not entail binding restrictions (Pollak et al., 2020). The Federal Chancellery acknowledged the start of the second wave on September 13, 2020, re-introducing the mask obligation and a ban on public meetings and events (Pollak et al., 2020). By September 28, restaurants had their guests registered to facilitate contact-tracing (Pollak et al., 2020).

1.2.4 Fourth Quarter 2020

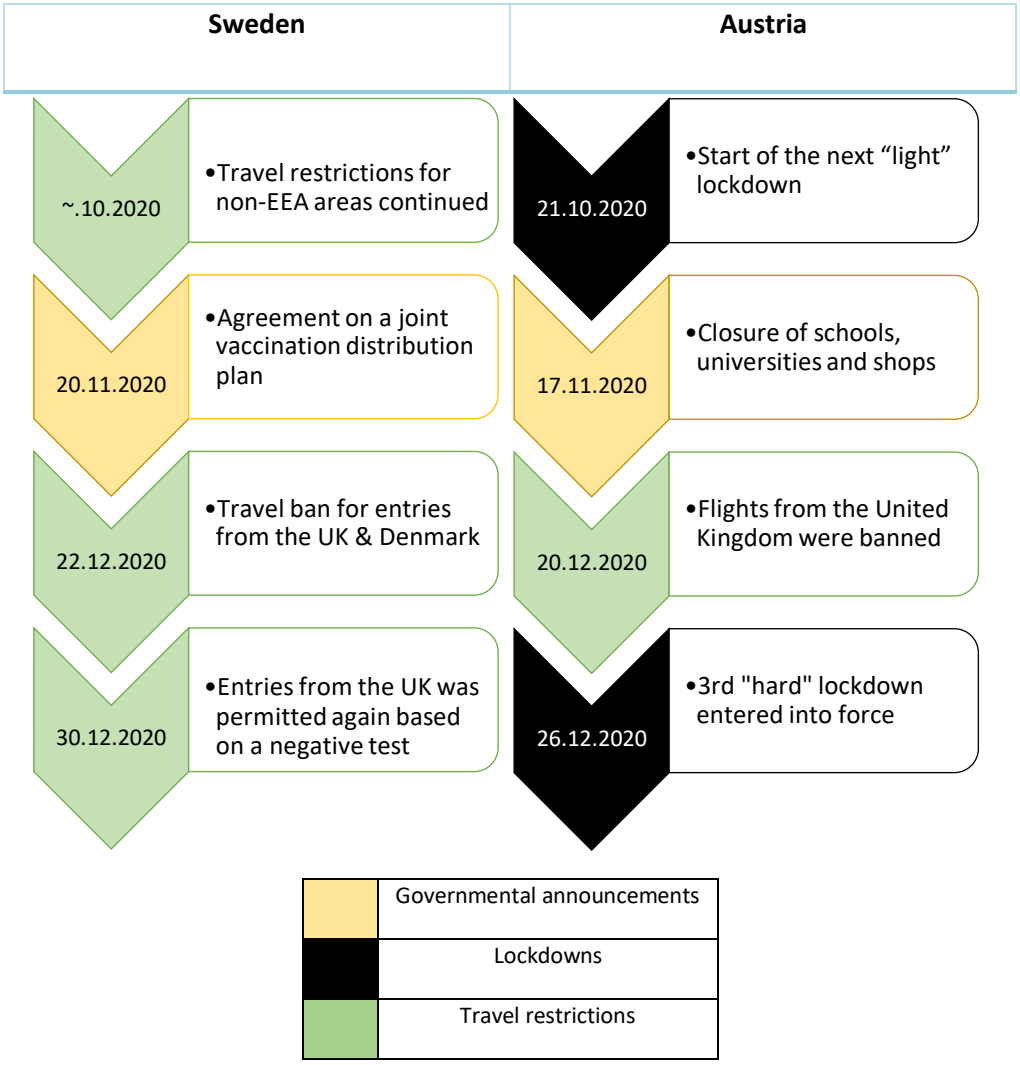

Figure 4: Country timeline overview fourth quarter 2020

1.2.4.1 Sweden

As opposed to the travel ban lifting to most of Europe, the Ministry of Foreign Affairs kept the travel ban for Baltic destinations during October (Ministry for Foreign Affairs, 2020). The travel restrictions from non-EEA countries continued throughout the fourth quarter (Ministry of Justice, 2020). Other than that, the Swedish Government tended to loosen the meeting restrictions for the Swedish population (Claeson & Hanson, 2020).

Facemasks remained to be recommended only selectively, e.g., in public transportation and health care (Claeson & Hanson, 2020). On November 20, 2020, Sweden along with the European Union agreed on a joint vaccination distribution plan with vaccination in Sweden expected to start in January 2021 (Prime Minister's Office, 2020).

Apart from night sales of alcohol and recommendations to avoid larger gatherings as of December 2020, no significant restrictions, or shutdown measures were enforced (Claeson & Hanson, 2020). This course ultimately involved more than 8.000 COVID-19 deaths as per December 20 (Claeson & Hanson, 2020). Based on the information about the British virus mutation, the Swedish Ministry of Justice introduced a travel ban for entries from the United Kingdom and from Denmark effective December 22 (Ministry of Justice, 2020). As of December 30, entries from the United Kingdom were permitted again based on negative test results (Ministry of Justice, 2020).

1.2.4.2 Austria

In view of the constantly rising infections, the Ministry of Health announced meetings restrictions that entered into force on October 25, 2020 (Pollak et al., 2021). Weekly Corona traffic light updates indicated a growing number of high-risk regions in Austria. (Pollak et al., 2021). The Federal Chancellor announced the next "light" lockdown starting as of October 31. This decision was based on the sixfold increase in infection numbers during the month of October (Pollak et al., 2021).

The "light" lockdown included the closure of many facilities, such as restaurants, sports, and entertainment, including night curfews (Pollak et al., 2021). The galloping infection development began to stretch the hospital and intensive care-capacities across Austria (Pollak et al., 2021). To fight the second wave of the pandemic more effectively, the Government and the Parliament went for an even stricter lockdown, starting on November 17, 2020 (Pollak et al., 2021). It included far reaching closures of almost the entire infrastructure, such as schools, universities, and shops, as well as daytime curfews, except for critical personnel (Pollak et al., 2021). Unlike the first shutdown law, the second one was objected by the opposition parties, but received

majority votes by the governing parties (Pollak et al., 2021). It was on November 24, thus four weeks prior to the formal vaccine approval by the European Union that the Minister of Health introduced Austria's preliminary vaccination plan (Pollak et al., 2021).

The measures were complemented by series of voluntary mass tests in order to discover symptomless infections (Pollak et al., 2021). After the end of the "hard" lockdown as of December 7, 2020, Austrian population could enjoy pre-Christmas shopping and pupils returned to schools (Pollak et al., 2021). With a highly contagious coronavirus mutation discovered on the British Isles, flights from the United Kingdom were banned as of December 20. In the light of the unfavourable infection numbers the third lockdown entered into force on December 26 (Pollak et al., 2021). Finally, the Austrian vaccination campaign started on December 27, prioritising vulnerable groups and medical personnel exposed to the virus (Pollak et al., 2021). Larger vaccine quantities started to become available in 2021 only (Pollak et al., 2021).

1.2.5 Concluding remarks of the country policy comparison

Comparing Sweden's and Austria's political handling of the pandemic, the author may conclude that Sweden followed a "laissez-faire" principle, while Austria introduced some countrywide lockdowns of several weeks each, notably in the second and the fourth quarters of 2020. Austria's government reacted quickly to buffer the outbreak of the pandemic around April 2020. Despite Sweden's strategic declaration to fight the pandemic with targeted measures, their policies did not prevent a significant nationwide spreading of the disease, which hurt, particularly the vulnerable groups.

Having analysed the sequence of events in both countries, the author will now compare the macro-economic developments.

1.3 Research Goal

In this country analysis, the author strives for a maximum of data consistency and comparability. While discussing the methodology approach in greater detail in the hypothesis section, the author will already now anticipate the most appropriate research method of choice: the quantitative approach. To investigate the research

questions, the author will analyse a comprehensive set of quantitative data, discuss relationships, and arrive at conclusions. Creswell sees this quantitative research as "a proposed explanation for the relationship among variables being tested by the investigator" (Creswell, 2018, pp. 31).

In this quantitative research the author strives to analyse relations between specific criteria so as to verify respectively falsify the hypotheses. For this purpose, the author will use a balanced, harmonised, and standardised economic data base to arrive at representative data series, which allow country comparisons. The author's preferred analytic methodology includes statistics and correlation to provide results based on statistically significant relationships.

To collect the information needed, the author opted for a non-experimental design. The deductive quantitative approach is based on the analysis of standardized EU-data, as published by EUROSTAT. The author will relate them to key political decisions and developments in both Austria and Sweden to provide correlation-based results to answer the hypotheses one by one.

Based on the research objective, the author has compiled the following set of guiding research questions:

- How did the policy decision concern Austria's and Sweden's economy during the COVID-19 crisis?
- How do the COVID-19 policies translate to macroeconomic developments in Austria and Sweden?
- Which macroeconomic factors have developed significantly different during the COVID-19 crisis in Austria and Sweden?

2 Literature Review

Despite the fact, that the pandemic holds the world hostage for more than one year and is a cross-cutting scientific topic across many disciplines, for the time being the economic analyses concerning specific countries or specific dimensions are rather scarce. Not surprisingly, most scientific investigation is dedicated to medical, rather than to economic questions. Is it for this reason that the literature review will concentrate on selected, primarily exploratory, papers regarding GDP and workforce related topics. A second, rather striking emphasis in some recent papers lies on the supply chain perspective with a process view and less emphasis on individual economic indicators. The author considers this perspective key. However, from the author's indicator-based view, it is difficult to reconcile. While this paper will thus concentrate on the EUROSTAT data, it will add the cross-cutting process-perspective in the interpretation of the figures.

It is a crisis scenario like the current pandemic, which points at the fragility and interconnectedness of the economic system and weaknesses in supply chains. It causes attention and calls for the need to improve their resilience and speedy revival, as discussed in the following literature.

2.1 Global GDP development in the light of social distancing

In line with Born et al. (2020), König & Winkler (2021) describe the different governmental reactions to fight the pandemic as driven by different political and medical motivations. Some countries, like Sweden, initiated light policy measures that focused on social distancing, while others, like Italy, were forced to "cut the rope" due to exponentially growing infection and fatality rates (König & Winkler, 2021). With Austria there were deliberate political decisions to call for the first lockdown as pro-active prevention policy. König & Winkler (2021) present the argument that certain governments were criticised or even sued for their disproportionate restrictions during the initial lockdown periods. They discuss it in the light of statistical mortality levels or rising figures (König & Winkler, 2021).

This paper would like to take an opposite stance regarding the frequently claimed disproportionality. Firstly, at the beginning of the pandemic the figures in different countries developed at different speed. However, neither governments, nor experts were able to reasonably foresee the speed of the infection spreading. Austria for example, decided to enforce strict initial shutdown measures, when facing the threshold of thousand new infections per day. While this level seemed extraordinarily high in March 2020, in hindsight it proved to be relatively low in the light of the afterwards galloping infection development that led to the second and third lockdown measures. Hence, the author does not consider the absolute levels, but rather the relative development during a period relevant. The latter should be taken into consideration, when assessing the appropriateness of country decisions.

König & Winkler (2021) have analysed the question, whether GDP contractions are induced by voluntary social distancing, or rather by strict governmental lockdown measures. Across a study of 42 countries, they found evidence for the latter (König & Winkler, 2021). While the authors agree that lockdown policies hamper the economic development of a country, they also present evidence that in balancing risks, such harsh measures are indispensable, because growing mortality rates damage the economy even more (König & Winkler, 2021). This thesis will investigate and elaborate, whether the findings are in line, or deviate from König & Winkler.

Born et al. (2020) also juxtaposed the mandatory governmental measures and the voluntary social distancing and underline that the latter prove to be limiting the spread of the disease and restricting economic growth. They ask the question how the situation in Sweden would have changed, if a formal lockdown had been imposed by the government (Born et al., 2020). They present this counterfactual investigation based on their “doppelganger” approach by including Google mobility real life data for modelling purposes (Born et al., 2020). Their results indicate that a hard lockdown in Sweden would not have helped, in terms of preventing the disease from spreading, but would have substantially impacted the economy (Born et al., 2020). They were able to demonstrate that the voluntary restrictions in social mobility in Sweden had approximately the same effect as political lockdown measures (Born et al., 2020). Born et al. (2020) underline that the voluntary quality of reduced social mobility is

preferable, because it is sustainable and reflects the agreement of the population with the medical necessity under political recommendations. This initiates a long-term sustainable behaviour, which supports disease prevention. Born et al. (2020, pp. 14) underline the limitations of their study undertaken only at the start of the pandemic and valid for Sweden only, thus not necessarily informative, or applicable to other countries.

2.2 COVID-19 impact on households

Having presented selected research on GDP during the pandemic, this paper will now take the view of households and their changes in demand and consumption behaviour. In his paper, Davis (2021) emphasises the uneven character of the spreading of COVID-19. He discusses both the direct and indirect effects on households and identifies the following key elements.

The reallocation of time is one of the crucial drivers, which hit most households and directly affected perceived satisfaction (Davis, 2021). Davis (2021) states that life satisfaction is dependent on the individual status (single, couple), as well as on the level of income. While couples spending more time together during the pandemic are by and large able to buffer their increasing dissatisfaction caused by mobility restrictions and remain more satisfied, this effect is not confirmed for singles (Davis, 2021). Davis (2021) also refers to the gender differentiation with women carrying higher and multiple burdens caused by the pandemic. When investigating a household's ability to handle COVID-19 income shocks, related to work changes, Davis (2021) introduces the notion of the Work from Home (WFH) index, which is significantly higher for women than for men. This indicator reflects employment with less physical presence and remote working abilities (Davis, 2021). It appears to be lower during COVID-19 and indicates that households are consequently less able to mitigate according risks (Davis, 2021).

Davis (2021) discusses the subject of the quality of lockdown measures. He argues that their heterogeneous effect depends on their voluntary, respectively involuntary nature (Davis, 2021). This paper will investigate in how far Davis's (2021) line of argumentation complies with the overall macroeconomic development in Sweden.

Baker et al. (2020) present the first analysis on changing household behaviour during the crisis in the United States. They describe the various changes faced by households (Baker et al., 2020). Among them are not only time reallocations, as discussed by Davis, but also the volume and duration of human interaction. This holds true for the living, working, and spending routines (Baker et al., 2020). Baker et al. (2020) observed unusual spending peaks with certain critical infrastructure stores and specific products, such as households stockpiling durable goods. This striking behaviour coincided with the start of the pandemic as of the last weeks of February and the first weeks of March 2020 in the US (Baker et al., 2020) and can be compared to the development in the European Union. It also led to a peak in the spending volume of around 40% as compared to previous months (Baker et al., 2020). This trend suddenly stopped, when mobility restrictions were enforced (Baker et al., 2020). Here Baker et al. (2020) identified a significant reduction of the household spending by more than a quarter. In addition, Baker et al. (2020) discussed a re-shifting within the expenses: Households tend to decrease their restaurant and travel payments, but they increase their spending on groceries, as more time is spent at home.

Even though Baker et al. (2020) did state a spending increase reflected in card payments, their statistics do not reveal the distribution of the household spending between stationary sales and online sales. Also, the aspect of losing one's job and therefore regular income was only marginally discussed, as the figures were drawn mainly in March, shortly after the outbreak of the pandemic. Interestingly enough, the trend towards piling basic consumer goods, notability groceries and hygiene products, was observed across households from all income levels (Baker et al., 2020). Concluding from the analysis of Baker et al. (2020), the household spending shifts both regarding volumes and sectors, is reflected in positive and negative demand shocks. Their development will be subject to discussion in the Methodology section on EU level and throughout 2020.

2.3 Global disruptions of supply and value chains

Espitia et al. (2021) underline the sudden, deep, and long disruption of global supply and demand and indicate a sharp trade contraction by 13% during the first six months

of the pandemic. Espitia et al. (2021) underline the relevance of global value chains and their disruption with a direct effect on international trade. Bondadio et al. (2020) argue, based on their meta-examination of global supply chains during COVID-19, that there is a clear correlation between lockdown measures and reduction of GDP, as a result of global supply chain disruptions. In the light of both Sweden and Austria, being export countries, the aspect of global supply chains and their stability will be of central interest. The more a country relies on complex international supply chains for its production and export, the higher and more likely the exposure to disruptions will be – a principle, which is described by Espitia et al. (2021). Disruptions can be observed in terms of factory closures or resource shortage in general, but as well as transportation interruptions.

The focus of Bondadio et al. (2020) lies on the degree of supply chain linkages with other countries, they conclude that a higher level of independence from international delivery chains could make countries more crisis resilient. What is more relevant in this regard is the individual country's restrictive policy. Bondadio et al. (2020) analyse countries with low governmental restrictions, like Japan, Taiwan, and Sweden to demonstrate that their economic development in 2020 was less severely impacted. In the light of these findings, a stronger GDP correlation with lockdown measures is expected to be found in Austria, not in Sweden and will be discussed in the upcoming hypothesis section.

Remko van Hoek (2020) presented an in-depth analysis of supply chains at the beginning of the pandemic to point at weaknesses and areas of improvement. The author revealed a significant and surprising lack of transparency on the side of companies, notability with more than half of the procurement managers participating in the survey (Remko van Hoek, 2020). Another fact discussed by the author is that less than half of the investigated companies have prepared business continuity plans as part of pro-active crisis management (Remko van Hoek, 2020). The broad absence of these plans indicates the low priority of crisis management with many companies, respectively their perceived low likelihood of sudden crises hitting the industry (Remko van Hoek, 2020). In any case their pre-pandemic preparedness was weak as shown by Remko van Hoek (2020).

Among the risks identified by the supply chain executives, Remko van Hoek (2020, pp. 352) identifies “shortage of supply and extended lead times”, caused by high demand e.g., for hygiene products. In addition, come bottlenecks and slow recovery times, imbalanced demand of certain product categories, slow reprioritization, and too slow pro-active inventory management (Remko van Hoek, 2020).

Remko van Hoek (2020) discusses suitable measures to improve resilience, as put forward by literature. Among them are more flexibility within supply chains, a higher domestic focus, inventory buffering and improvements in the information flow (Remko van Hoek, 2020). However, their implementation leaves room for improvement. Therefore, Remko van Hoek (2020, pp. 344) identifies three main risk categories:

- Supply risk springing from plant closures and bottlenecks
- Demand risk coming from temporary product shortages
- Control risk due to lack of responsiveness

Stronger institutional awareness and pro-active management may help to build a “crisis shield” for the companies. Finally, Remko van Hoeck (2020) underlines the importance of his theoretical analysis. It aims to contribute to concrete operational implementation to strengthen the resilience of companies and the global industry (Remko van Hoek, 2020).

While the pandemic caused both supply and demand shocks, it is particularly the former, which is of interest for exporting countries, like Sweden and Austria. In this context, Espitia et al. (2021) focus on the levels of production, consumption, and competition to explain country- and sector-specific effects. They underline their findings that exporters during the pandemic were particularly vulnerable to foreign supply shocks, but less so in the domestic environment (Espitia et al., 2021).

2.4 Effects of COVID-19 on labour markets

In order to gain a comprehensive view on the impact of COVID-19 on workforce-related topics, this paper presents selected exploratory articles, dealing with various aspects. Bondadio et al. (2020) contribute by investigating the labour market

regarding its resilience. They argue that the key determining factor is the possibility for remote work (Bondadio et al., 2020). However, it has to be noted that such remote-friendly environments require clear processes, mobile equipment, and a certain degree of organizational flexibility. Some sectors do not facilitate this kind of business flexibility, e.g., stationary sales or security-sensitive industries.

While the article does not focus on Sweden or Austria in particular, the GDPs of both countries include strong service sectors, which makes the question highly relevant. The key finding of this article is that a potential re-nationalization of current international supply chains would not necessarily make the sectors more resilient (Bondadio et al., 2020). Bondadio et al. (2020) argue that stricter domestic lockdown measures, which inhibit domestic production and service, are likely to equally disrupt supply chains within the country. Consequently, the economic impact is highly dependent upon individual country- or sector-specific restrictive measures (Bondadio et al., 2020). In other words, renationalization of supply chains would not necessarily make an economy less vulnerable, or better prepared for future crises.

2.4.1.1 Sweden's labour market

According to Juranek et al. (2020) Sweden's labour market is representative for the Northern European region in terms of economic openness and economic status and institutions. Similar with its neighbours, Sweden established a short-time work compensation programs, subsidies for personnel costs dedicated to companies, who needed to cover temporary production shortfalls (Hensvik & Nordstr¨om Skans, 2020). Interestingly enough, the Swedish approach initially did not appear as flexible as other countriesa. It can be considered appropriate but came with the limitation of a working time reduction of maximum 60% as of March and 80% as of May with employees receiving 90% of their salaries (Juranek et al., 2020).

This thesis will show that the methodology of the EUROSTAT statistics on employment comes with limitations, as it does not reveal changes from fulltime to parttime employment, whereas the study by Juranek et al. dives into the details of the employment changes based on weekly data. They compare Sweden's data with those

of other Nordic "lockdown" countries like Norway, Denmark, and Finland (Juranek et al., 2020). Their juxtaposition shows that the employment situation of the lockdown countries plummeted as of their shutdown measures, while Sweden's employment rate was hit later and less severely (Juranek et al., 2020). In the light of the sharp and sudden worsening of the employment situation in all three Nordic "lockdown" countries, the following preliminary conclusions can be drawn and will be subject to investigation in the upcoming hypothesis section:

1) There is a correlation between centralized governmental lockdown decisions and the rise of unemployment and short-time work.
2) This correlation seen in the Nordic countries is expected to be extended to the Austrian development as generalisable economic phenomenon.

Furthermore, Juranek et al. point at Sweden's high trade exposure, but refrain from analysing likely future impacts (Juranek et al., 2020). However, a significant trade deficit in the years to come is expected (Juranek et al., 2020).

2.4.1.2 Austria

In his article, Risak (2020) discusses the legal prerequisites of COVID-19 labour laws in Austria. He introduces the legal provisions, which have originally been designed in the aftermath of the financial crisis 2008 and adapted for the pandemic in March 2020 (Risak, 2020). He emphasises the position of the Social Partners (institutional representatives of employers and employees) in quickly providing a legal and social security framework to buffer temporary financial shortfalls of companies and to grand employees and apprentices continued income (Risak, 2020). In addition, high risk employees receive special protection measures, be it remote working options, or even paid leave (Risak, 2020). This reflects the clear prioritisation of individual health protection versus staff availability in the companies. Only core infrastructure staff are exempted from this special treatment to ensure continued provision of services indispensable for society (e.g., supermarkets, pharmacies, gas stations) (Risak, 2020). This is an example of a broad agreement process on national level, which also involved the Chamber of Commerce and the Trade Union Federation and was concluded

speedily and swiftly (Risak, 2020). One key element that is different between the Swedish and the Austrian model is that the Austrian approach is significantly more flexible. It even allows a temporary reduction of working time of up to 90% (as compared to Sweden's 60%) (Risak, 2020). With the remaining employee costs being covered by Austria, this model appears to be a generous support for Austrian companies, but obviously coming with potentially higher national subsidies and therefore costs for next year's Austrian budget as compared to Sweden.

Another aspect introduced by Risak (2020) concerns an additional instrument, which supports both employers and employees during these challenging times. Austria's labour laws grant additional paid leave for special care purposes of up to 3 weeks (Risak, 2020). This enables staff to take additional time off for caring purposes of family or sick people, without losing their salary payments (Risak, 2020). These costs for the employer will also be refunded by Austria, which strengthens the companies in their financial position (Risak, 2020). In turn for ensuring employment stability, the employer is entitled to make their staff consume holiday entitlements (Risak, 2020). With this paper Risak (2020) is able to demonstrate the wide variety of legal instruments introduced in Austria under its conservative government to support the economy and stabilize business throughout the pandemic. While this discussion contributes the overall understanding of the Austrian policy measures, it allows only limited insight into the concrete economic effects of these measures.

2.4.1.3 Concluding remarks on labour market provisions

This legal perspective draws a rather comprehensive and supportive policy picture of Austria. While the corresponding insight into Sweden's detailed labour law provisions cannot be presented in the absence of English source material, Sweden offers short-time work programmes, even though with less flexibility. Both countries established a sound policy basis for buffering financial shortfalls for companies and introduced frameworks to handle human resource issues in a socially balanced manner. Finally, it needs to be stated that while this paper concentrates on the development during 2020, most measures introduced during this year have been extended into 2021, as they have proven as efficient economic instruments.

3 Hypotheses

"Essentials of Marketing" defines a research hypothesis as "a yet-unproven proposition or possible solution to a decision problem that can be empirically tested using data that are collected through the research process; it is developed in order to explain a relationship between two or more constructs or variables" (Hair et al., 2017, pp. 388). What seems most relevant to the author of the thesis is the tentative character and the possibility of verification. Still this answer may not be a final one. Vital is the testing of these assumptions. This testing follows scientific standards.

To be able to come to conclusions regarding the relation between policy decisions and economic effects in the two focus countries, the author concentrates on three research questions, as outlined above. For each of these research questions, the author will generate a hypothesis set, which will be tested and analysed to determine its accuracy. The hypotheses developed in this research are the author's assumptions with H1 as the author's expected result. Prior to H1, the author will start by H0, which reflects a non-correlation. These hypotheses are based on the potential correlation of independent and dependent variables.

Creswell explains independent variables as "variables that influence, or affect outcomes in experimental studies, because they are manipulated and independent of other influences" (Creswell, 2018, pp. 93). As opposed to independent variables, Creswell sees the dependent variables as "outcomes or results of the influence of the independent variables" (Creswell, 2018, pp. 93).

3.1 Research Question 1

The author understands the independent variable as driving factor, which changes and through this change, pushes the dependent factor and causes it to change. This relationship needs to be made visible to determine its impact. The author will demonstrate this effect in each of the hypotheses by describing both the independent and the dependent variables and their connections. Therefore, each research question includes an underlying set of hypotheses with a potential correlation between independent and dependent variables, as follows:

- *How did the policy decisions concern Austria's and Sweden's economy during the COVID-19 crisis?*

Hypothesis set 1 concerning policy decisions:

H0: The policy decisions have a negative impact on the economy of Austria and Sweden during the COVID-19 crisis.

H1: The policy decisions have a positive impact on the economy of Austria and Sweden during the COVID-19 crisis.

In the first question, the policy decisions will be the leading factor to be examined so as to investigate its impact on the economy of Austria and Sweden. The independent variable is the set of selected policy decisions. They potentially affect the dependent variable, in this case, the economy of Austria and Sweden. Consequently, the author is going to investigate a potential positive or negative relationship between the policy decisions and the economy of Austria and Sweden.

3.2 Research Question 2

The second research question zooms into the specific COVID-19 situation and macroeconomic factors.

- *How do the COVID-19 policies translate to macroeconomic developments in Austria and Sweden?*

Hypothesis set 2 concerning COVID-19 policies:

H0: The COVID-19 policies have a negative impact on macroeconomic developments in Austria and Sweden.

H1: The COVID-19 policies have a positive impact on macroeconomic developments in Austria and Sweden.

The second research question deals with the COVID-19 policies and their effect on the macroeconomic developments in Austria and Sweden. The COVID-19 policies are

considered as independent variable. In this case the macroeconomic developments in Austria and Sweden function as the dependent variable.

3.3 Research Question 3

The final research question investigates concrete macroeconomic factors that have been differently affected in the two countries, if any.

- *Which macroeconomic factors have developed significantly different during the COVID-19 crisis in Austria and Sweden?*

Hypothesis set 3 concerning macroeconomic factors:

H0: The macroeconomic factors during the COVID-19 crisis have a negative impact in Austria and Sweden.

H1: The macroeconomic factors during the COVID-19 crisis have a positive impact in Austria and Sweden.

The third research question considers a selection of macroeconomic factors as a component in influencing Austria and Sweden during the COVID-19 crisis. The independent variable is the set of macroeconomic factors, and the dependent variables are Austria and Sweden over a specific timeline.

3.4 Concluding remarks concerning Hypotheses

Comparing the three research questions, the author considers the third as central one, especially in the light of the following key question:

- *How disruptive is a set of restrictive governmental lockdown measures for the macroeconomic development of a country, as compared to a "soft" recommendation approach?*

In comparing the selection of macroeconomic indicators, the author expects to discover a significantly higher degree of disruption in Austria than in Sweden. The following analysis and discussion aim to investigate this relationship. This will be

contrasted with the non-economic country development, especially the mortality rates of the two focus countries.

4 Methodology

Before focusing on the concrete data analysis and conclusion, this section will present options to approach such exploration and a rationale for the method of choice, which was also applied in studies presented in the literature review.

4.1 Research Method

As for exploring the relationship between policy decisions and macroeconomics, the author needed to come up with the most appropriate research method. In this regard, Creswell (2018) introduces three main research approaches:

- Qualitative research
- Quantitative research
- Mixed methods research

These three methods are considered not as distinctly different, but as different points along a continuum (Creswell, 2018). While qualitative research focuses on "exploring and understanding the meaning individuals or groups ascribe to a social or human problem" (Creswell, 2018, pp. 41), quantitative research is centred around "testing objective theories by examining the relationship among variables" (Creswell, 2018, pp. 41). The mixed methods approach includes both qualitative and quantitative methods by "integrating the two forms of data and using distinct designs that may involve philosophical assumptions and theoretical frameworks" (Creswell, 2018, pp. 41).

Out of these three options, the author decided in favour of the quantitative approach, following Buglear (2005). He (Buglear, 2005) considers quantitative data in general as more sophisticated and hence their presentation to appear more elaborate, which is what the author of this paper strives for in line with the following quantitative features.

4.2 Data Collection

As large populations in Sweden and Austria need to be examined, the author aims for a homogeneous, standardised, and balanced database that builds upon most recently collected data. These data need to reflect the country-specific situation most accurately by covering a variety of macroeconomic dimensions. It was therefore advisable not to collect own data, but to rely on and tap into existing databases that reflect the country-perspective and are in line with the EU-standards. It was for this reason that the author opted for EUROSTAT as primary data source. In accordance with the transparency claim of the European Union and its predecessor institutions, the provision of country data is one of the core EU-considerations, which is reflected in the data sets. The collection and publication of macroeconomic data from EU-countries dates back as early as 1953 (EUROSTAT, 2021). EUROSTAT claims to collect and provide most accurate, high qualitative, reliable, and complete data and has therefore agreed upon a highly sophisticated system of macroeconomic indicators, which are available on EU, national, and NUTS (regional) level on an annual basis. Some of them are provided in higher frequencies, e.g., on a quarterly basis, which was a key criterion for the author in order to provide near-time analyses on a more detailed level.

In its data collection, EUROSTAT cooperates with national statistical institutions (EUROSTAT, 2021). To achieve maximum consistency, the data collections are harmonized, as they follow the same definitions of the macroeconomic indicators. This is in line with the EUROSTAT understanding of professionalism, quality, and innovation (EUROSTAT, 2021).

For comparison purposes, the following aspects are of key importance. Firstly, the data of both focus countries need to follow the same underlying interpretation of the indicators, which is the case with EUROSTAT. Secondly, the data need to be provided on a quarterly, not only on annual basis. Otherwise, it would not be possible to zoom in and attribute quarterly policies to measurable economic developments in the countries.

This requirement limited the choice of the indicators provided by EUROSTAT, because not all macroeconomic dimensions are reported on a quarterly basis. Thirdly, the data are to be published near-time to also timely follow the pandemic development. As the delivery of the country data is based on established data interfaces and on reliable delivery deadlines, the data were available near-time and can reasonably be expected to be accurate. This formed the basis for the author's selection of the following indicators.

4.3 Data Selection

2020, the first year of the pandemic was a particularly challenging for the European Union. As indicated by Goniewicz et al. (2020, pp. 1), the European Union in its entirety and specific countries individually have "adopted measures such as the closure of the borders and significant limitations on the mobility of people to mitigate the spread of the virus". According to Davis (2021), European states introduced a large variety of policy measures in their attempt to prevent the virus from spreading, taking into consideration temporary economic effects, and also supporting the economy in their recovery. These policy measures include "curfews, stay-at-home orders, commercial and non-commercial assembly size restrictions, school closings, social distancing, travel restrictions, quarantines, and mask wearing requirements" (Davis, 2021, pp. 286).

While this paper will not focus on the set of joint actions, such as vaccine procurement and other medical supply, it will investigate the different economic developments as caused by different strategic and policy priorities between Sweden and Austria.

To this end, this paper will concentrate on a set of specific macroeconomic indicators that serve to determine the overall economic situation of a country over the period of 2020, the first year of the pandemic. Within the European Union, we find a well-established mechanism of collecting standardised statistical data with homogeneous definitions. This supports a harmonised and balanced view on data and allows comparison of indicators on a quarterly basis. The author's selection of macroeconomic indicators will cover: GDP, balance of external goods and services, household consumption expenditure and the employment development. They are

expected to provide a solid first assessment of a country's economic position and reflect changes in crises most efficiently. As emphasis is put on the development, the author decided to predominantly present figures as relative changes rather than as absolute figures to foreground the changes on the timeline.

In comparing Austria's and Sweden's economic situation, the author relies on EU-data based on EUR as leading currency. The author may do so, being aware that Sweden does not belong to the Euro-area, but that currency fluctuations are balanced in these statistical data.

Before analysing the economic indicators of Sweden and Austria, the author will start by providing definitions for a better understanding of their compositions. In a second step, the data will be compiled and analysed on a quarterly basis and by comparing the country levels and trends. In a third step, a statistical correlation approach will be applied between the macroeconomic indicators and the respective policy decisions in the countries. A combination of both the country-specific policy decisions and the economic indicators is finally expected to reveal relationships and provide potential explanations. Ideally the author will be able to replicate and follow-up on the results presented in the literature review.

5 Data Analysis

This paper will provide an overview and discussion of selected macroeconomic indicators listed above, as provided by EUROSTAT on a quarterly basis. The author strives for a homogeneous appearance and easy reading. Therefore, the author decided for the following presentation. Firstly, each indicator is visualised in the form of quarterly bar chart histograms, with Sweden marked in blue and Austria marked in red. They are followed by the respective tables, which, in addition to the data of the two focus countries, also include the figures of the EU-27 to add the overall European perspective. The author decided to present the EU-27, being aware that Great Britain left the European Union in the course of 2020. However, the EU-27 dimension was deliberately not included into the histograms, because such inclusion would have distorted the country focus and overemphasised the EU-dimension.

5.1 Gross Domestic Product (GDP)

5.1.1 Gross Domestic Product at Current Prices

The starting point of this analysis is the Austrian and Swedish economic development in terms of Gross Domestic Product (GDP). EUROSTAT defines the GDP as "a basic measure of the overall size of a country's economy" (EUROSTAT, 2021). The author will refrain from discussing the details of the EUROSTAT GDP approach in terms of the production approach, the income approach, and the expenditure approach (EUROSTAT, 2021), because the main point is the homogeneous measurement of Austria's and Sweden's GDP. Below comparison indicates, that during 2020, both GDPs contracted, but that Sweden's GDP seemed more stable especially during the second half of 2020. Therefore, the author will analyse the changes in more detail to point at the common traits and differences in the development.

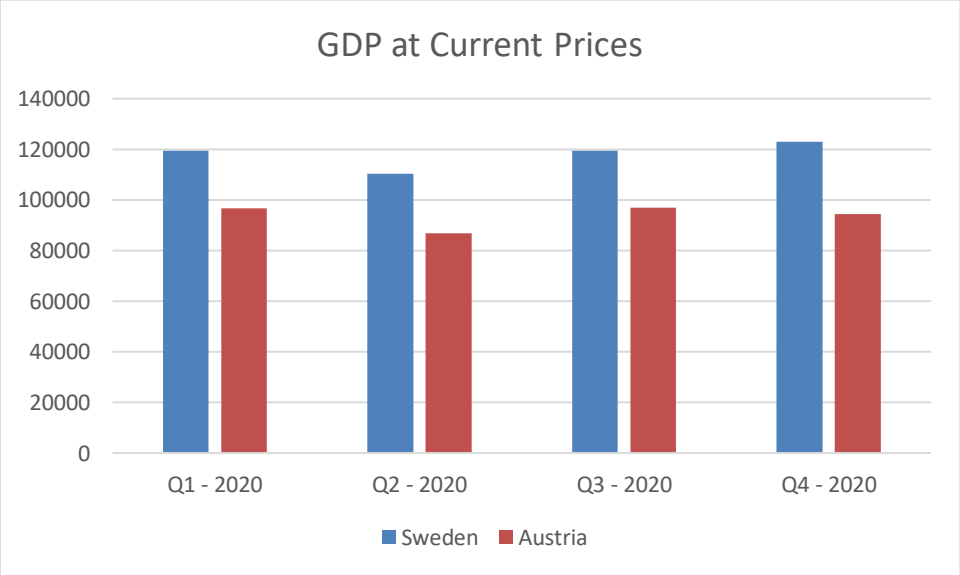

Figure 5: GDP at current prices as final result of the production activity of resident producer units

	Q1 - 2020	Q2 - 2020	Q3 - 2020	Q4 - 2020
European Union	3.426.575,70	3.059.145,20	3.400.318,00	3.408.926,40
Sweden	119.554,30	110.319,70	119.348,10	122.924,30
Austria	96.555,40	86.812,50	96.960,40	94.508,40

Table 2: GDP at current prices as final result of the production activity of resident producer units

5.1.2 Relative Gross Domestic Product Change

With the GDP being a central macroeconomic indicator, the author will now focus on the relative GDP changes in the two focus countries, zooming in on their relative changes.

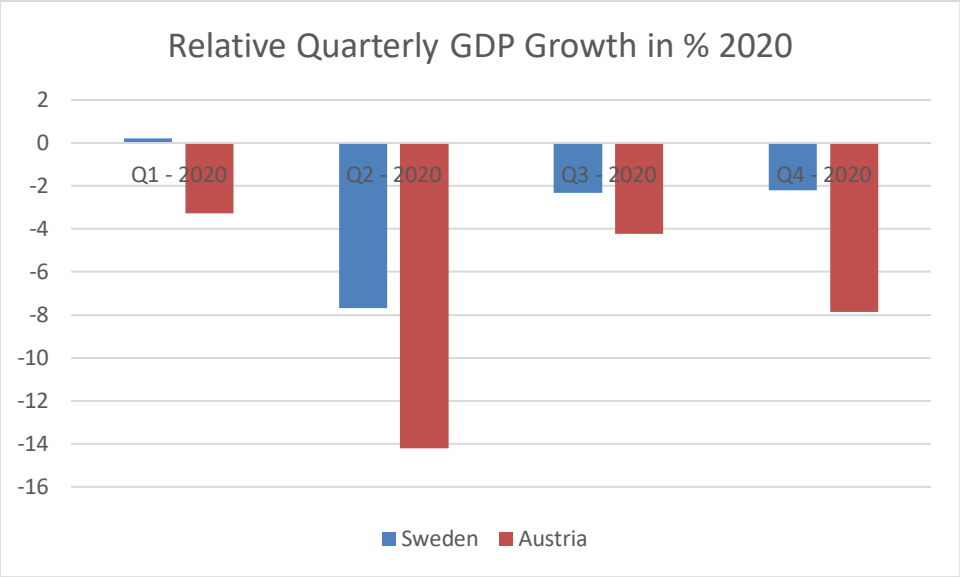

Figure 6: GDP growth comparison between Sweden and Austria 2020

	Q1 - 2020	Q2 - 2020	Q3 - 2020	Q4 - 2020
Sweden	0.21	-7,67	-2,32	-2.21
Austria	-3,29	-14,21	-4,24	-7,86

Table 3: GDP growth comparison between Sweden and Austria 2020

At the beginning of 2020, Sweden contributed around 3,49% to the overall EU-27 GDP, as compared to Austria with around 2,82%. With the outbreak of the pandemic as of the end of the first quarter, beginning of the second quarter 2020, the overall GDP of the EU-27 shrunk, as did the individual country GDPs. However, Sweden's downturn of -7,67% by the end of the second quarter was less severe than Austria's of -14,21%. Austria's negative path had already started in the first quarter with -3,29% and progressed throughout the first half of 2020. Both economies appeared to recover, as did the EU-27 GDP during the summer months of the third quarter, approximately reaching the GDP levels of the beginning of 2020. While Austria's growth rate again declined in the fourth quarter, this was not the case for Sweden. The overall GDP development thus reveals that the smaller Austrian GDP was hit two times, during the second and fourth quarter in 2020 and that it decreased over the year. The larger Swedish GDP in comparison was hit less severely by the pandemic in the second quarter and managed to speedily recover and to grow altogether.

In line with Danielli et al. (2020), the upswing of the Swedish GDP during the second half year 2020 can at least partially be attributed to a set of economic measures to both protect and defend business and people. These measures include (Danielli et al., 2020, pp. 3):

5.1.2.1 Businesses

- Subsidy programmes for businesses
- Deferrals of tax and levy contributions
- Federal loan guarantees

5.1.2.2 Households

- Households support for Swedish population
- Income and rental support

According to Boumans et al. (2020), who discuss international assessments concerning the suitability of recovery support measures, it is particularly targeted liquidity measures for SME that prove to be effective instruments for easier recovery.

5.1.2.3 Main GDP Drivers

Having discussed the overall country GDP perspective, the author will concentrate the main drivers of the business breakdown to reveal different impacts in the two focus countries. To this end, the author will focus on three particularly important sectors.

5.1.2.3.1 Sweden

The top three main economic categories most impacted by the economic downturn in Sweden during the second quarter 2020 are:

- Mining and Quarrying; Manufacturing; Electricity, Gas, Steam and Air Conditioning Supply; Water Supply; Sewerage, Waste Management and Remediation Activities with -3,09% (referred to as *) (EUROSTAT, 2021).
- Construction with -2,99% (referred to as **) (EUROSTAT, 2021).
- Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles; Transportation and Storage; Accommodation and Food Service Activities with -2,65% (referred to as ***) (EUROSTAT, 2021).

Sweden	Q1 - 2020	Q2 - 2020	Q3 - 2020	Q4 - 2020
*	0.00%	-3.09%	-0.24%	0.01%
**	-0.11%	-2.99%	-0.22%	0.09%
***	-0.08%	-2.65%	-1.19%	-1.24%

Table 4: Sweden's top three economic categories most affected by the pandemic in 2020

5.1.2.3.2 Austria

In Austria, the top three most impacted economic categories include:

- Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles; Transportation and Storage; Accommodation and Food Service Activities with -5,42% (referred to as ***) (EUROSTAT, 2021).
- Mining and Quarrying; Manufacturing; Electricity, Gas, Steam and Air Conditioning Supply; Water Supply; Sewerage, Waste Management and Remediation Activities with -3,32% (referred to as *) (EUROSTAT, 2021).
- Construction with -3,04% (referred to as **) (EUROSTAT, 2021).

This juxtaposition reveals that the same three economic categories are affected both in Sweden and in Austria, but to a different degree, which may be attributed to the different overall composition of the economies of the two countries. In the light of the pandemic and the global outreach, still these three categories are substantially hit by the downturn.

Sweden	Q1 - 2020	Q2 - 2020	Q3 - 2020	Q4 - 2020
***	-0.91%	-3.37%	-0.83%	-0.29%
*	0.73%	-3.04%	-0.79%	-0.19%
**	-1.62%	-5.42%	-0.94%	-4.51%

Table 5: Austria's top three economic categories most affected by the pandemic in 2020

5.1.2.3.3 Concluding remarks concerning the GDP development

Having started with the big picture of the economic development during the first year of the pandemic (Figure 5), the author continued by presenting in greater detail the individual industries of each of the two countries. What is most striking in both tables are the sharp declines by the end of the second quarter of 2020. The top three economic categories in each of the two countries were juxtaposed. With this step, the author could identify Mining and Quarrying; Manufacturing; Electricity, Gas, Steam and Air Conditioning Supply; Water Supply; Sewerage, Waste Management and Remediation Activities as heavily impacted by Sweden's downturn in the second quarter. In Austria, the author detects the same categories, but ranked differently, i.e. Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles; Transportation and Storage; Accommodation and Food Service Activities, which have been most severely hit in the second quarter of 2020. In the second quarter, both economies were undeniably hit with Sweden's GDP coming from a higher level and Austria's GDP being more severely hit.

As for the second half of 2020, Sweden started to recover slowly, but surely. By yearend 1010, it even outgrew the GDP level at the beginning of 2020. This overall favourable trend could not be observed in Austria, where, after the cautious recovery was interrupted by the next negative downturn development in the fourth quarter of 2020, leaving Austria's GDP at a lower level than prior to the outbreak of the pandemic. In the next section the author will investigate potential correlations between these developments and the policy decisions in the two countries.

In an overall view this development of a general slow recovery corresponds with the expectations presented by Boumans et al. (2020). They summarize the joint assessment of 950 economic experts in 110 countries around the world. While these experts are reported to appreciate economic subsidy programmes, their outlook is rather unstable and negatively influenced by potential follow-up shutdown measures to fight the pandemic (Boumans et al., 2020).

5.2 External Balance of Goods and Services

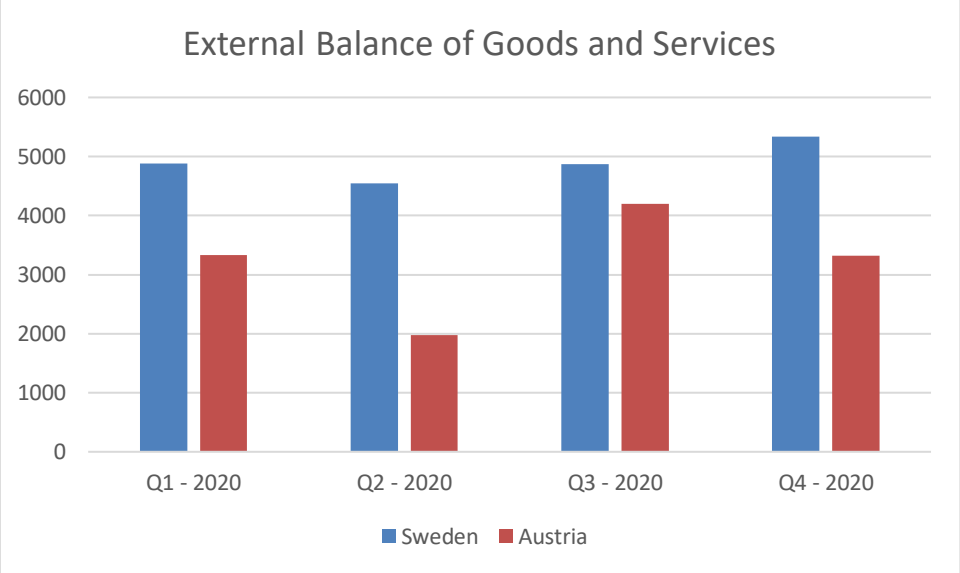

Figure 7: External Balance of Goods and Services' comparison

	Q1 - 2020	Q2 - 2020	Q3 - 2020	Q4 - 2020
European Union	115.732,7	93.509,4	157.009,8	163.224,2
Sweden	4.878,7	4.547,5	4.873,9	5.339,2
Austria	3.334,6	1.975,9	4.193,4	3.319,8

Table 6: External Balance of Goods and Services' comparison

In addition to discussing the GDP perspective, the author will look into the development of the export-import balance in Europe during 2020. EUROSTAT defines the external balance of goods and services as "the difference between exports of goods and services and imports of goods and services (EUROSTAT, 2021)". During 2020 the EU-27 balance remained positive, which indicates that despite the pandemic Europe exported more than it imported. After a solid first quarter, the balance shrank by about one fifth during the second quarter at the beginning of the pandemic. On European level, the majority of countries appear to have coped well during the first year of the pandemic. The export balances outgrew the second quarter figures substantially during the second half of 2020 and appeared stronger compared to the first quarter.

Sweden's development is in line with this overall European trend despite its decline in the second quarter. As for Austria, two deviations from above development become obvious. Firstly, Austria's export balance broke down by some 40% in the second quarter, which is an even sharper decrease than the EU-27. Secondly, Austria's export balance recovered during the third quarter, only to decline again in fourth quarter. We thus see the reverse trend in Austria as compared to Sweden and the EU-27.

Comparing this indicator development to above GDP shows that here, too, Sweden started its export balance from a higher level than Austria and Sweden's intermediate downturn after the outbreak of the pandemic was less severe compared to Austria. Unlike Austria's second downturn in the fourth quarter, Sweden's recovery to the growth path is in line with the EU-level.

5.3 Household Expenditure

Having discussed the economic development in both Austria and Sweden from the GDP and the export balance perspective, the author will now compare the situation of the households and their consumption development. EUROSTAT defines household expenditure as "expenditure incurred by resident institutional units on goods or services that are used for the direct satisfaction of individual needs or wants or the collective needs of members of the community" (EUROSTAT, 2021). The author has

decided to include this indicator as representative measure for the development of household finances throughout the pandemic. Having presented the drastic downturn of the overall European economy and in the focus countries, the author wants to juxtapose the financial situation of the households during 2020.

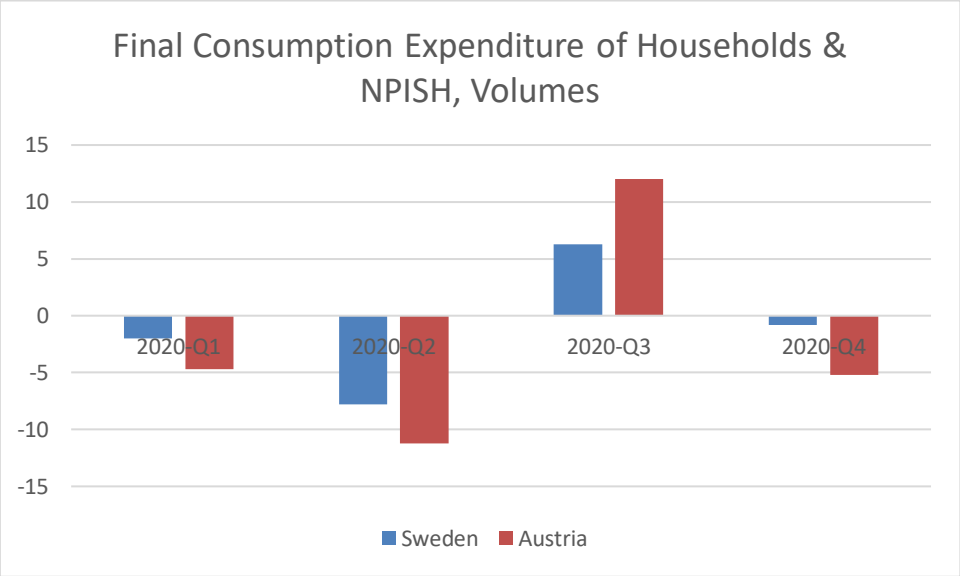

Figure 8: Final consumption expenditure of households & NPISH, volumes

	Q1 - 2020	Q2 - 2020	Q3 - 2020	Q4 - 2020
European Union	-4,0	-12,1	13,4	-3,0
Sweden	-2,0	-7,8	6,3	-0,8
Austria	-4,7	-11,2	12,0	-5,2

Table 7: Final consumption expenditure of households & NPISH, volumes

By the beginning of 2020, Sweden's consumption expenditure was at 2,92% of the EU level, whereas Austria had 2,72%. During the beginning of the pandemic in the second quarter, the European Union household expenditures fell substantially as did those of Sweden and Austria. However, Austrian households seemed even more volatile, as

their consumption expenditures shrank even more significantly than Sweden's and the EU's.

The second half of 2020 brought a recovery on the EU-level, as well as on the individual country levels. But while the EU-27 expenditures did not reach the initial pre-pandemic level of the first quarter 2020, Sweden's household expenditures outgrew those of the first quarter 2020. This was not the case in Austria, as after the recovery in the third quarter 2020, the last quarter showed a sharp decline in household expenditures, to a value significantly below the pre-pandemic level. In an overall perspective, Swedish households appear to have balanced the initial decline of the first half year during the second half year of 2020, which does not hold true for Austrian households.

5.4 Employment Situation

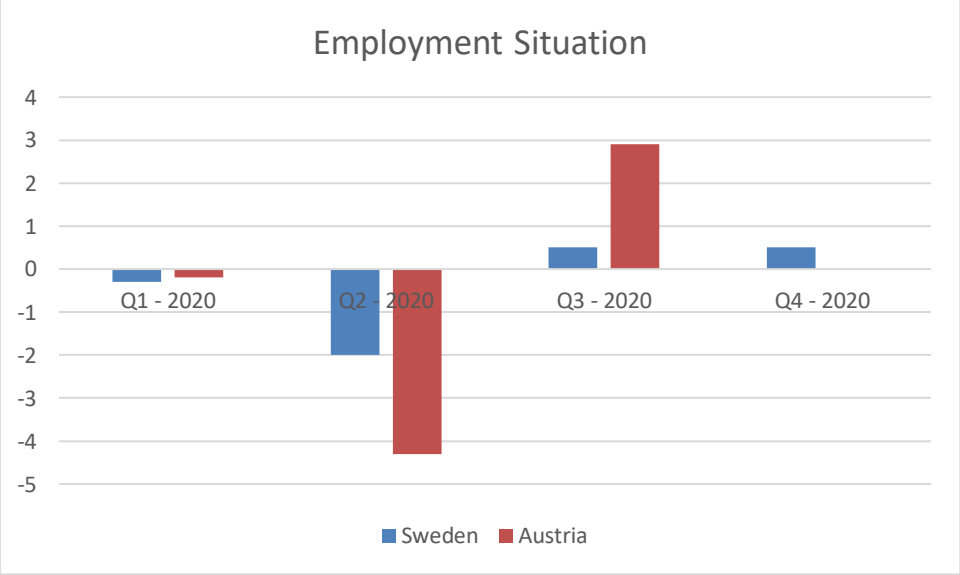

Figure 9: Employment Situation comparison

	Q1 - 2020	Q2 - 2020	Q3 - 2020	Q4 - 2020
European Union	-0,1	-2,7	0,9	0,4
Sweden	-0,3	-2,0	0,5	0,5
Austria	-0,20	-4,30	2,90	0,0

Table 8: Employment Situation comparison

Having discussed three indicators, the author will conclude this economic analysis with the discussion of the development of the employment situation throughout the first year of the pandemic. EUROSTAT understands the term employment as covering "both employees and self-employed, who are engaged in some productive activity that falls within the production boundary of the system (ESA, 2010). It is measured in number of persons without distinction according to full-time or part-time work" (EUROSTAT, 2020). The figures are based on percentage changes Q/Q-1 (EUROSTAT, 2021). This definition is of particular significance for the author's analysis, because the numbers reflect the employed headcount per country, irrespective of the full-time or part-time situation. Therefore, this figure is neither able to reflect the accurate number of full- and part-time employment, nor does it reveal a contractual change of a person with a full-time contract, who reduced the working time during 2020. This methodological limitation needs to be considered for the following comparison and analyses.

Both countries opted for special short-time work programmes to keep a maximum of employees contracted and to support companies. Austria presented a set of financial incentives with its "Kurzarbeit", as did Sweden (Boumans et al., 2020). The programmes subsidised a large portion of the companies' employment costs throughout 2020 to prevent companies from lay-offs. According to Boumans et al. (2020), those countries that have introduced short-time work programmes show a higher appreciation of their efficiency and acceptance than countries without this instrument.

As for the EU-27, the employment situation came under pressure, especially in the second quarter 2020, when the pandemic started to spread in Europe. While the author would have expected an even sharper decline of the employment rates, the -2,7% may be partly attributed to short-time work programmes in some European countries. The job market partly recovered during the second half year of 2020 but did not reach its initial level.

The EU-27 trend could be observed in Sweden as well. While the decline in the second quarter was slightly less than the EU-27, the Swedish job market started to recover more slowly than Europe's during the second half year 2020.

The volatility in Austria is stronger in both directions. At the start of the pandemic, we observed a sharper decline throughout the second quarter, followed by a peak in the third quarter and no changes towards year-end 2020.

5.5 Concluding remarks on comparing economic indicators

At first glance, the selection of macroeconomic indicators appears to be in line with the policy decisions in the individual countries. The most significant difference between Sweden and Austria is the more rigid handling of the population mobility to prevent the spreading of the disease. As for Austria, the author has discussed three nationwide lockdown decisions taken by the parliament and the government. While they were slightly different in length and limited different activities, all of them restricted movement of people, as well as of goods.

As for the economies in Sweden and Austria, both faced significant economic disruptions during the second quarter 2020. The question arises, whether the initial mandatory lockdown measures in Austria starting as of March 16, 2020, and the "soft" set of recommendations in Sweden can both be correlated to this temporary economic downturn, or simply put, whether both approaches caused similar developments in the respective countries during the second quarter 2020.

One possible argument in favour of this line of argumentation springs from the high degree of interconnectivity of Europe's economy. Especially at the beginning of the pandemic and in the absence of short-time precaution measures, already a "soft

blow" interrupting only a few distribution chains may have triggered an effect across entire Europe (and beyond).

Secondly, surveys in Sweden (König & Winkler, 2021) could show that the general call of the government for solidarity with vulnerable groups and social distancing were as effective measures at the beginning of the pandemic in Sweden, as was Austria's lockdown in terms of bringing the infections down. This however does not necessarily mean that also the effects on the economy were also similar. The most obvious argument against above line of argumentation is the development during the second half of 2020, where the Swedish set of recommendations remained in place, where Austria released its restrictions during the third quarter, only to tighten them again in the fourth quarter. If the Swedish recommendations and the Austrian restrictions were to trigger similar economic effects throughout entire 2020, then similar developments as for the second quarter would have to be expected also for the fourth quarter. But this is not the case, as the Swedish path of recovery contradicts the second Austrian downturn during the fourth quarter.

Based on the initial comparison of economic developments in the two focus countries and the significantly different path of recovery in Sweden as opposed to Austria, the author will further investigate these developments based on statistical correlations.

6 Pearson's Product Moment Correlation Coefficient

Having discussed selected macroeconomic variables, this paper strives to investigate the correlation between the country specific policies and these macroeconomic developments. Such correlation has been frequently claimed in literature (Bondadio et al., 2020). However, such relationship has not been shown in the papers, but will be done in the following section. This approach is expected to answer the research questions raised. To start with, this paper will explain the nature of the Pearson's product moment correlation coefficient in its statistical significance, followed by its application to the macroeconomic data in both Austria and Sweden. This will be the basis for according conclusions to identify differences in the country specific economic developments.

Buglear (2005) describes the importance of the correlation approach to determine the connection between two sets of variables. To "measure the strength of the association" (Buglear, 2005, pp. 225), the author applied the Pearson's product moment correlation coefficient. It "compares the co-ordinated scatter to the total scatter" (Buglear, 2005, pp. 225) of two data sets. Buglear (2005) presents the Pearson's correlation coefficient as co-variance-based product. It "multiplies the amount that each x deviates from the mean of the X values, x– by the amount that its corresponding y deviates from the mean of the Y values, y–" (Buglear, 2005, pp. 225).

The Pearson's correlation coefficient, short r, lies between +1 and -1, with +1 showing a perfect positive correlation and -1 showing a perfect negative correlation (Buglear, 2005). The more the coefficient approaches figures close to 0, the weaker the correlation gets. To achieve maximum coherence with existing description standards, this paper will use the terminology based on the following table by Buglear (2005, pp. 233).

Values of *r*	**Suitable adjectives**
+0,9 to +1,0	Strong, positive
+0,6 to +0,89	Fair/moderate, positive
+0,3 to +0,59	Weak, positive
0,0 to +0,29	Negligible/scant positive
0,0 to -0,29	Negligible/scant negative
-0,3 to -0,59	Weak, negative
-0,6 to -0,89	Fair/moderate, negative
-0,9 to -1,0	Strong, negative

Table 9: Buglear description of correlation levels

To be able to accept or reject a hypothesis, Good (2005, pp. 98) underlines the importance of "p-values and significance levels". This paper will use the indicated significance level of 5%, which translates into 0,05 as p-value threshold. As this paper strives for statistical significance, it is especially low p-values that the author is interested in, to ensure the robustness of the correlation.

The policy decisions as translated into figures are the independent variables, whereas the respective macroeconomic data, such as GDP, external balance of goods and services, final consumption expenditures and employment development, serve as dependent variables.

A prerequisite to establish Pearson's product moment correlation coefficients and to replicate selected research results from the literature review, is to translate the verbalised policy decisions into figures. The author therefore assessed the policy decisions along a scale from 0 to 1 and attributed figures according to their level of implementation. 1 stands for mandatory countrywide lockdown measures and was given to Austria in the second quarter 2020 and fourth quarter 2020. 0,25 was given to less severe recommendations by a government, which were not legally binding and included hygiene measures and social distancing, but not nationwide curfews or remote work. This was the case for Sweden from the second to the fourth quarter 2020, as well as in Austria in the third quarter 2020. 0 was chosen if the majority of weeks of a quarter did not show any policy decisions related to COVID-19, e.g., the first quarter 2020 in Sweden and Austria.

The translation of verbalised policies into figures therefore includes:

- 0 for no policy measures
- 1 for heavy restrictions and
- 0,25 for moderate recommendations.

The author is aware that such translation is an approximation only, which could be more refined in terms of monthly actions or scaling numbers. The main point however is to investigate the connection between legally binding policy decisions on economy versus "soft" recommendations. Moreover, EUROSTAT does not provide monthly

figures, which is why a quarterly approach, based on approximated policy figures will serve as the current basis for analysis and discussion.

6.1 Correlation between country policies and macroeconomic developments during 2020

This paper expects a lower, if any, correlation between Sweden's recommendation and its economic development, as opposed to Austria, where a stronger correlation between stricter policies and economic indicators is expected. In mathematical terms this would translate into a standard H0 hypothesis, where no correlation between policies and macroeconomic exists and the p-value as indicator of acceptance or rejection of H0. This paper expects a rejection of according H0 in all cases, but different degrees of correlation strengths of correlations dependent upon the countries' policy measures.

The author is aware of the three main research questions and their H1 hypotheses. Therefore, this additional correlation based H0 rejection is considered an additional instrument supporting the research efforts to answer the previously introduced three research questions. As the correlation approach serves as underlying supporting information, the author will also refrain from explicitly adding the correlation-based hypotheses but will consider it in the conclusion.

6.1.1 Correlation of policies and macroeconomics in Sweden

The four pre-discussed macroeconomic dimensions will now be discussed as regards their correlation to Sweden's policy measures.

6.1.1.1 GDP Correlation in Sweden

One of the key macroeconomic indicators is the GDP at market prices and how it is correlated to the Swedish "light" policy recommendations that were established as of end March 2020 for the entire year.

Sweden	Q1 - 2020	Q2 - 2020	Q3 - 2020	Q4 - 2020	p-value	Pearson's Correlation
Country Policies	0	0,25	0,25	0,25	0,0000132	-0,1873879
GDP	119.554,30	110.319,70	119.348,10	122.924,30		

Table 10: Correlation of country policies with Sweden's GDP

As expected, the Pearson's correlation coefficient lies at -0,187, which indicates a negligible negative relationship. A p-value of 0.001% (threshold ≤ 5%) points at significant robustness. The result reflects a very low correlation between Sweden's established policy measures and its overall association with the GDP development, which means that H0 (null correlation) can be rejected, in line with the author's expectations.

6.1.1.2 Balance of External Goods' Correlation in Sweden

The next indicator covers the difference between exporting and importing goods. This paper investigates the correlation between this trade balance and the Swedish policy recommendations.

Sweden	Q1 - 2020	Q2 - 2020	Q3 - 2020	Q4 - 2020	p-value	Pearson's Correlation
Country Policies	0	0,25	0,25	0,25	0,0000400	0,0637429
Balance of External Goods	4.878,70	4.547,50	4.873,90	5.339,20		

Table 11: Correlation of country policies with Sweden's Balance of External Goods

This examination finds a close to 0 (0,063) and therefore negligible positive correlation between trade balance and Sweden's "soft" policies. Given the robust p-value of 0,004% (threshold ≤ 5%) the author rejects the H0 hypothesis, as expected, and underlines the negligible positive relationship between trade balance and Sweden's policies.

6.1.1.3 Household Expenditure Correlation in Sweden

This analysis looks at the final consumption expenditure in Sweden from an overall perspective and explores its relation to Sweden's recommended measures.

Sweden	1 - 2020	Q2 - 2020	Q3 - 2020	Q4 - 2020	p-value	Pearson's Correlation
Country Policies	0	0,25	0,25	0,25	0,3458098	0,1065186
Household Expenditure	-2	-7,8	6,3	-0,8		

Table 12: Correlation of country policies with Sweden's Household Expenditure

In this case the p-value proves to lie above the threshold of 5%, which means that no correlation between consumption expenditure and Sweden's policy measures in 2020 could be shown.

6.1.1.4 Employment Development Correlation in Sweden

The exploration of the employment development presents the following picture:

Sweden	Q1 - 2020	Q2 - 2020	Q3 - 2020	Q4 - 2020	p-value	Pearson's Correlation
Country Policies	0	0,25	0,25	0,25	0,2256813	-0,0141407
Employment Development	-0,3	-2	0,5	0,5		

Table 13: Correlation of country policies with Sweden's Employment Development

Like with consumption expenditure, also the unemployment development comes with a p-value above the threshold, namely 22,57%. Also, here no correlation between unemployment and Sweden's policy measures can be found.

Again, the author needs to point at the methodology limitation concerning the EUROSTAT employment figures, as they do not reflect the change to part-time employment. The author expects this to be a decisive information, which cannot be drawn from the current statistics and is expected to have blurred this, and also Austria's picture in the upcoming correlation analysis.

6.1.2 Correlation of policies and macroeconomics in Austria

In a second step, the four previously selected macroeconomic indicators will be subject to exploring their correlation with the stricter Austrian policy measures.

6.1.2.1 GDP Correlation in Austria

This paper expects to find a stronger relation between restrictive lockdown measures set in Austria and the economic development during 2020.

Austria	Q1 - 2020	Q2 - 2020	Q3 - 2020	Q4 - 2020	p-value	Pearson's Correlation
Country Policies	0	1	0,25	1	0,0000351	-0,7239204
GDP	96.555,40	86.812,50	96.960,40	94.508,40		

Table 14: Correlation of country policies with Austria's GDP

The Pearson's correlation coefficient in this case shows a fair moderate negative trend (-0,724). Together with the p-value of 0,003%, we find a robust connection between the Austrian governmental restrictions and the GDP development. The negative trend reflects the opposite dimension of the data sets, meaning that the stricter the measures, the more the GDP contracts. This is in line with the previous considerations and replicates the GDP-strict-policy-correlation results as presented by König & Winkler (2021).

6.1.2.2 Balance of External Goods' Correlation in Austria

The same trend as observed with GDP and restrictions should also be reflected in Austria's trade balance.

Austria	Q1 - 2020	Q2 - 2020	Q3 - 2020	Q4 - 2020	p-value	Pearson's Correlation
Country Policies	0	1	0,25	1	0,0059970	-0,6137230
Balance of External Goods	3.334,60	1.975,90	4.193,40	3.319,80		

Table 15: Correlation of country policies with Austria's Balance of External Goods

The Pearson's correlation coefficient confirms the expectations in terms of a fair moderate negative coefficient of -0,614. It is supported by a solid p-value of 0,6%. The result confirms the expectations, where stricter lockdown measures seem to be correlated with a lower export-based trade balance.

6.1.2.3 Household Expenditure Correlation in Austria

This paper will now cover the two remaining correlations with stronger consumer focus. The author will start by investigating a potential correlation between Austrian household expenditures and restrictive country policies.

Austria	Q1 - 2020	Q2 - 2020	Q3 - 2020	Q4 - 2020	p-value	Pearson's Correlation
Country Policies	0	1	0,25	1	0,3092121	-0,5375133
Household Expenditure	-4,7	-11,2	12	-5,2		

Table 16: Correlation of country policies with Austria's Household Expenditure

Interestingly the p-value of 30,82% by far exceeds the 5% threshold, which does not allow to draw conclusions about correlations concerning household consumption.

6.1.2.4 Employment Development Correlation in Austria

Regarding the development of employment in Austria during 2020, a correlation with the stricter policies is expected in principle, but doubtful in the light of the data methodology, as applied by EUROSTAT.

Austria	Q1 - 2020	Q2 - 2020	Q3 - 2020	Q4 - 2020	p-value	Pearson's Correlation
Country Policies	0	1	0,25	1	0,2997198	-0,5843200
Employment Development	-0,20	-4,30	2,90	0,0		

Table 17: Correlation of country policies with Austria's Employment Development

With the p-value substantially above the threshold of 5%, also in this case, no correlation can be identified. This may again point at the data limitation of the original employment indicator, as explained.

6.2 Findings and Discussion

König & Winkler (2021) and Bondadio et al. (2020) have investigated the correlation between shutdown measures and their negative impact on GDP development. The author of this paper was able to replicate above findings by presenting a fair moderate negative correlation (-0,724) between Austria's GDP and the set of restrictions established. The Swedish results cannot be included into this comparison because in Sweden, no such restrictive policies were introduced during 2020.

In general, the expectations regarding stronger correlations with stricter measures could be confirmed, as demonstrated for Austria's GDP and trade balance, as opposed to Sweden's negligible relations. However, no correlations were found regarding household consumption expenditures or concerning employment in either country.

To put the correlation approach in a nutshell: Out of the four pre-selected economic indicators concerning GDP, trade balance, consumption expenditure and employment, correlations with country policies could be confirmed only for the first two, i. e. GDP and trade balance. For these two, moderate negative correlations were established for the country with the stricter policy measures Austria, whereas for Sweden's policy recommendations, the relationship was negligible.

7 Conclusion

Having explored the correlations between selected macroeconomic indicators and the policy decisions of each of the two countries, this paper will be able to answer the three research questions, established in beginning. The first focus lay on the policy decisions themselves and asked:

- *How did the policy decisions concern Austria's and Sweden's economy during the COVID-19 crisis?*

The conclusion from the previous correlation analysis shows a stronger connection between Austria's set of policy measures and its economic development than those of Sweden. While the author was not able to single out specific policy decisions, such as concrete weekly travel measures or curfews, especially the analysis of the shutdown measures during the second and fourth quarter 2020 in Austria present evidence for their interconnectedness with the GDP development.

As regards correlation, it shows a relationship between two variables, not necessarily a causality. This becomes especially noticeable, when comparing the GDP developments of Austria and Sweden during the second quarter 2020.

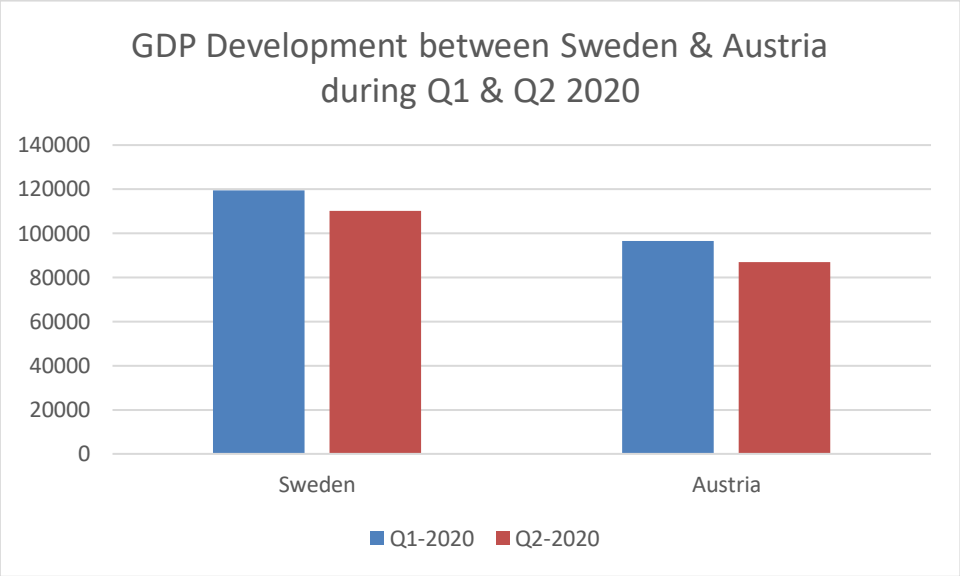

Figure 10: Comparison of GDP development between Austria and Sweden during Q1 & Q2 2020

Figure 9 visualises the GDP contraction after 3,5 months of the pandemic. Both GDPs show a sharp decline. The author sees three possible lines of explanation:

- Both GDPs decline irrespective of the individual country policies.
- Both GDPs faced the same development, caused by stronger international effects (interruption of supply chains) which overrode the country-specific measures.
- The policy measures of both countries, even though different in nature (voluntary in Sweden, involuntary in Austria), had the same effect on the GDP.

It has to be underlined that a correlation does not necessarily reveal a cause-and-effect relationship. It however, points at certain interconnections, which seems to be the case in Austria – a finding in line with previous research, e.g., König & Winkler (2021).

Moreover, the correlation depends to a large degree on the translation of the policy decisions into figures. As indicated in the previous section, the author emphasised the involuntary nature of policies, by translating Austria's restrictions to 1. This approach did not reflect the possibility, that the voluntary measures taken by Sweden could potentially have had a comparable effect, as their policies were translated to 0,25.

This methodological decision does however reflect the strictness of the imposed measures and the potential interruption of national supply chains. To control such methodological imbalance, the author replaced the 0,25 for the Swedish policy recommendations with 1, which would have indicated an equal approach for Sweden and for Austria. Even such adaptation of figures would not have led to a noticeable correlation between Sweden's policies and the GDP development.

The author therefore concludes that for the second quarter 2020, Austria's and Sweden's GDP were likely more impacted by global events, such as the interruption of supply chains. In addition, Austria's restrictive measures during the second quarter 2020 likely have contributed to the GDP contraction. As regards the further development of the GDP in the second half year of 2020, this part of the discussion will be covered under research question 3.

Concerning the balance of external good of services, the same basic trends both for Austria, as well as for Sweden could be identified during the second quarter 2020. While no noticeable correlation could be described in Sweden, a moderate negative outcome was presented for Austria, which leads the author to the same conclusions, as in the GDP discussion above.

The interpretation of the final consumption expenditure cannot be based on correlation grounds, because of the p-value mismatch for both countries. So far, the literature review could cover the situation in the United States only, where more detailed analyses regarding the final consumption expenditure within the EU-area, or specific countries like Sweden and Austria are currently missing. Therefore, this paper will fall short of more detailed explanations in this dimension but will have to rely on future research in the European geographies.

As far as the employment development in the focus countries is concerned, no correlations could be established, again in the light of mismatches for both p-values. In addition, the methodology of the EUROSTAT data does not reveal changes from full-time to part-time work and the short-time work programmes show a high degree of complex policy measures involved, which does not allow the author to interpret the data further but discuss them under research question 3.

Having explored selected economic connections in Austria and Sweden during 2020, this paper will now debate possible effects of country-specific decisions on their economic transformation by asking:

- *How do the COVID-19 policies translate to macroeconomic developments in Austria and Sweden?*

The EUROSTAT data provide a standardized and timely information for the entire EU-area in a multitude of macroeconomic factors. Out of these, the author has selected four representative indicators for highlight specific perspectives in the view of the crisis. The initial comparison of the country indicators was followed by a correlation analysis. It provided insight into the interconnectedness between Austria's policy restrictions and its macroeconomics, notably during the second and the fourth quarter of 2020, when nationwide shutdown measures took place. However, these restrictions also came with travel and mobility limitations and hygiene measures, as well as supporting measures for employers and employees. While the correlation analysis pointed at clear negative moderate relations between these measures and the economic factors of GDP and balance of exports in Austria, only a negligible correlation for these factors could be demonstrated for Sweden. No relation could be established between policy measures and final consumption expenditure or employment development, neither in Austria, nor in Sweden.

Despite the consumption-related findings discussed in the literature review, the author is not able to mirror the results by Baker et al. (2020) in the Swedish or Austrian consumption expenditure trends. This non-transferability may be caused by the fact that Baker et al. (2020) based their review on quite early figures from March and April 2020 and did not continue their observation throughout the entire year but providing initial snapshots only. In addition, Baker et al. (2020) observe the US market only, which developed differently and used different measures at different times and had altogether non-comparable COVID-19 exposure. The author therefore needs to refer to future analyses that take into consideration a longer time span and a European perspective to investigate a policy correlation with a shift in consumption expenditure, such as with groceries, durable food, or hygiene products.

Out of the above mentioned four selected indicators, the author finally focuses on discussing significant distinctions in the economic developments between Austria and Sweden, by asking:

- *Which macroeconomic factors have developed significantly different during the COVID-19 crisis in Austria and Sweden?*

The section started by discussing the GDP development during the second quarter 2020 under the first research question, including various explanation options. The final discussion will be dedicated to specific developments in the second half of 2020, where distinct differences between the two countries become obvious. This is especially true for the GDP after a sharp decline for both countries during the second quarter of 2020. While both Austria and Sweden observed some GDP growth during the third quarter of 2020, where policy measures in both countries were less restricted, the trend reversed for Austria. In the fourth quarter of 2020, Austria again faced both a strict lockdown and a GDP contraction, which were correlated, as analysed in the previous section. Unlike in Austria, GDP continued to grow in Sweden during the fourth quarter of 2020, which is a significant difference between the two countries.

One could be tempted to attribute this difference primarily to the restricted lockdown in Austria versus the voluntary recommendations in Sweden. This direction was also discussed in the literature review and the author could replicate these findings by means of correlation. However, this paper is careful in putting forward potentially premature conclusions for the following two reasons:

1) Firstly, the presented correlations do not necessarily show a causal relationship, in the sense that policy decisions triggered the GDP contraction.
2) Secondly, in comparing the fourth quarter to the second quarter, the differentiation is even more striking. While the Swedish GDP contracted in Q2 2020, it started to recover in the fourth quarter. Therefore, the two quarters show opposite trends in Sweden, despite the fact that no significant additional policy measures were implemented.

It is for these reasons that the author hesitates to oversimplify the connection between policy decisions and GDP developments. While the moderate correlation for Austria points at an impact of policy on GDP, the absence of mandatory restriction policies does not necessarily support macroeconomic developments.

A similar approach holds true for the balance of external goods development in Austria and Sweden. Also, here, the author could identify an established correlation in Austria, as opposed a negligible one in Sweden.

In this dimension the developments between the two countries are strikingly different. While in Austria the second quarter of 2020 brought a temporary contraction, the trend revealed a relaxation in the third quarter, which did not continue until the end of 2020. The Austrian development of the export and import of goods and services seems to bear a connection to the mandatory policy restrictions and is sharper in its downturns in the second and the fourth quarter of 2020. Moreover, it remained at a lower level throughout the entire year, as compared to Sweden.

The Swedish development started at a significantly higher level and its downturn during the second quarter 2020 was only a slight one. In the second half of 2020, the balance of goods and services recovered and even showed a slight growth. With its close to zero correlation to the Swedish recommendations, it demonstrated a growth path, which seems to contradict the Austrian development. Consequently, it can be stated that the balances of goods and services of Austria and Sweden started from different levels and that their developments are asymmetric, with only Austria correlated to mandatory policy restrictions.

On the other hand, as for final consumption expenditure and employment development, no correlations in either country can be confirmed. Still the developments are remarkably different. Also, here Sweden's final consumption expenditure started from a higher level at the beginning of the year, as compared to a lower start and a more drastic drop in Austria. In Sweden, the recovery phase was less strong than in Austria, but the overall losses were not as dominant as in Austria. As the author referred to the previous studies by Baker et al. (2020), more EU-centred

studies in this dimension are required to identify shifts within this dimension, which likely are not reflected in the quarterly EU-figures. It is for this reason that the author may not be in the position to identify a correlation and provide according explanation. For the time being the author supposes that also within the EU the overall expenditure behaviour may have been impacted by policy decisions, but that at the level of the quarterly EUROSTAT figures this impact cannot be demonstrated.

Regarding the employment figures, the author already pointed at the insufficient methodological approach and to the statistical shortcoming based on p-values that surmount the 5% threshold. Therefore, no final conclusion on the employment development in Austria and in the Sweden can be discussed at this point.

To sum up, the most striking differences between Sweden and Austria are twofold:

1) Austria shows significant correlations between its mandatory policy decisions and its GDP development, as well as with its balance of external goods and services. Sweden's correlations of these macroeconomic indicators with its policy recommendations are negligible.
2) The comparison of the four macroeconomic trends between Sweden and Austria reveals that Austria's indicators usually start from a lower level and reflect sharper declines, whereas Swedish figures appear more stable throughout the pandemic, even if slight declines at the beginning of the pandemic can be observed.

Although mortality rates do not form part of macroeconomic indicators, the author considers their inclusion central in the light of the overall target of this paper. While Sweden's GDP and export balance were less affected by the "soft" policy decisions than Austria's, this Swedish favourable economic development needs to be evaluated in the light of significantly higher COVID-19 mortality rates than in Austria. The death tolls, as presented in the introduction, amount to 13.498 in Sweden, as per April 2021, as compared to Austria with 9.189. This phenomenon cannot be necessarily attributed to the population density because Austria's population density is approximately four times that of Sweden. The author is aware that the overall population density is an approximation only, and that more detailed research is necessary to investigate the

infection percentage in the more densely populated cities as compared to the large Swedish countryside. Nevertheless, this development indicates that the strategic priority to flatten the infection curve was only reached to a lesser degree than with Austria's hard restrictive governmental restrictions.

7.1 Outlook

The author is aware of the limitations of this Bachelor Thesis investigation. In order to come to a fully-fledged picture, additional indicators need to be compared and require correlation analyses. In addition, the existing indicators selected above need to be analysed in more detail, e.g., detailed exports and imports, to arrive at the balance of goods and services. Moreover, certain methodological imbalances need to be considered more thoroughly, such as the changes between full-time and part-time changes within the overall category of employment. The author is convinced that the quantitative approach gives a solid initial insight into the overall trends. However, a complementary qualitative analysis, especially as regards the employment, may add to comprehend the complexities between policies and macroeconomics within the challenging situation of the pandemic. Further research will eventually support this paper and contribute to future decision making in Europe and beyond.

Bibliography

Baker, S. R., Farrokhnia, R. A., Meyer, S., Pagel, M., & Yannelis, C. (2020). How Does Household Spending Respond to an Epidemic? Consumption during the 2020 COVID-19 Pandemic. *The Review of Asset Pricing Studies*, 10(4), 834–862. https://doi.org/10.1093/rapstu/raaa009

Bonadio, B., Huo, Z., Levchenko, A. A., & Pandalai-Nayar, N. (2020). Global Supply Chains in the Pandemic. *SSRN*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3609677

Boumans, D., Sandqvist, A. P., & Sauer, S. (2020). What is the Recovery Path of the Global Economy? Findings from a Worldwide Survey of Economic Experts. ifo Institute, 73(10), 62-67. https://www.ifo.de/en/publikationen/2020/article-journal/wie-sieht-der-erholungskurs-der-weltwirtschaft-aus

Born, B., Dietrich, A., & Müller, G. (2020). The lockdown effect: A counterfactual for Sweden. *Centre for Economic Policy Research*. https://cepr.org/active/publications/discussion_papers/dp.php?dpno=14744

Buglear, J. (2005). *Quantitative Methods for Business; The A-Z of QM*. Elsevier Butterhworth-Heinemann.

Bundesgesetzblatt der Repunlik Österreich. (2021, May 30). COVID-19 Gesetz. *Republik Österreich Gesetz*. https://www.parlament.gv.at/PAKT/VHG/XXVII/BNR/BNR_00016/index.shtml

Bundeskanzleramt. (2020, February 24). Bundeskanzler Kurz zu Maßnahmen gegen Coronavirus: Österreich rüstet sich für alle Szenarien. *Bundeskanzleramt*. https://www.bundeskanzleramt.gv.at/bundeskanzleramt/nachrichten-der-bundesregierung/2020/bundeskanzler-kurz-zu-massnahmen-gegen-coronavirus-oesterreich-ruestet-sich-fuer-alle-szenarien.html

Bundeskanzleramt. (2021, February 23). Grenzschutzmaßnahmen. *Bundeskanzleramt*. https://www.bundeskanzleramt.gv.at/themen/covid-19-massnahmen-der-eu/grenzschutzmassnahmen.html

Claesson, F. (2020, March 11). One person has died as a result of the coronavirus. *SVT Nyheter*. https://www.svt.se/nyheter/lokalt/stockholm/en-person-har-avlidit-av-coronaviruset

Claeson, M., & Hanson, S. (2020). COVID-19 and the Swedish enigma. *The Lancet*, 397(10271), 259-261. https://doi.org/10.1016/S0140-6736(20)32750-1

Creswell, J., & Creswell, J. (2018). *Research Design: qualitative, quantitative, and mixed methods approaches*. Sage.

Cucinotta D., & Vanelli, M. (2020). WHO Declares COVID-19 a Pandemic. *Acta Biomed*, 91(1), 157-160. https://doi.org/10.23750/abm.v91i1.9397

Danielli, S., Patria, R., Donnelly, P., Ashrafian, H., & Darzi, A. (2020). Economic interventions to ameliorate the impact of COVID-19 on the economy and health: an international comparison. *Journal of Public Health*, 1-5. https://doi:10.1093/pubmed/fdaa104

Davis, G. (2021). The many ways COVID-19 affects households: Consumption, time, and health outcomes. *Review of Economics of the Household, 19*(2), 1-289. https://doi.org/10.1007/s11150-021-09563-w

Espitia, A., Mattoo, A., Rocha, N., Ruta, M., & Winkler, D. (2021) *Pandemic Trade: Covid-19, Remote Work and Global Value Chains. World Bank Group*, 1, 2-35. http://documents.worldbank.org/curated/en/843301610630752625/Pandemic-Trade-Covid-19-Remote-Work-and-Global-Value-Chains

EUROSTAT. (2021, May 30). Database. *EUROSTAT. https://ec.europa.eu/eurostat/web/main/data/database*

EUROSTAT. (2021, May 30). Metadata: Statistical Classification of Economic Activities in the European Community. *EUROSTAT. https://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_NOM_DTL&StrNom=NACE_REV2*

EUROSTAT. (2021, May 30). National Accounts. *EUROSTAT. https://ec.europa.eu/eurostat/web/national-accounts/data/main-tables*

Focus. (2020, March 19). 100 days with covid-19: From the fish market in Wuhan to the pandemic. *Fokus*. https://www.fokus.se/2020/03/100-dagar-med-covid-19-fran-fiskmarknaden-i-wuhan-till-pandemi/

Folkhälsomyndigheten Public Health Agency of Sweden. (2021, May 30). Inbjudan till pressträff: Ytterligare fall av covid-19 iflera regioner. *Folkhälsomyndigheten Public Health Agency of Sweden*. https://www.folkhalsomyndigheten.se/nyheter-och-press/nyhetsarkiv/2020/februari/inbjudan-till-presstraff-ytterligare-fall-av-covid-19-i-flera-regioner2/

Goniewicz, K., Khorram-Manesh, A., Hertelendy, A. J., Goniewicz, M., Naylor, K., & Burkle Jr, F. M. (2020). Current Response and Management Decisions of the European Union to the COVID-19 Outbreak: A Review. *Sustainability*, 12(9), 2-12. https://doi.org/10.3390/su12093838

Government Offices of Sweden (2020). COVID-19. *Government Offices of Sweden*. https://www.government.se/search/?page=13&query=COVID-19&orderby=date#result

Guterres, A. (2020, September 29). UN Secretary-General Antonio Guterres says coronavirus toll is 'mind-numbing'. *The Economic Times*. https://economictimes.indiatimes.com/news/international/world-news/un-secretary-general-antonio-guterres-says-coronavirus-toll-is-mind-numbing/articleshow/78379291.cms

Hair, J., Celsi, M., Ortinau, D., & Bush, R. (2017). *Essentials of Marketing Research*. McGraw-Hill Education.

Juranek, S., Paetzold, J., Winner H., & Zoutman F. (2020). Labour market effects of COVID-19: Sweden and its Scandinavian neighbours. *VOX EU*. https://voxeu.org/article/labour-market-effects-covid-19-sweden-and-its-neighbours

König, M., & Winkler, A. (2021). COVID-19: Lockdowns, Fatality Rates and GDP Growth: Evidence for the First Three Quarters of 2020. *Intereconomics*, 56(1), 32-39. https://www.intereconomics.eu/contents/year/2021/number/1/article/covid-19-lockdowns-fatality-rates-and-gdp-growth.html

Ludvigsson, J. F. (2020). The first eight months of Sweden's COVID-19 strategy. *Acta Paediatrica*, 109, 2459–2471. https://doi.org/10.1111/apa.15582

Ministry of Enterprise and Innovation. (2020, March 13). The Government appoints a coordinator in response to the impact of the COVID-19 virus on the business sector. *Government Offices of Sweden*. https://www.government.se/press-releases/2020/03/the-government-appoints-a-coordinator-in-response-to-the-impact-of-the-covid-19-virus-on-the-business-sector/

Ministry of Health and Social Affairs. (2020, March 20). Work in the areas of public health, medical care, social care, and social insurance with regard to the COVID-19 virus. *Government Offices of Sweden*. https://www.government.se/articles/2020/03/s-work-in-the-areas-of-public-health-medical-care-social-care-and-social-insurance-with-regard-to-the-covid-19-virus/

Ministry of Health and Social Affairs. (2020, April 09). Decisions and guidelines in the Ministry of Health and Social Affairs' policy areas to limit the spread of the COVID-19 virus. *Government Offices of Sweden*. https://www.government.se/articles/2020/04/s-decisions-and-guidelines-in-the-ministry-of-health-and-social-affairs-policy-areas-to-limit-the-spread-of-the-covid-19-virusny-sida/

Ministry of Health and Social Affairs. (2020, July 08). Plan for the event of new outbreaks of COVID-19. *Government Offices of Sweden*. https://www.government.se/press-releases/2020/07/plan-for-the-event-of-new-outbreaks-of-covid-19/

Ministry of Finance, & Ministry of Infrastructure. (2020, March 18). State credit guarantees to airlines and expanded credit guarantee framework for the Swedish Export Credit Agency to mitigate the effects of SARS-CoV-2. *Government Offices of Sweden*. https://www.government.se/press-releases/2020/03/state-credit-guarantees-to-airlines-and-expanded-credit-

guarantee-framework-for-the-swedish-export-credit-agency-to-mitigate-the-effects-of-sars-cov-2/

Ministry for Foreign Affairs. (2020, October 22). Advice against travel to Estonia, Ireland, Latvia and Lithuania extended. *Government Offices of Sweden*. https://www.government.se/press-releases/2020/10/advice-against-travel-to-estonia-ireland-latvia-and-lithuania-extended/

Ministry of Justice. (2020, March 19). In response to the European Council's and the European Commission's call for travel restrictions, the Government decided on 17 March to temporarily stop non-essential travel to Sweden from all countries except those in the EEA and Switzerland so as to mitigate the effects of the outbreak of the COVID-19 virus and reduce the spread of the disease. *Government Offices of Sweden*. https://www.government.se/press-releases/2020/03/temporary-ban-on-travel-to-sweden-due-to-covid-19/

Ministry of Justice. (2020, March 13). Ordinance on a prohibition against holding public gatherings and events. *Government Offices of Sweden*. https://www.government.se/articles/2020/03/ordinance-on-a-prohibition-against-holding-public-gatherings-and-events/

Ministry of Justice. (2020, May 14). Extension of temporary entry ban to the EU via Sweden due to COVID-19. *Government Offices of Sweden*. https://www.government.se/press-releases/2020/05/extension-of-temporary-entry-ban-to-the-eu-via-sweden-due-to-covid-19/

Ministry of Justice. (2020, October 22). Extension of temporary entry ban to Sweden until 22 December 2020. *Government Offices of Sweden*. https://www.government.se/press-releases/2020/10/extension-of-temporary-entry-ban-to-sweden-until-22-december-2020/

Ministry of Justice. (2020, December 22). Ban on entry into Sweden from the United Kingdom and Denmark. *Government Offices of Sweden*. https://www.government.se/press-releases/2020/12/ban-on-entry-into-sweden-from-the-united-kingdom-and-denmark/

Ministry of Justice. (2020, December 30). Negative COVID-19 test result required for entry into Sweden from UK. *Government Offices of Sweden*. https://www.government.se/press-releases/2020/12/negative-covid-19-test-result-required-for-entry-into-sweden-from-uk/

Pierre, J. (2020). Nudges against pandemics: Sweden's COVID-19 containment strategy in perspective. *Policy and Society*, 39(3), 478-493. https://doi.org/10.1080/14494035.2020.1783787

Pollak, M., Kowarz, N., & Partheymüller, J. (2020). Chronology of the Corona Crisis in Austria - Part 1: Background, the way to the lockdown, the acute phase and economic consequences. *Universität Wien*. https://viecer.univie.ac.at/corona-blog/corona-blog-beitraege/blog51/

Pollak, M., Kowarz, N., & Partheymüller, J. (2020). Chronology of the Corona Crisis in Austria - Part 2: From the first easing of measures towards restoring normality. *Universität Wien*. https://viecer.univie.ac.at/en/projects-and-cooperations/austrian-corona-panel-project/corona-blog/corona-blog-beitraege/blog60/

Pollak, M., Kowarz, N., & Partheymüller, J. (2020). Chronology of the Corona Crisis in Austria - Part 3: A calm summer and the beginning of the second wave. *Universität Wien*. https://viecer.univie.ac.at/en/projects-and-cooperations/austrian-corona-panel-project/corona-blog/corona-blog-beitraege/blog79/

Pollak, M., Kowarz, N., & Partheymüller, J. (2020). Chronology of the Corona Crisis in Austria - Part 4: Lockdowns, mass testing and the launch of the vaccination campaign. *Universität Wien*. https://viecer.univie.ac.at/en/projects-and-cooperations/austrian-corona-panel-project/corona-blog/corona-blog-beitraege/blog100-en/

Prime Minister's Office. (2020, March 23). Prime Minister's address to the nation, 22 March 2020. *Government Offices of Sweden*. https://www.government.se/speeches/2020/03/prime-ministers-address-to-the-nation-22-march-2020/

Prime Minister's Office. (2020, April 6). Strategy in response to the COVID-19 pandemic. *Government Offices of Sweden*. https://www.government.se/articles/2020/04/strategy-in-response-to-the-covid-19-pandemic/

Prime Minister's Office. (2020, November 20). European Council meeting on the COVID-19 pandemic. *Government Offices of Sweden*. https://www.government.se/articles/2020/11/european-council-meeting-on-the-covid-19-pandemic/

Risak, M. (2020). COVID-19 and Labour Law: Austria. *Italian Labour Law e-Journal*, 13(1), 1-3. https://doi.org/10.6092/issn.1561-8048/10787

SCB. (2021, March 03). Population statistics. *SCB*. https://www.scb.se/en/finding-statistics/statistics-by-subject-area/population/population-composition/population-statistics/

Schengenvisainfo news. (2020, April 09). Austria Prolongs Internal Border Controls to April 27. *Schenvisainfo news*. https://www.schengenvisainfo.com/news/austria-prolongs-internal-border-controls-to-april-27/

Schengenvisainfo news. (2020, March 11). Austria Bans Italians from Entering Due to Coronavirus. *Schenvisainfo news*. https://www.schengenvisainfo.com/news/austria-bans-italians-from-entering-due-to-coronavirus/

Schengenvisainfo news. (2020, June 5). Austria Lifts Entry Restrictions for Neighbouring Countries – Excludes Italy. *Schenvisainfo news*. https://www.schengenvisainfo.com/news/austria-lifts-entry-restrictions-for-neighbouring-countries-excludes-italy/

Schengenvisainfo news. (2020, June 20). Austria Abolishes Entry Restrictions for Essential Travel from 32 European Countries – Opens Border with Italy. *Schenvisainfo news*. https://www.schengenvisainfo.com/news/austria-abolishes-entry-restrictions-for-essential-travel-from-32-european-countries-opens-border-with-italy/

Schengenvisainfo news. (2020, July 03). Austria Abolishes Quarantine for Some Schengen/EU Residents – Keeps Borders Shut for Third-Countries. *Schenvisainfo news*. https://www.schengenvisainfo.com/news/austria-abolishes-quarantine-for-some-schengen-eu-residents-keeps-borders-shut-for-third-countries/

Shaun, D., Raman, P., Patrice, D., Hutan, A., & Ara, D., (2021). Economic interventions to ameliorate the impact of COVID-19 on the economy and health: an international comparison. *Journal of Public Health*, 43(1), 42–46. https://doi.org/10.1093/pubmed/fdaa104

Statista. (2021, April 7). Cumulative number of coronavirus (COVID-19) deaths in Sweden since March 2020. *Statista*. https://www.statista.com/statistics/1105753/cumulative-coronavirus-deaths-in-sweden/

Taylor, D. B. (2021, March 17). A Timeline of the Coronavirus Pandemic. *The New York Times*. https://www.nytimes.com/article/coronavirus-timeline.html

Van Hoek, R. (2020). Research opportunities for a more resilient post-COVID-19 supply chain - closing the gap between research findings and industry practice. *International Journal of Operations & Production Management*, 40(4), 341-355. https://www.emerald.com/insight/content/doi/10.1108/IJOPM-03-2020-0165/full/html

Wolf, B. (2020, March 31). The Coronavirus in Austria & Vienna | What Happened in March. *Metropole*. https://metropole.at/coronavirus-in-austria-march/

World Health Organization. (2021, May 30). WHO Coronavirus (COVID-19) Dashboard. *World Health Organization*. https://covid19.who.int

Xi, J. (2020, September 28). Factbox: Selected Quotes as COVID-19 Pandemic Reaches New Milestone. *U.S. News & World Report.* https://www.usnews.com/news/world/articles/2020-09-28/factbox-selected-quotes-as-covid-19-pandemic-reaches-new-milestone