

# Chapter 14

## Covid-19 and Swiss Post: Volume Developments and the Economic Value of Postal Service, in the Pandemic and Beyond



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### 1 Introduction

There is no need to apply scientific approaches to see that the Covid-19 pandemic had a substantial impact on the postal industry. For perhaps the first time, mail order was given a new role as part of a necessary basic service that was no longer just the luxury of internet-savvy sections of the population. In the course of the pandemic, Postal Service Providers in general, and Universal Service Providers in particular, played a crucial role in ensuring the supply of the population with goods of all kinds that they normally purchased in traditional bricks-and-mortar stores. The growth rates of e-commerce – and correspondingly of parcel volumes – in 2020 were as high as in several normal years combined, in a market that had already been growing strongly for some time. By contrast, mail, the classical postal product, received no comparable attention, and the quantities fell more sharply than in previous years, which had already been marked by a sharp decline.

This chapter analyses the effects of the pandemic on Swiss Post activities and is organized as follows: After a short literature review in Sect. 2, we analyze the pandemic's impact on volume patterns in Sect. 3. Section 4 highlights the wider economic value generated by Swiss Post through its role as an e-commerce enabler during the pandemic. Section 5 comments on the shortcomings of our analysis and Sect. 6 concludes.

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We thank participants at the 29th Conference on Postal and Delivery Economics for their valuable inputs, especially Ted Pearsall who discussed our work thoroughly.

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## 2 Literature Review

There is an extensive literature on the economic justifications or benefits of a USO. Significantly, many studies focus on the value of the Universal Service Obligation (USO) rather than on the value of the postal operator itself. In fact, there is a close link between a postal operator's generation of socioeconomic value and its USO.

Crew and Kleindorfer (2000) argue that the combination of ubiquity and uniformity in prices is the basis of the USO's benefit because it reduces transaction costs for customers. Other arguments often raised are that the USO can be seen as an instrument to correct market inefficiencies in the presence of network externalities or as an instrument for rural development because it usually includes redistributive pricing that makes postal delivery affordable in sparsely populated areas (Cremer et al., 2008).

Several authors have described the market enabler-role of postal operators. For example, Jaag and Trinker (2011) argue that postal operators act as enablers of other parts of the economy as they link buyers and sellers. The importance of e-commerce delivery as a basic service has only recently been described. Copenhagen Economics (2020) assessed the role of national postal operators in connecting e-sellers in peripheral regions to their customers and thus, their impact on rural development. Our study analyses the impact of Swiss Post in the pandemic using similar economic logic, but examines the general importance of e-commerce during the pandemic with no specific focus on peripheral regions.

Borsenberger (2020) argued that the emergence of new technologies have extended the type of benefits (potentially) provided by postal operators through their network, now including indirect benefits through the postal operators' inclusive involvement in the digital economy, in elderly society and in a sustainable circular economy.

Pindus et al. (2010) provide a general framework for measuring the social value of the United States Postal Service. They identify eight broad categories of social values and present possible metrics and methods for quantifying them. In our work, we mainly focus on purely economic benefits and on the production side because it is easier to quantify than the consumption side.

An obvious approach for measuring the value of postal services from the consumption side is to identify the consumer surplus by comparing the willingness to pay (WTP) of customers with what they actually have to pay for the services (see Ellison et al., 2016, for an application to the UK's postal network). Some studies also identify the WTP for specific services or certain USO dimensions (e.g., RAND Europe, 2011; Copenhagen Economics, 2010; Lindhjem & Pedersen, 2012). Other studies conduct cost-benefit analyses using a willingness to pay approach in order to identify the optimal scope of the USO (see, e.g., Lindhjem & Pedersen, 2012 and Houpis et al., 2015).

Several studies quantitatively show that postal services are crucial for economic development. Boldron et al. (2008) argue that postal outlets in France play an

important role in local economic development by generating spillovers and positive demand externalities for commercial services. Rogowski et al. (2021) show that post offices in the US positively affected economic development in both the long and short terms.

Our main approach is yet another one: We conduct an input-output analysis in order to estimate Swiss Post’s indirect contributions to the national economy – both through its own operations and through its role as an e-commerce enabler. To our knowledge, the study from Deloitte (2018) about Australia Post is the only one that conducted a comparable analysis for a postal operator. It finds that for every \$ 1 in value added directly created Australia Post generates another \$ 0.86 in other industries, and that for every full-time equivalent (FTE) worker directly employed Australia Post creates almost another one working position elsewhere in the economy.

### 3 The Pandemic in Switzerland and its Effects on Postal Operations

#### 3.1 The Course of the Pandemic in Switzerland

The course of the covid-19 pandemic in Switzerland is shown in Fig. 14.1. The pandemic started in early 2020, much at the same time as in the rest of Europe, when cases began to rise quickly. The first shutdown, which included the closure of all non-food and non-essential stores, started on March 17th and lasted seven weeks until May 11th (shutdown I). In this paper, taking an economic point of view, we

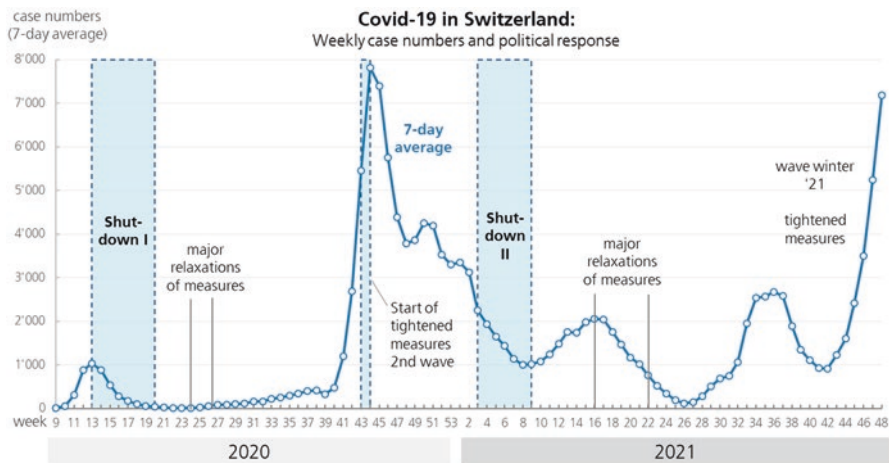


Fig. 14.1 The course of the Covid-19 pandemic in Switzerland. (Source: Federal Office of Public Health, own representation)

consider the start of this shutdown as the start of the pandemic. With the shutdown, case numbers decreased again within a few weeks.

In autumn 2020, the second wave started when case numbers started to ascend quickly to levels several times above the first wave, with a peak of the 7-day-average at the end of October. This led to a political response in the form of tightened measures (although not yet a shutdown), and case numbers soon declined again, yet still remained at a level that could be considered high compared to the first wave until the beginning of 2021. In mid-January, the Swiss government initiated a second shutdown (shutdown II) which lasted until the end of February, a total time of six weeks. With the increasing number of administered vaccinations, major relaxations of the political measures occurred in April and June 2021. In winter 2021, cases numbers increased steeply, again, the government has so far avoided another shutdown.

### 3.2 Parcel Volumes in the Course of the Pandemic

#### 3.2.1 The Data: Looking Back and Forward

Using weekly data on the number of domestic parcels processed by Swiss Post, Fig. 14.2 shows how parcel volumes have developed in every calendar week of 2019, 2020 and 2021. There are five major observations:

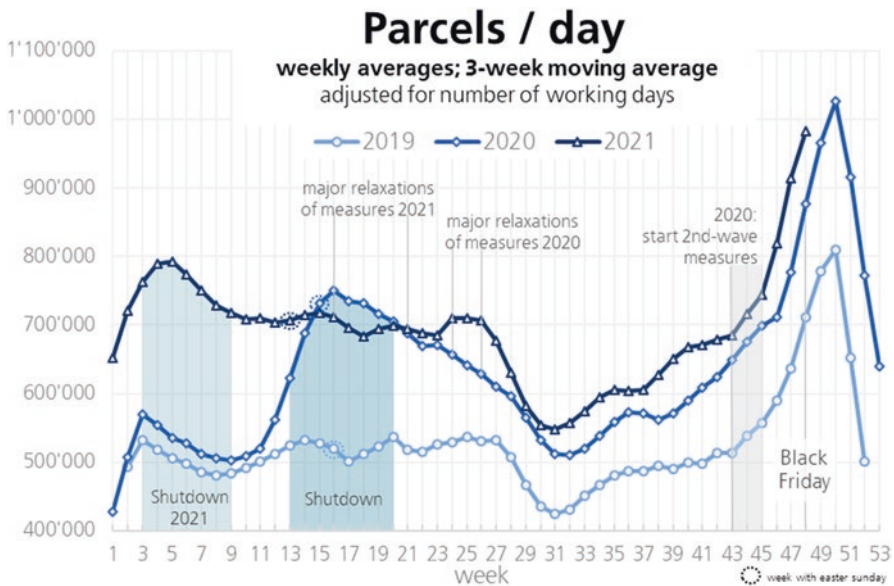


Fig. 14.2 Parcel volumes (domestic) of Swiss Post 2019–2021 and political milestones of the Covid-19 pandemic in Switzerland. (Sources: Swiss Post, Federal Office of Public Health)

First, we observe that volumes in the first 12 weeks of the year 2020 were roughly 5% above those in 2019, in line with the growth trend of the years before.

Second, in the first shutdown in 2020, volumes increased sharply from around 600'000 to up to 900'000 parcels per day. This indicates a clear shutdown-effect.

Third, after the shutdown, the 2019 and the 2020 curve approached each other to a certain degree but remained further apart than in the first 12 weeks of the year. In total, Swiss Post delivered 180 million domestic parcels in 2020, compared to 147 million in 2019 (+22.8%).

Fourth, in 2021, parcel volumes reached above the pre-pandemic numbers from the year before and even increased further during the shutdown in early 2021, to levels similar to the first shutdown in 2020. This indicates an impact of the second shutdown.

Fifth, after week 20 of 2021, when we are able to compare a relatively smooth pandemic situation in 2020 to a relatively smooth pandemic situation in 2021, volumes have remained above the levels of 2020, close to the pre-pandemic growth trend of about 5% per year (or even slightly above this trend). This development persisted also when case numbers rose again at the end of 2021. With all due caution, we may interpret this as an indication for a lasting level effect on volumes caused by the pandemic. At the same time, parcels' volume growth continues, driven by fundamental developments such as demographics and improving convenience of online shopping.

### 3.2.2 Operative Situation

Especially in the early days of the pandemic, it was difficult for Swiss Post to process the unexpected large volumes. This was not only due to the high quantities themselves, but also to the restrictions caused by the pandemic, e.g., the absence of many employees and the protective measures in the sorting centers and in the delivery.

Due to the exceptional situation, the national regulation authority for the universal postal service, PostCom, has agreed that Swiss Post would not consider the periods from March to July and October 2020 to February 2021 for measuring the punctuality of parcels (the Swiss USO requires that 95% of all parcels have to be delivered on time, which means D+1 for priority parcels and D+3 for standard parcels).

Unlike the shutdown period during spring 2020, Swiss Post was able to anticipate the high parcel volumes in the following autumn and winter. A number of measures were taken to cope with the record volumes. One such measure was the processing of smaller parcels in the letter centers – totaling up to 150,000 items a day.<sup>1</sup> Furthermore, and just at the right time, two regional parcel centers opened in

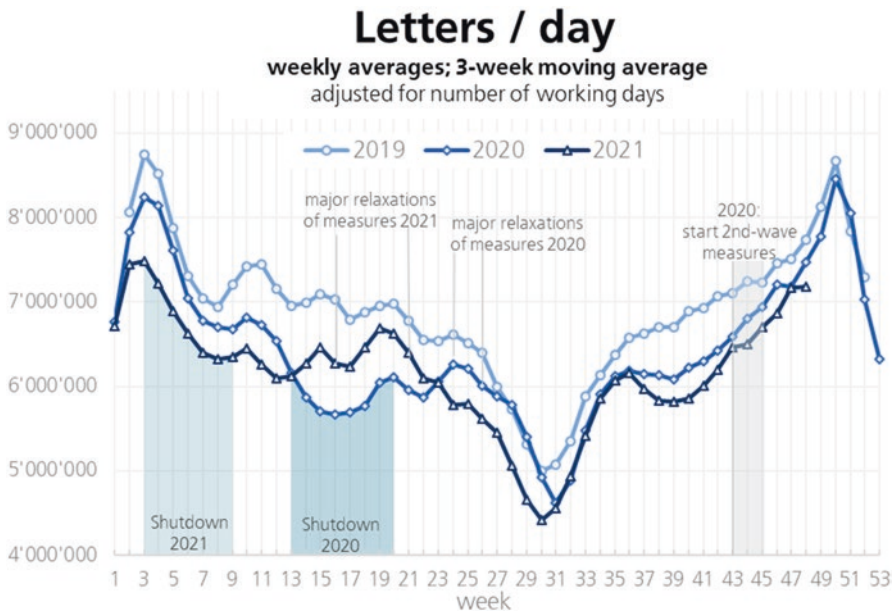
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<sup>1</sup>For more details see Swiss Post, “Swiss Post breaks record once again”, press release 4 December 2020.

September and November 2020 respectively and eased the burden on the four existing parcel centers, and special shifts in sorting centers made it possible that parcels were sorted for up to 22 hours per day. Moreover, personnel in sorting centers and delivery were increased by up to 30%, up to 400 additional delivery rounds per day were carried out with around 300 extra delivery vans rented and delivery on Saturdays was introduced. In addition, thanks to a close dialog with corporate accounts, the mail-order companies helped in the process. They pre-sorted parcels, separated them by size and specific areas and announced the expected volumes in advance. Small parcels were transported to the letter centers from the very outset while bulky goods were sorted at the beginning of the process.

### 3.3 Mail Volumes in the Course of the Pandemic

Using weekly data of letters processed by Swiss Post (including international mail),<sup>2</sup> Fig. 14.3 shows how volumes have developed in every calendar week of 2019, 2020 and 2021. Compared to parcels, the patterns are generally reversed and less pronounced. There are five major observations.



**Fig. 14.3** Letter volumes of Swiss Post 2019–2021 and political milestones of the Covid-19 pandemic in Switzerland. (Sources: Swiss Post, Federal Office of Public Health)

<sup>2</sup>Due to differences in the data generating process, these numbers differ slightly from those of the official reporting of Swiss Post.

First, we observe that volumes in the first 12 weeks of the year 2020 were roughly 5% below those in 2019, in line with the growth trend of the years before. Second, in the first shutdown in 2020, volumes decreased sharply from around 7 million letters per day in 2019 to below 6 million letters per day in 2020. This indicates a clear shutdown-effect.

Third, after the shutdown, the 2019 and the 2020 curve approached each other to pre-pandemic levels. In total, Swiss Post delivered 1.829 million letters in 2020, compared to 1.938 million in 2019 (−5.6%). Notably, the volume of priority mail did not decline for the first time since 2012 and the total volume decline was purely driven by non-priority items. This may be attributed to the pandemic as urgent communication, for instance by public authorities, became relatively more important.

Fourth, in 2021, letter volumes in the first few weeks of the year roughly were what would have been expected without the pandemic. The second shutdown does not leave an obvious trace in the graph, indicating that the second shutdown had no effect on letter volumes.

Fifth, after week 20 of 2021, when we compare a relatively smooth pandemic situation in 2020 to a relatively smooth pandemic situation in 2021, volumes have remained below the levels of 2020, close to the pre-pandemic negative growth trend of about −5% per year. This development persisted also when case numbers rose again at the end of 2021.

Due to the exceptional situation in 2020, the national regulation authority for the universal service, PostCom, decided to exclude the periods mid-March to July and December 2020 for measuring the punctuality of letters. (The Swiss USO requires that 97% of all letters have to be delivered on time, which means D+1 for priority letters and D+3 for standard letters).

### ***3.4 How Much Did the Pandemic Influence Volume Developments in 2020?***

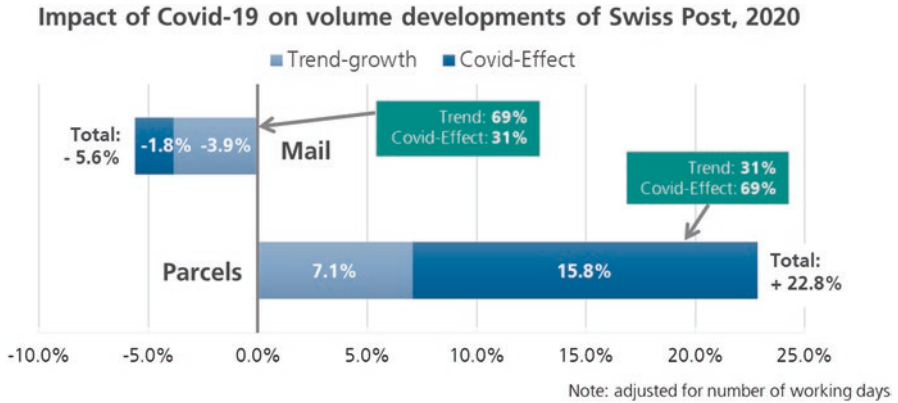
In 2020, Swiss Post saw both its greatest decline in mail volumes and its greatest growth in parcel volumes: Mail volumes declined by 5.6% and parcel volumes increased by 22.8%. We try to estimate how volumes would have developed without the pandemic by using the trend between the first 12 weeks of 2020 and the first 12 weeks of 2019 as a proxy for the rest of the year. We adjust the data for the number of working days which differed between 2019 and 2020 (2020 had five working days more than 2019<sup>3</sup>). Figure 14.4 shows the results.

Without the pandemic, we would have expected a volume decline for mail of 3.9%. This number is slightly lower compared to the rates in the last few years,

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<sup>3</sup>We do not fully compensate the data for working days, however, as some the number of working days has an effect on only some letters and parcels.





**Fig. 14.4** Decomposition of growth rates 2020 in trend and Covid-effect

which saw an average decline of 4.7% between 2017 and 2019. A further decline of 1.8% is attributed to the pandemic.

With respect to parcels, we would have expected a growth rate of 7.1% without the pandemic, which is slightly higher than the average growth rate between 2017 and 2019 at 6.5%. A further growth of 15.8% can be attributed to the pandemic.

### 3.5 The Impact of Pandemic Periods on Volumes

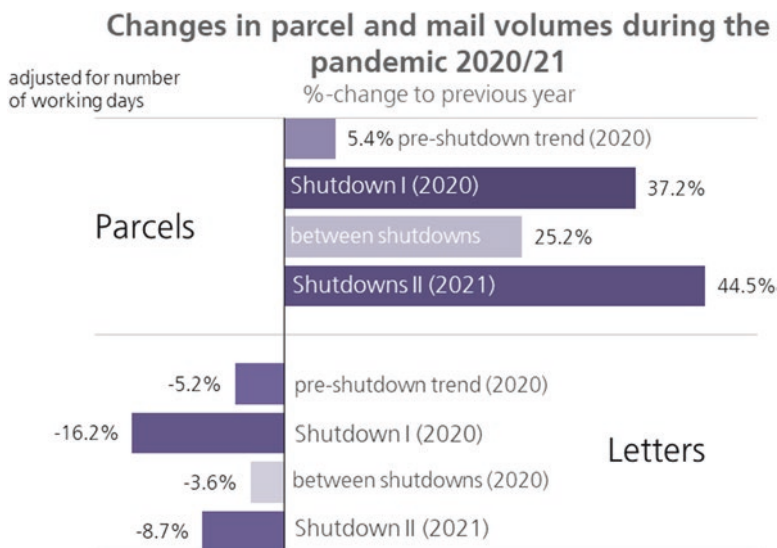
Figure 14.5 shows volume trends in comparison to the same weeks a year before for four different periods: the pre-pandemic period (weeks 1–12 in 2020), the first shutdown (weeks 13–19 in 2020), the period in-between shutdowns (week 20 in 2020 to week 2 in 2021) and the second shutdown (weeks 3–8 in 2021). All comparison periods are pre-pandemic and adjusted for the number of working days in each period.

For both parcels and letters, the two shutdowns had a large impact on volumes. In the first shutdown in spring 2020, parcel volumes increased by 37.2% (compared to the same period the year before), compared to a pre-shutdown trend of 5.4%. The increase in the second shutdown in the beginning of 2021 was even greater at 44.5%, but the weekly volume developments in the second shutdown are statistically not differentiable from the weekly volume developments of the first shutdown ( $p = 0.13$ , two-sided t-test<sup>4</sup>). Between shutdowns, the volume increase was 25.2%, and the weekly volume developments were significantly lower than in the two shutdowns, respectively ( $p < 0.01$ , two-sided t-tests, respectively).

With respect to letters, a similar pattern with different sign occurs. Volume declines have been accentuated during the two shutdowns. Statistically, only the

<sup>4</sup>The t-test (two-sample with the assumption of unequal variances) is arguably not the most accurate statistical test that could be employed in this context. But we think it gives us a sufficiently well founded indication of what we want to test.





**Fig. 14.5** Changes in parcel and mail volumes during different periods of the pandemic 2020/21

volume developments in shutdown I differ significantly from the pre-shutdown weeks and the period between shutdowns ( $p < 0.002$ , respectively, two-sided t-tests). The volume developments in shutdown II are statistically not distinguishable from the volume developments between the shutdowns ( $p = 0.35$ ) or pre-shutdown-levels ( $p = 0.21$ ).

#### 4 Generating Wider Economic Value as an e-Commerce Enabler

Between 2019 and 2020, e-commerce consumption in Switzerland increased by 27.2% (GfK Switzerland AG, 2021). Especially during the two shutdowns in spring 2020 and winter 2021, when non-food and non-essential stores in Switzerland were closed for 7 and 6 weeks respectively, mail order-became a necessary basic service for the Swiss population. Also, in the time between or after the shutdowns, when stores reopened again, many people chose mail-order as a saver alternative to shopping in crowded stores. As Switzerland’s universal postal operator, Swiss Post has been playing a crucial role in enabling this development. Despite the challenges of the pandemic, it could guarantee an efficient and reliable delivery of thousands of e-commerce deliveries per day to all areas of Switzerland. Considering Swiss Post’s high market share in the parcel market (2020: 83%<sup>5</sup>), we assume that other postal operators alone would not have been able to handle the high volumes during the

<sup>5</sup>For domestic parcels included by the universal service obligation

pandemic. In this sense, one can state that the rapid e-commerce growth could not have been achieved without Swiss Post.

Online traders were not the only businesses that could benefit from the e-commerce boom enabled by Swiss Post. Also several upstream sectors such as wholesale, IT, financial services, or advertising, provide important inputs for the (online) retail sector and could as well benefit from the e-commerce boom. In this sense, Swiss Post has fundamentally supported many parts of the national economy during the pandemic. By means of an input-output model developed by Swiss Post, we have quantified the extent of this support.

## 4.1 Methodology

Our input-output model was initially developed to quantify Swiss Post's direct and indirect economic contribution through its own operations (and not through its role as enabler of other businesses). In this contribution, we focus on Swiss Post's economic contribution through its role as e-commerce enabler. For this purpose, we have concentrated on the economic contribution of the e-commerce sector enabled by Swiss Post.

In a first step, we estimated the revenues earned by online traders thanks to Swiss Post's services with the help of internal data, assuming an e-commerce net revenue share of 75% (the rest are mainly returns) and an average delivery value of 123.50 Swiss francs per parcel. Then, we have estimated the value added and employment generated by these revenues in the e-commerce sector using publicly available data from the Swiss Federal Statistical Office. These figures represent the direct economic contributions of the e-commerce sector enabled by Swiss Post.

In a second step, we estimated the indirect economic contributions the e-commerce sector generates in terms of revenue, value added and employment in upstream industries. For this purpose, we used the retail sector multipliers developed by our input-output model. The model is based on an input-output table from the Swiss Federal Statistical Office showing the economic linkages between different sectors for the year 2017. With this data we have elaborated a so-called Leontief-Matrix, following the guidelines of the *Eurostat Manual of Supply, Use and Input-Output Tables* (Eurostat, 2018), in order to identify different sector multipliers. The identified multipliers for the retail sector as well as for the four relevant sectors in which Swiss Post itself operates are listed in Fig. 14.6. They can be interpreted as follows: For every Swiss franc of revenue in the retail sector, another 0.57 Swiss franc of revenue is indirectly generated in upstream industries. Analogously, for every Swiss franc of value added or every job in the retail sector, another 0.32 Swiss franc of value added, or another 0.13 job is indirectly generated in upstream industries. The retail sector's employment multiplier seems relatively low (0.13), which could be explained by the fact that e-traders often purchase their outlays

Different sector multipliers					
	Retail	Transport	Postal services	Financial services	Other economic services
<b>Revenue</b>	0.57	1.24	0.54	0.63	0.85
<b>Value added</b>	0.32	1.73	0.59	0.47	0.79
<b>Employment</b>	0.13	1.42	0.30	0.84	0.63

**Fig. 14.6** Sector multiplier for the retail, transport, postal services, financial services, and other economic services sectors. (Source: Input-Output model by Swiss Post)

abroad. All multipliers are type I-multipliers, which means that they do not include effects induced by the e-commerce employees' consumer spending in other industries.

Adding up direct and indirect contributions results in an estimate of the e-commerce sector's total economic footprint enabled by Swiss Post. In the following subsections, we will show the results of this analysis for the first and second shutdown, for the whole period of the pandemic as well as for the additional number of parcels delivered thanks to the pandemic.

## 4.2 Shutdown I

During the first shutdown in spring 2020, stores were closed for 7 weeks in Switzerland. In this period, Swiss Post delivered about 20 million e-commerce parcels. Using internal data of key accounts of Swiss Post to predict the revenue per parcel for e-commerce providers, we have estimated that Swiss Post consequently enabled CHF 2.5 billion of revenues as well as CHF 1.7 billion of value added in the e-commerce sector (see Fig. 14.7). Thanks to the sector multipliers generated by our input-output model (see Fig. 14.6), we could estimate that the online retailers additionally generated CHF 1.4 billion of revenues and CHF 500 million of value added in upstream industries. In total, online trade supported by Swiss Post generated CHF 2.3 billion of value added during these 7 weeks, which corresponds to 2.5% of Swiss GDP. Further, Swiss Post contributed to secure 34'000 jobs in the e-commerce sector as well as 5'000 jobs in upstream industries. This results in a total of 39'000 jobs that were supported by Swiss Post in different parts of the economy – apart from its own employees (we address potential methodological shortcomings in Sect. 5).

It is important to note that inputs in the retail sector are often purchased abroad. However, in our analysis we only considered contributions to the national economy. Thus, indirect contributions to foreign economies through e-commerce inputs purchased abroad are not included in the figures above.

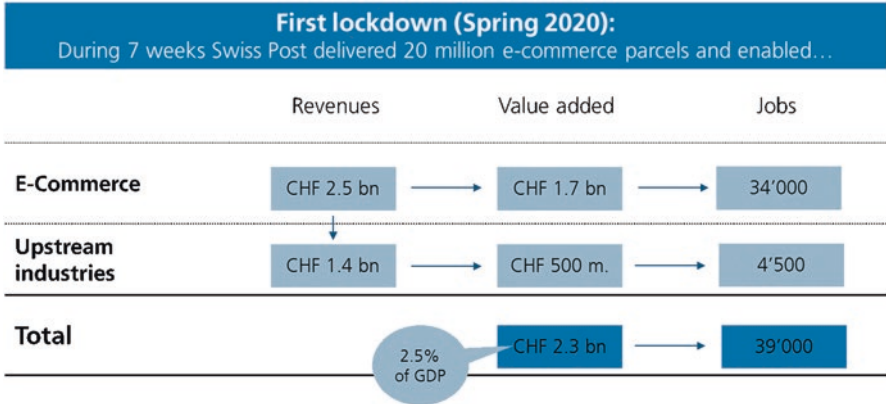


Fig. 14.7 Economic contribution through e-commerce in shutdown I

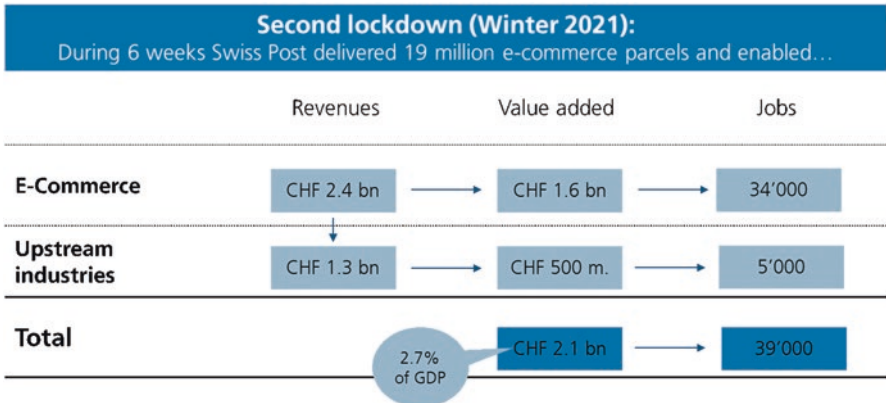


Fig. 14.8 Economic contribution through e-commerce in shutdown II

### 4.3 Shutdown II

The second shutdown in Switzerland was in winter 2021 and lasted 6 weeks. In this period, Swiss Post delivered about 19 million e-commerce parcels – which represents an even higher weekly or daily volume than in the first shutdown (see Fig. 14.8). Based on the same assumptions as in the previous analysis, we have estimated that thanks to the support of Swiss Post’s services, online traders could earn revenues of CHF 2.4 billion and generate value added of CHF 1.6 billion during this period. Together with the indirect value added of CHF 500 million, Swiss Post supported the generation of CHF 2.1 billion of value added, which accounts for 2.7% of GDP. The estimated number of supported jobs was equal to the first shutdown.

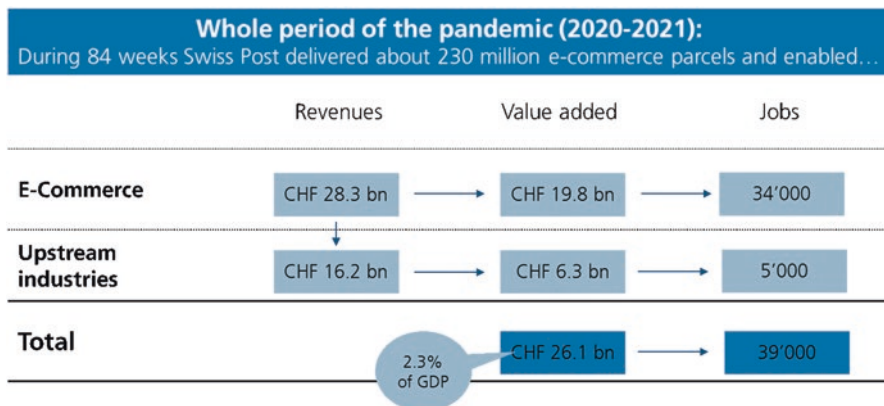


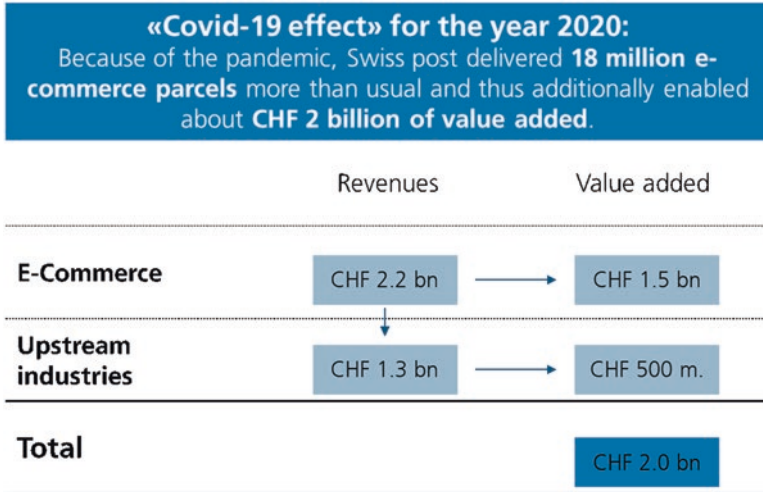
Fig. 14.9 Economic contribution through e-commerce during the whole pandemic

#### 4.4 The Whole Pandemic

In the course of the whole pandemic – lasting from spring 2020 (week 13) until now (week 43) – Swiss Post has delivered about 230 million e-commerce parcels and has helped the e-commerce sector directly and indirectly generate a total of CHF 26.1 billion in value added, which accounts for 2.3% of GDP in this period (see Fig. 14.9). Again, it helped securing about 39'000 jobs in the whole economy – apart from its own employees.

#### 4.5 Impact of the Covid-19 Volume Effect

Total parcel volume increased by 23% or 33.5 million parcels between 2019 and 2020. As parcel volumes have been rising already for years, it is clear that only a part of this increase was due to the pandemic. Assuming a pre-pandemic trend of 7.1% per year (see Sect. 3.4), Covid-19 caused an increase of 18 million e-commerce parcels in 2020. Coming from this number, we have estimated Swiss Post's additional economic contribution as an e-commerce enabler caused by the Covid-19 volume effect. The results in Fig. 14.10 show that due to the pandemic, Swiss Post could help generate additional CHF 2.0 billion in value added in the e-commerce sector and its upstream industries.



**Fig. 14.10** Economic contribution through e-commerce for the pandemic caused parcel volume increase

## 5 Shortcomings

In this section, we point out some weaknesses of our analysis and present a few aspects that have potential for improvement or further research.<sup>6</sup>

First, with respect to our analysis of lasting effect of the pandemic on volumes, it is still too early for firm conclusions and things may look different some years ahead. Our results have to be taken with due care.

With respect to the economic impact analysis, it is important to note that we mainly use value added and employment as proxies for the socioeconomic value created by Swiss Post. But the opportunity of a fast and affordable mail order service can also increase welfare from the consumers' point of view: it increases consumer surplus and improves the standard of living. The consumption side of the socioeconomic value is still largely neglected in our analysis and might be an area of further research.

There are also some methodological shortcomings with respect to our input-output analysis. First,, the latest input-output table available for Switzerland dates back to the year 2017 and might therefore reflect a slightly outdated structure of the economy. In particular, the pandemic might have caused some changes in economic structure, for example in the hiring patterns of certain sectors. Second, our input-output model is static and does not consider dynamic effects. Third, it neglects the production factor land. Fourth, the model is based on a linear Leontief production function and therefore assumes that the relation between different input factors as

<sup>6</sup>We thank participants at the 29th Conference on Postal and Delivery Economics for their valuable inputs, especially Ted Pearsall who discussed our work thoroughly.

well as the input-output relation are independent from the scale of production. This implies that the model does not consider returns to scale or substitutions between input factors. These assumptions might be violated - particularly during the pandemic, when important substitutions between the inputs from different industries may have occurred.

## 6 Conclusion

In this article, we have documented the impact of the Covid-19 pandemic on Swiss Post's operations and estimated Swiss Post's generation of wider economic value through its role as an e-commerce enabler.

The first part of the article was dedicated to an analysis of volume developments in the Swiss postal market since the beginning of the pandemic. The pandemic seems to have accelerated the transition from letters to parcels in postal markets. For Swiss Post, we have found that the pandemic has caused a substantial increase in parcel volume and a slight decrease in mail volumes. In 2020, about 70% of the increase in parcel volumes could be explained by the pandemic, while for the mail volumes, the pandemic was only responsible for about 30% of the decrease. As we are still in the middle of the pandemic, it is too early for final conclusions about its long-term volume effects. However, our latest data suggests that the pandemic might have had a lasting positive level effect on parcel volumes, while there is no such effect for mail.

In the light of two temporal closures of all non-essential stores in Switzerland, mail order was given a new role as part of a necessary basic service. Swiss Post has played a crucial role in enabling this development by supplying the population with goods of all kind. In this sense, it has created a new kind of wider economic value, which we have tried to quantify in the second part of the article. For this purpose, we have used an input-output model, which allowed us to derive the e-commerce sector's economic footprint enabled by Swiss Post through its provision of essential inputs. The results of this analysis suggest that Swiss Post has supported the generation of CHF 2.3 billion or CHF 2.1 billion of value added in the e-commerce sector during the two shutdowns, respectively. This accounts for nearly 3% of Swiss GDP in the two corresponding time periods.

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