

Issue Note 1: Evaluating the impact of COVID-19 containment measures on activity and spending

Introduction

The spread of the COVID-19 virus across countries has prompted many governments to introduce unprecedented measures to contain the pandemic. These have led to many businesses being shut down temporarily and widespread restrictions on travel and mobility.

In a rapidly changing environment, and in the absence of timely hard data measuring the hit to production, it remains extremely difficult to quantify the exact magnitude of the impact of these measures on overall economic activity. An initial benchmark was provided by OECD estimates released in March 2020 soon after many countries began to implement confinement measures (OECD, 2020a). These suggested that the initial direct impact of the shutdowns could be a decline in the level of output of around one-quarter in many countries, with consumers' expenditure potentially falling by around one-third. These estimates were based on illustrative judgements about the potential impact of shutdowns on output in selected sectors and consumption categories and an assumption of common effects across countries. Other estimates have pointed to even larger possible declines in output due to shutdowns in a number of European countries, depending on the type of shutdown measures considered (Dorn et al., 2020a; Prades Illanes and Tello Casas, 2020).

This note extends the OECD benchmark estimates in two different ways. First, it augments the original output estimates by also considering the possible indirect effects of shutdowns on other sectors through supply chains. It also complements the benchmark consumer spending estimates with benchmark estimates of the potential shutdown impact on productive investment. Second, with countries having differed in the type and stringency of confinement measures imposed, the note compares the initial illustrative benchmarks with national estimates and reference assumptions by statistical offices, central banks and research institutes, and information from recently published data. Key additional findings include:

- Indirect effects via input-output linkages could add between 6-8 percentage points to the direct hit to aggregate output based on the sectors affected directly in the initial OECD benchmark estimates. On this basis, direct and indirect effects could result in a total production decline of about one-third in the major advanced economies if containment measures were fully implemented in a similar manner across economies.
- The manufacturing sector, which is more integrated in supply chains than the service sector, is especially affected by such spillovers, with a decline of around 30% in output once input-output linkages are taken into account, in spite of an assumption that few manufacturing industries are shut down directly. Producers of building materials, metals and electrical equipment are among those most affected by supply linkages.
- Overall, indirect linkages are estimated to lower output by about 17% in the industries that are not directly affected by shutdowns.
- Productive investment could also be severely hit, potentially falling by around 20% in selected advanced economies if it were to decline proportionately with output in sectors in which full or

partial shutdowns are assumed. Additional effects could also arise via the impact of weaker demand and higher uncertainty on firms in other sectors.

- Surveys of companies, and monthly activity data for March and April, confirm that services have been hit harder than industry, with the strongest impact occurring in the accommodation and food services, arts and recreation, and retail trade sectors, as assumed in the original benchmark estimates. Survey data also suggest that around 20-30% of companies have shut down at least temporarily during the pandemic in some countries.
- National estimates and scenario analyses of the overall impact of shutdowns are broadly in line with the OECD benchmark estimates in France, Italy, Spain and the United Kingdom, but only 50-60% of the benchmark estimate in Germany. These cross-country differences are broadly consistent with the variation in the relative stringency of containment measures implemented by these economies.
- There is considerable heterogeneity in the sectoral impact of containment measures in the national shutdown estimates, although all include a significant impact in the accommodation and food services sector. The main differences with the OECD benchmark assumptions are in wholesale and retail trade, professional services and real estate services, where the activity impact in several countries is weaker than assumed by the OECD. For Germany, the construction sector is also an important source of differences with the benchmark estimates.
- The sectors in which shutdowns were assumed to occur in the OECD benchmark estimates typically account for between 50% and 75% of the aggregate impact on GDP in the national shutdown estimates. As the overall impact on activity in the national shutdown estimates is similar to the OECD benchmark estimates in several countries, this implies that the impact in the sectors included in the OECD estimates may collectively be smaller than assumed, while the impact in other parts of the economy (including second-round input-output effects) may be larger.

Benchmark estimates of the potential effects of widespread shutdowns

Benchmark output estimates of the direct impact of shutdowns

An initial OECD estimate of the potential direct impact of widespread shutdowns was released in March (OECD, 2020a), soon after most advanced economies had begun to implement stringent containment measures to limit the spread of the COVID-19 virus. The OECD estimates identified the sectors thought most likely to be directly affected by containment measures and in which there was sufficient confidence that shutdowns would occur in many countries. For each of these activities, assumptions were made about the extent to which the activity was likely to be reduced, with output declines ranging from 50% to 100%.

- Within service sectors, activities involving travel, including tourism, and direct contact between consumers and service providers, such as hairdressers or house purchases, would be adversely affected by restrictions on movement and social distancing.

- Most retail shops, restaurants and cinemas would be closed, although takeaway sales and on-line sales would prevent a full cessation of activity in some businesses.
- Non-essential construction work would be affected, either because of containment policies affecting labour availability or because of temporary reductions in investment.
- In the manufacturing sector, typically less affected directly by distancing measures, complete shutdowns were assumed to occur in producers of transport equipment, often because of difficulties in obtaining necessary inputs from suppliers in other countries.

Allowing for only partial shutdowns in some sectors, and assuming a similar extent of shutdowns in all countries, the overall direct initial hit to the level of GDP was estimated to lie between 20% and 30% in many advanced economies (Figure 2.1) and at around 25% in the median OECD economy (OECD, 2020a).¹ These calculations were based on an assumption of an economy-wide shutdown, rather than a shutdown confined to particular regions only. In practice, the actual situation and the extent of shutdowns in particular sectors has varied from one country to the next, reflecting differences in the containment measures adopted.

Figure 2.1. A benchmark estimate of the impact of shutdowns on activity in selected advanced economies

GDP at constant prices



Note: The sectoral data are on an ISIC rev. 4 basis in all countries. Estimates for the average OECD economy are based on an unweighted mean of the sectoral breakdown in all OECD economies. The sectors assumed to be affected directly by shutdowns are manufacturing of transport equipment (ISIC V29-31), construction (VF), wholesale and retail trade (VG), air transport (V51), accommodation and food services (VI), real estate services excluding imputed rent (VL-V68A), professional service activities (VM), arts, entertainment and recreation (VR), and other service activities (VS). The latter two are grouped together as other personal services in the figure. Real estate services excluding imputed rent are assumed to be 40% of total real estate services in countries in which separate data are not available. Full shutdowns are assumed in transport manufacturing, real estate activities excluding rents, and other personal services; declines of one-half are assumed for output in construction and professional service activities; and declines of three-quarters are assumed in all the other output categories directly affected by shutdowns.

Source: OECD 2020a, OECD Annual National Accounts; and OECD calculations.

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¹ Detailed information on the output categories included and the illustrative declines in output assumed are provided in the note to Figure 2.1.

Spillover effects on activity in other sectors using input-output tables

Shutdowns in particular sectors have implications for suppliers in other sectors. One approach to estimating such spillovers to the rest of the economy is to use Input-Output tables. These tables show the extent to which output from one sector is used as an input for activity in another sector. From these tables, so-called “Inverse Leontief” matrices can be derived, which can be used to estimate the change in each sector’s output resulting from a change of output in the sectors directly affected by the shutdown.

Using the benchmark estimates above of the output reduction in sectors assumed to be directly affected by shutdowns, indirect effects typically add a further 6-8 percentage points to the direct hit on total output (Figure 2.2).² Overall, the type of illustrative shutdown assumed in the initial OECD estimates implies a potential loss of total activity ranging between 29% and 37% in some major advanced economies. These estimates do not include any allowance for the potential offsets provided by policy support from governments and central banks in sectors that close only partially. Substantially higher shutdown estimates for a number of European economies were made by Dorn et al. (2020b), using different possible scenarios which generally assumed larger lockdowns across a broader range of sectors. Estimates by Prades Illanes and Tello Casas (2020) point to declines in activity of between 22-28% in Germany, France, Spain and Italy in event of a moderate shutdown, and declines of between 60-70% in event of a severe shutdown (with a full closure of non-essential businesses).

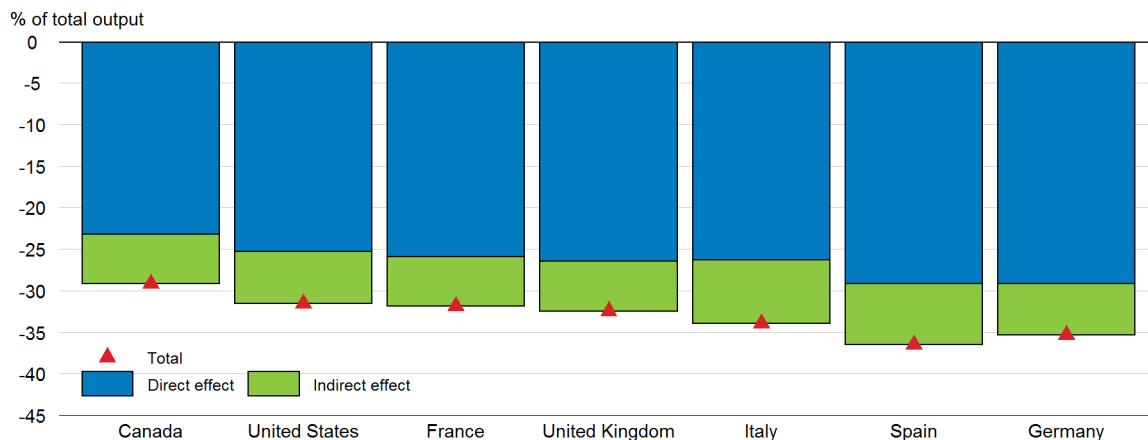
Combining the direct and indirect illustrative benchmark effects, the business services sector, which is the sector most affected by the direct impact of the shutdowns, continues to have the largest hit, with a loss of output of 41% on average in some large advanced economies (Figure 2.3). The manufacturing sector is impacted more severely once supply chain effects are incorporated, with a loss of output of about 30% on average. Building materials, minerals, rubber and plastics, and metal producers are typically among the industries the most affected by spillovers, along with electrical equipment producers. Overall, supply linkages tend to reduce output by about 17% in total in the industries that are indirectly affected by shutdowns, averaged across the countries shown in Figure 2.3.³

² The OECD input-output tables provide less sectoral detail than used in the evaluation of the economic impact of the shutdown, and so some assumptions have to be made. In particular, the impact of the reduction of activity in the air transportation sector is not shown separately in the Input-Output matrices. For similar reasons, it is assumed that real estate services excluding imputed rent represents 40% of total real estate service output and that professional services represents 60% of the other business services activities in all countries.

³ One caveat to this analysis is that it assumes that domestic and external demand react the same way to the containment measures. This leads to an underestimate of the economic impact when external demand falls relatively more sharply than domestic demand. Conversely, if the external demand of a sector comes mainly from countries imposing fewer stringent containment measures than elsewhere, the fall of sectoral output may be overstated.

Figure 2.2. A benchmark estimate including spillovers of the overall impact of shutdowns on activity in selected advanced economies

Total output at constant prices

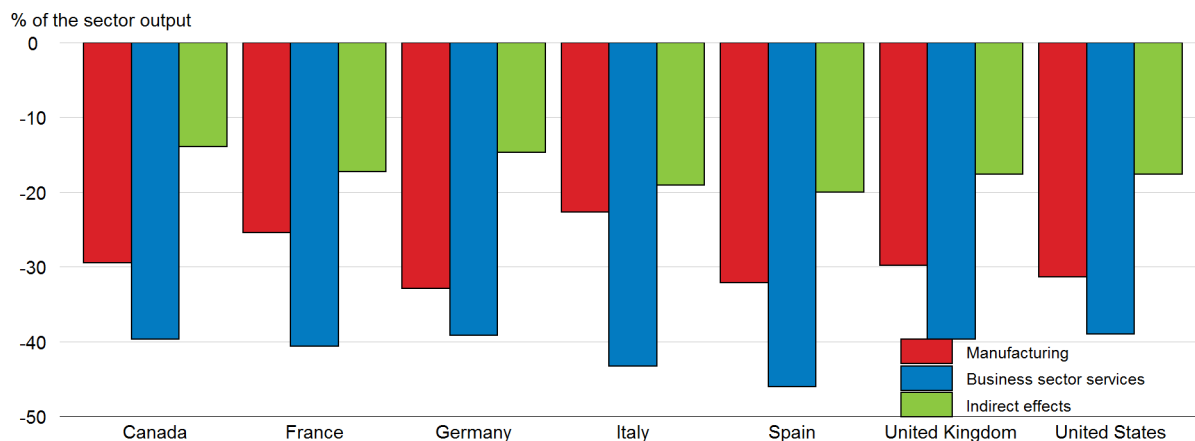


Note: See Figure 2.1 for the list of sectors thought to be affected directly by shutdowns and the assumptions made about the size of the shutdowns in each sector. No additional indirect spillover effects are assumed in the sectors directly affected by shutdowns or in public administration.

Source: OECD Annual National Accounts; OECD STAN database; and OECD calculations.

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Figure 2.3. The total impact of shutdowns varies across sectors in the benchmark estimates



Note: Indirect effects refer to the combined impact in all the sectors assumed to be unaffected directly by shutdowns. See Figure 2.1 for the list of sectors thought to be affected directly by shutdowns and the assumptions made about the size of the shutdowns in each sector.

Source: OECD Annual National Accounts; OECD STAN database; and OECD calculations.

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Benchmark consumer spending estimates of the impact of shutdowns

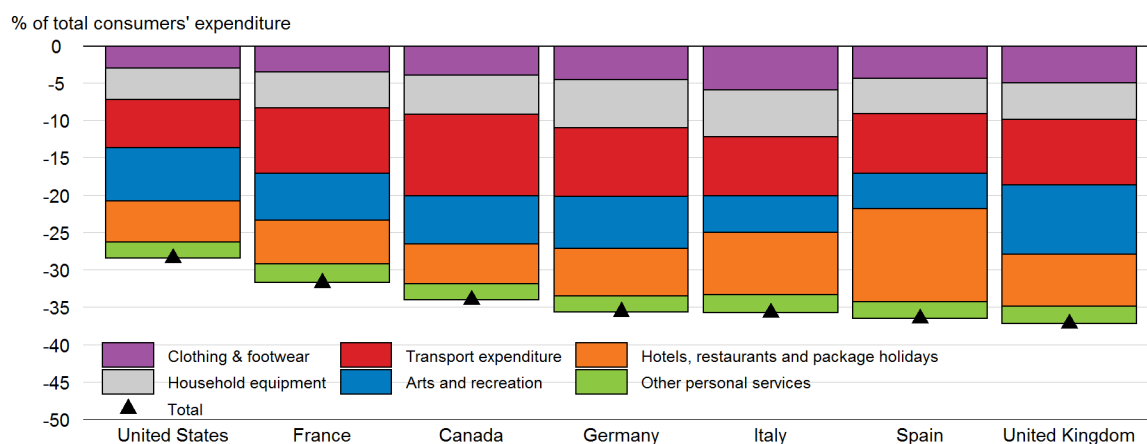
An alternative way of obtaining a benchmark estimate of the potential direct impact of widespread shutdowns on activity is to look at detailed categories of final demand spending. Initial OECD benchmark

estimates (OECD, 2020a) identified the categories of consumer spending most likely to be affected directly by containment measures.

- Shop closures and travel restrictions would result in some categories of spending being cut back completely, such as spending on clothing, footwear, household furnishings and package holidays. Spending involving direct contact between consumers and businesses, such as car purchases and hairdressing, was also likely to be postponed completely.
- Sharp declines were likely in spending on local travel, restaurants, hotels and recreational services.
- Other categories of spending, particularly spending on essential items, were assumed to remain unchanged.

Using illustrative assumptions on the extent of the cutback of affected spending categories and assuming similar reductions in all countries, the overall direct initial hit to the level of consumer spending was estimated to be around one-third in many large advanced economies (Figure 2.4).⁴ These calculations are based on an assumption of an economy-wide reduction in spending, rather than a reduction confined to particular regions.

Figure 2.4. Benchmark estimates of the potential impact of shutdowns on private consumption in selected advanced economies



Note: The spending data are based on a COICOP classification in all countries. The categories included are clothing and footwear (COICOP 3); furnishings and household equipment (5); vehicle purchases (7.1); operation of private vehicles (7.2); transport services (7.3); recreation and culture excluding package holidays (9.1-9.5); package holidays (9.6); hotels and restaurants (11); and personal care services (12.1). All expenditure on clothing and footwear, furnishings and household equipment, vehicle purchases, package holidays and personal care services is assumed to stop completely; spending on recreation and culture, and hotels and restaurants is assumed to decline by three-quarters; and spending on transport services and the operation of private vehicles to decline by one-half.

Source: OECD Annual National Accounts; and OECD calculations.

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⁴ Detailed information on the spending categories included and the illustrative declines in spending assumed are provided in the note to Figure 2.4.

Benchmark estimates of the impact of shutdowns using productive investment

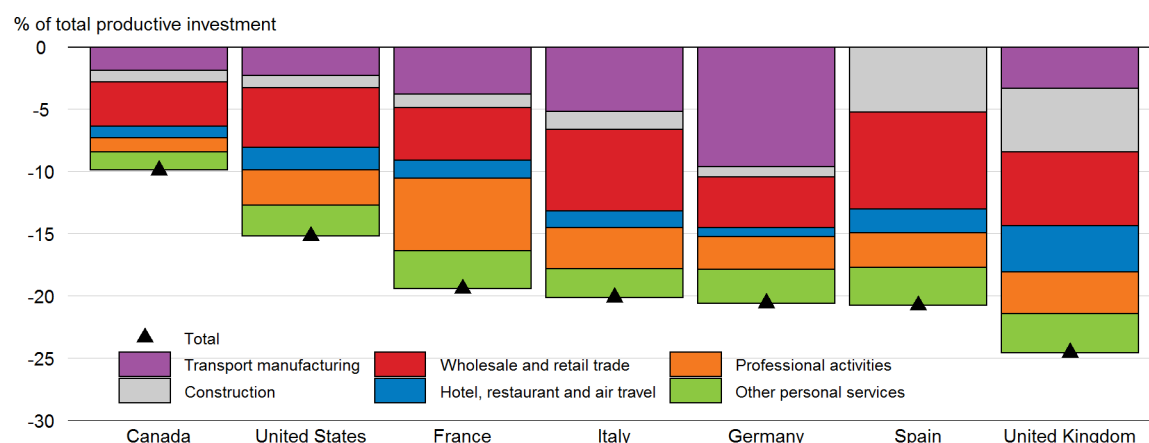
Containment measures are also expected to weigh heavily on firms' capital investment. With falling output and profits, an increasing number of firms face liquidity and solvency pressures. Using firm-level data and similar assumptions for the magnitude of shutdown as above, OECD estimates suggest that 30% of firms could run out of liquidity after two months without policy intervention (Chapter 2, Issue Note 2). This is broadly supported by the pressures on turnover reported in national survey estimates.

- A survey carried out by the EMRG, a group of federations of enterprises and the self-employed in Belgium, reported that 41% of surveyed firms faced cash-flow problems as of mid-April (National Bank of Belgium, 2020). At that time, about 25% of firms operating in the arts, entertainment and recreation sector, and nearly 20% of the businesses operating in the accommodation and food services sector, reported a high risk of bankruptcy. Around two-thirds of firms indicated that investment plans were being postponed, either until later in 2020 or 2021 or indefinitely.
- In Canada, a special business survey by Statistics Canada found that the revenues of about one-third of the businesses surveyed declined by 40% or more during the first quarter of the year in comparison with the same quarter a year earlier (Statistics Canada, 2020).
- In the United Kingdom, 58% of businesses reported that their turnover have decreased according to an ONS business survey for April, with over one-fifth having ceased to trade (ONS, 2020).
- In Ireland, CSO (2020) reported that the turnover of 54% of responding enterprises was significantly lower than normal in April.
- In Portugal, around two-fifths of the firms surveyed in Banco de Portugal (2020a) reported declines in turnover of more than 50%, and almost 50% of respondents stated that they did not have enough liquidity to remain operational for more than two months.
- In Australia, 72% of the companies surveyed by the Australian Bureau of Statistics (2020) estimated that reduced cash-flow would have an adverse impact on their business and 16% of them had revised down their 2020-2021 capital expenditure intentions between December 2019 and March 2020.
- In Spain, a business survey carried out by the Banco de España (2020) reported that 50% of the firms that had experienced a fall in activity expected to suspend planned investments.

Such financial pressures, along with large economic uncertainty and sharply deteriorating business sentiment, are likely to make many firms reconsider or postpone their investment plans. One way to estimate the potential direct impact of the shutdown on productive investment is to assume that the sectors directly affected by the shutdown (see above) are also the first to face financial pressures and reduce their capital expenditures.

On this basis, the initial direct fall in investment could range from 10% in Canada⁵ to just under 25% in the United Kingdom (Figure 2.5). This assumes that investment is reduced in the same proportion as output⁶ in each sector, and that the reduction in each sector is the same across all the advanced economies shown. This may understate the overall near-term impact of shutdowns on investment, as it does not incorporate the impact of weaker demand and higher uncertainty on firms in the sectors that remain open during shutdowns.

Figure 2.5. Benchmark estimates of the potential impact of shutdowns on productive investment in selected advanced economies



Note: The branches of activity data are on an ISIC rev. 4 basis in all countries. The activities included are manufacturing of transport equipment (ISIC V29-31), construction (VF), wholesale and retail trade (VG), air transport (V51), accommodation and food services (VI), professional service activities (VM), arts, entertainment and recreation (VR), and other service activities (VS). The latter two are grouped together as other personal services in the figure. Total productive investment is defined as the investment in all branches excluding real estate activities. Professional activities are assumed to be 60% of total professional, administrative and support services in countries in which separate data are not available. Air transport investment data are available only in the United States and the United Kingdom. Transport manufacturing investment data are not available for Spain. A full cessation of investment is assumed in transport manufacturing and other personal services; declines of one-half are assumed for investment in construction and professional service activities; and declines of three-quarters are assumed in all the other output categories directly affected by shutdowns.

Source: OECD Annual National Accounts; and OECD calculations.

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⁵ The analysis does not include any allowance for the sharp fall in oil prices since the beginning of 2020, which could weigh on mining sector investment. In countries such as Canada and the United States, where mining sector investment represents a sizable part of total investment, this effect could be significant.

⁶ The one exception is real estate services investment, which is excluded from the calculations. Activity in this sector includes the imputed rent of owner-occupiers, which is excluded from the estimated output effects of shutdowns. A large proportion of the fixed capital investment recorded as being undertaken in the real estate services sector thus corresponds to the related additions to the owner-occupied housing stock. A limitation of this assumption is that some commercial property investment may also be excluded, underestimating the overall investment impact.

Insights from business surveys and national estimates

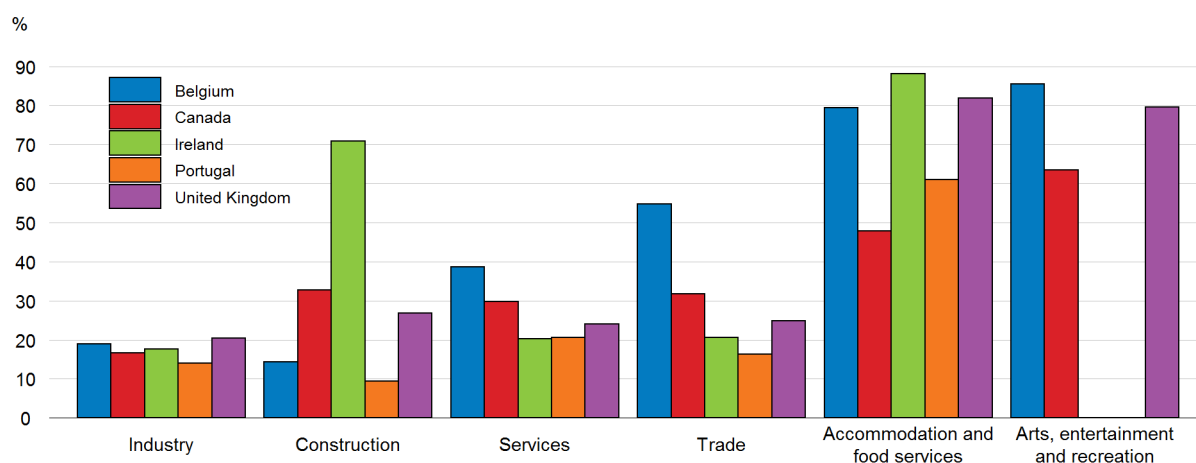
The illustrative benchmark estimates of the impact of shutdowns on activity and spending set out above and in OECD (2020a) implicitly assume that all countries have the same confinement measures. In practice, countries have differed in the type and stringency of the measures adopted. Special business surveys in some countries, typically by statistics offices, and timely estimates of activity by public institutions and major research institutes provide a way of assessing the importance of national differences in containment measures. At the same time, it should be recognised that there are likely to be few clean estimates of the direct impact of shutdowns, with the exception of some survey evidence discussed below. Most national activity data are monthly or quarterly, and may not coincide with the exact periods in which shutdowns are in place. Moreover, they will also include the impact of the substantial policy support for companies and workers provided in many countries since the start of shutdowns.

Business survey measures and monthly GDP information

Special business surveys have been undertaken in a number of countries to track the changes in business operations from the COVID-19 outbreak and the containment measures implemented by national and regional governments. In addition to information about the impact on turnover (see above) and employment common to all surveys, some have asked specifically about whether companies have closed due to the outbreak and containment measures (Figure 2.6). This information provides some insight about the scale and sectoral differences in the direct impact of shutdowns.

- There are sizeable differences across the countries shown. Between 17% and 23% of businesses had closed fully, either temporarily or permanently, in Portugal, Ireland and the United Kingdom, whereas in Belgium and Canada the share was around 30%. This does not translate directly into an output equivalent. The output effect could be lower, if smaller businesses are more likely to have closed down fully than larger ones. Alternatively, some businesses who have shut permanently may not have responded to a survey at all, which could imply that the overall output impact is larger. Many other businesses are still open, but operating well below normal capacity.
- The impact on services is larger than that in industry in all countries, as expected, with accommodation and food services, and the arts, entertainment and recreation sectors being particularly affected.
- There is some heterogeneity across countries, with construction enterprises heavily affected in Ireland, and the trade sector heavily affected in Belgium, where restrictions on distancing and mobility have been relatively strict.
- In Greece, estimates by ELSTAT (2020) suggested that as of mid-April operations in 14.6% of all enterprises were suspended due to state order. In the accommodation and food services sector, and the arts, entertainment and recreation sector, the share of suspended enterprises was 82.5% and 62.2% respectively.
- Surveys in the United States (not shown in Figure 2.6) have generally pointed to smaller effects, and regional differences. The Federal Reserve Bank of New York April surveys reported that 11% and 15% respectively of businesses in manufacturing and service sectors had shut down totally. The April surveys by the Federal Reserve Bank of Dallas found that only 6½ per cent of companies had shut down all of their operations. The weekly surveys by the Federal Reserve Bank of Philadelphia in the first half of April suggested that around one-fifth of firms had shut down on average, with most of these in the non-manufacturing sector. The May surveys by the Federal Reserve Bank of Richmond reported that in total 11% of companies had shut down temporarily, with over one-third of companies having shut down in the accommodation and food services sector and the arts, entertainment and recreation sector.

Figure 2.6. Survey evidence on the share of businesses shut down due to containment measures



Note: The data show the share of companies who have temporarily shut down during the COVID-19 crisis. Permanent shutdowns are included in the data for Ireland and Portugal. Data for Belgium refer to the share of companies reporting that revenue reductions were due to a full or partial prohibition of their activities. The estimates for industry and services are weighted by the number of responding firms in all countries apart from Canada, where sector shares in gross value added at basic prices are used. The data for Belgium are an average from five surveys conducted in the weeks beginning March 27 to April 24, 2020. The data for Portugal are an average from three surveys conducted in the weeks beginning April 6 to April 20, 2020. Data for the United Kingdom refer to the period April 6 to April 19, 2020. Data for Ireland are for the week commencing April 19, 2020. Data for Canada were crowdsourced in the period April 3 to April 24.

Source: National Bank of Belgium; Statistics Canada; Office for National Statistics, United Kingdom; Central Statistics Office, Ireland; Banco de Portugal; and OECD calculations.

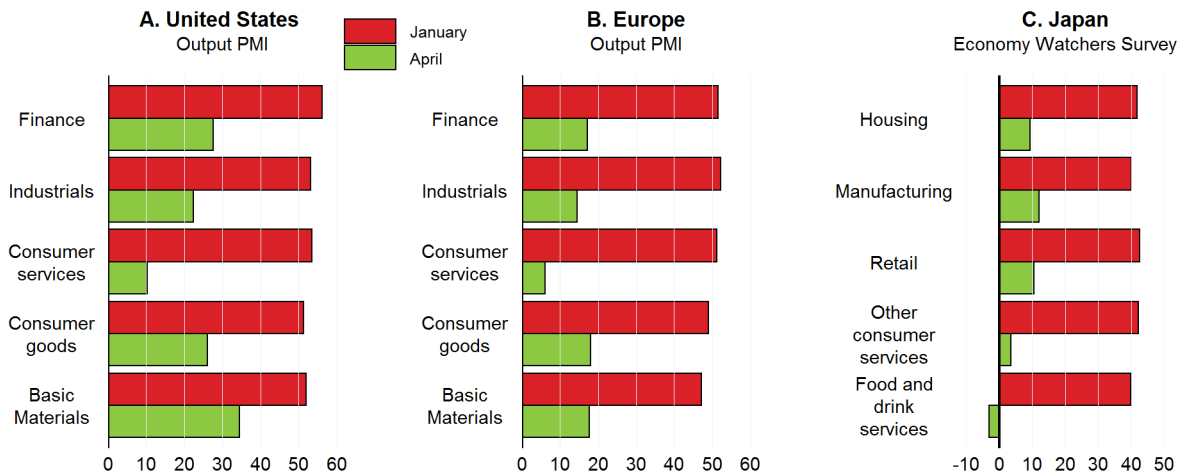
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- Cross-country information from business federations suggests that the hospitality (hotels, tourism and catering), transportation and commerce sectors are the ones most likely to be negatively affected by the pandemic (BIAC, 2020).

Additional information on sectoral developments is provided by PMI surveys, which illustrate the magnitude of the hit to output. Sectoral output survey indicators have plummeted in all major economies, in both services and manufacturing (see Chapter 1) with service sectors the hardest hit. Amongst the major advanced economies, the April PMI data pointed to a stronger drop in activity in the euro area and the United Kingdom than in the United States, or Japan, where shutdown measures were implemented more gradually and differed across regions. Detailed sectoral PMIs for Europe and the United States and the sectoral diffusion index of the Economy Watchers survey in Japan illustrate the widespread deterioration in business sentiment across sectors in April (Figure 2.7). These indicators show particularly sharp declines in consumer service sectors in the three areas, with the euro area appearing to be harder hit than the United States.

Early official output estimates also highlighted the sharp downturn in industrial production as shutdown measures began to be implemented, notably in Italy where the level of manufacturing production declined by 31% in March, with regional and then national containment measures being implemented from early that month. Manufacturing production in Germany in April was 25% lower than in February. Large, but smaller declines in production were reported in some other G7 economies, potentially reflecting the later implementation of national or regional confinement measures. In April, industrial production in the United States and Japan was 15¼ per cent and 12½ per cent lower respectively than in February.

Figure 2.7. Business sentiment has declined substantially in most sectors



Source: Markit; Japan Cabinet Office; and OECD calculations.

Monthly GDP estimates for Canada, the United Kingdom and Norway, and the monthly activity indicator produced by the Bank of Chile all indicated a month-on-month decline of between 5½-7¼ per cent in economy-wide output in March. In contrast, a smaller decline in monthly GDP of 1¾ per cent was reported in Finland. A relatively mild effect from the national containment measures is also apparent in Korea, where all-industry production (including services) in April declined for the third successive month, but was just 6% lower than in January.⁷

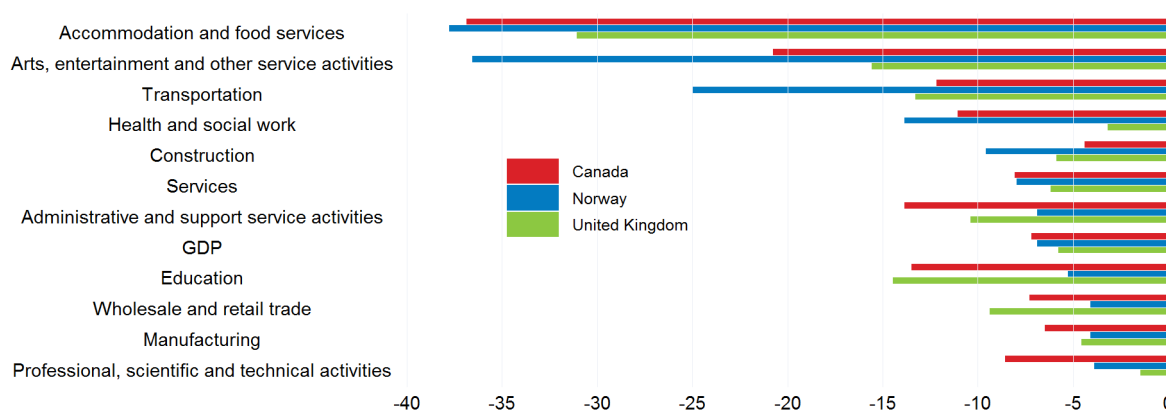
The decline in GDP in March was somewhat higher in Canada and Norway than in the United Kingdom (Figure 2.8), as might be expected with confinement measures being implemented at an earlier stage from mid-March, over a week ahead of the economy-wide shutdown in the United Kingdom.⁸ Across sectors, the impact on output was broadly similar in the three countries, with larger effects in services than in manufacturing, and the accommodation and food services sector, and arts, entertainment and other personal services being heavily affected. However, the overall GDP impact suggests a somewhat larger impact from confinement measures in the United Kingdom than elsewhere. Assuming little growth in March ahead of the implementation of shutdowns, the UK data imply a full month output effect of between 20-25%, compared to between 10-15% in Norway and around 15-20% in Canada.⁹

⁷ Mainland GDP in Norway is estimated to have declined a further 4.7% in April, with output in April around 11½ per cent lower than in February.

⁸ Chile and Finland are not shown in Figure 2.8, as there is little sectoral detail available in their respective estimates of monthly GDP.

⁹ These are smaller than the benchmark estimates of shutdowns in OECD (2020a), where activity declines of 19%, 23% and 26% were estimated respectively for Norway, Canada and the United Kingdom.

Figure 2.8. Monthly GDP growth by sector in March



Note: GDP data for Norway refer to mainland GDP. Transportation data excludes ocean transport in Norway.

Source: Statistics Canada; Statistics Norway; Office for National Statistics; and OECD calculations.

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Information about the impact of shutdowns on consumer spending remains relatively limited, but there are signs of a sharp decline in several countries from indicators of consumer spending.

- In France, one study estimated that private consumption could be reduced by about a third during the shutdown (INSEE, 2020).
- One study for the United States estimated a 28% decline in consumer spending after containment measures were introduced in most states (Dunn et al., 2020). Monthly US national accounts data, which incorporate weeks prior to shutdowns as well as the effect of supportive government policies, point to a slightly smaller decline, with consumer spending in April 19.1% lower than in February 2020.
- The volume of retail sales has fallen sharply in the United Kingdom and the euro area, with monthly sales in April 22.3% and 22.5% lower respectively than in February.
- In Ireland, based on the decline of the volume of credit and debit card transactions in late March, the central bank estimated that consumption could drop by 28% during a full month of shutdown (Central Bank of Ireland, 2020).
- Retail sales have weakened in Germany, but to a lesser extent than elsewhere, with retail turnover at constant prices in April 9.8% lower than in February.
- Car sales were extremely weak in many countries in April (see Chapter 1).

National estimates of the impact of shutdowns on activity

National estimates and scenario analyses also point to a very large impact from government measures to slow the propagation of the virus, but highlight significant sectoral differences. To quantify the impact of the shutdown, national statistical agencies, central banks and research institutes combine business surveys with high frequency quantitative data, such as credit card transactions or daily energy consumption, providing additional insights on the state of the different economies.

- The impact of the shutdown on agriculture is generally estimated to be relatively mild, the sector being relatively little affected by containment measures, although constraints on travel may reduce the availability of seasonal workers in some countries. Available estimates point to a loss of output ranging from 13% in France (INSEE, 2020) and Spain (Prades Illanes and Tello Casas, 2020) to virtually zero in Germany (IFO, 2020).
- The manufacturing sector is more severely affected. In the United Kingdom, in a reference scenario of the economic impact of the COVID-19 outbreak, a 55% decline in activity is assumed (OBR, 2020), and in France the drop in activity is estimated at about 40% (INSEE, 2020). A milder decline of 15% in manufacturing output is estimated for Germany by (IFO, 2020). In Italy, estimates suggest that activity could decline by over one-half in the industrial sector (Banca d'Italia, 2020). For the euro area as a whole, the scenarios produced by the ECB assume a 40% loss in manufacturing activity (Battistini and Stoevsky, 2020). A smaller decline of just over one-quarter is projected in Estonia (Bank of Estonia, 2020).
- Detailed estimates for manufacturing industries suggest that the transport equipment sector is the most severely impacted. In Portugal, a decline of over three-quarters is assumed from survey information (Banco de Portugal, 2020b). The loss of activity is estimated at close to 70% in France (INSEE, 2020) and just over 40% in Germany (IFO, 2020).¹⁰ Estimates by ACEA (2020) suggest that output in Italy, Spain, the United Kingdom and France came close to a standstill in April.
- Assessments of the impact of shutdowns on construction activity vary widely across countries, from a decline of around 75% in France to under 10% in Estonia and Germany. In a scenario analysis, the ECB assumes a hit of 40% for the euro area as a whole. The significant differences across countries appear consistent with differences in national containment measures. In Germany, for instance, the infrastructure, residential and utility construction sectors were exempted from lockdowns, while only around one-half of these sectors' activities in Italy are considered as non-essential (Banca d'Italia, 2020). In France, construction site closures were widespread. Estimates for Spain show the sensitivity of the assumptions made about the extent to which activity is halted during a shutdown, with construction output estimated to decline by 5% in a moderate closure and ceasing completely in a severe closure (Prades Illanes and Tello Casas, 2020).
- Among private services, the accommodation and food services sector is commonly seen as the hardest hit, with a decline of activity estimated to range from 100% in Spain (Prades Illanes and Tello Casas, 2020) to just under two-thirds in Italy. Physical distancing also strongly affects the arts and recreation sector with a loss of activity ranging from 40-90% in the countries for which estimates are available. The virtual cessation of tourism activities also has a strong impact on passenger transport and freight transport of non-essential products. In Portugal, air transport activity is assumed to have declined by 87% (Banco de Portugal, 2020b). The Banco de España (2020) assumes a 60% reduction in transport activities in Spain in a scenario analysis, close to estimates by INSEE for France and well above the OBR assumption for the United Kingdom of 35% and the IFO estimates for Germany of about 30%.¹¹

¹⁰ Data released in early June suggest that car production declined by around 75% in Germany in April.

¹¹ IFO does not provide the aggregate impact for the transportation activities but estimates a decline in output of 76% for air transport, 16% for water and land transport and 40% for postal services. The figure provided here is an OECD output-weighted estimate based on this information.

- On the other side of the spectrum, financial and insurance activities are assessed to be the least impacted by shutdowns, with an estimated loss of activity of 10% or less. Teleworking is common in this sector (ONS, 2020; Statistics Canada, 2020).
- In France, Italy and Spain, where the shutdown has been the most stringent, the collective loss of activity in the wholesale and retail sector is estimated to range between 47% and 64%. Operations in just under 40% of the enterprises in the retail sector were suspended in Greece (ELSTAT, 2020).
- Although the health and social activities sector was generally expected to keep operating close to or at full capacity during the pandemic (in part because some output in these sectors is measured using labour income), a striking decline in activity is reported in some national estimates. In Germany, a decline of just under 50% in activity during the shutdown is estimated by IFO (2020). In the United Kingdom, an ONS business survey reported that about a quarter of all health care facilities and medical offices in this sector had turnover at least 20% lower than normal. The postponement of non-urgent interventions and the impact of distancing on social activities may explain these shortfalls. In Greece, ELSTAT (2020) reported that 48% of all enterprises in social work activities (NACE 88) had suspended operations.

National estimates have evolved over time, highlighting the uncertainty around all such estimates. In Germany, for example, early estimates by the IFO Institute in March, based on six scenarios that each had a different combination of assumed sectoral shutdown effects,¹² indicated that total value added could fall by 35% to 49% depending on the scenario (Dorn et al., 2020b). In late April, based on its monthly surveys among companies, this was revised to a decline of 16-17% in output during the shutdown (IFO, 2020). A further illustration of uncertainty about the extent of the shutdown is provided in Canada, where the central bank estimates a decline of between 15% and 30% of GDP in the second quarter of 2020 (Bank of Canada, 2020). Estimates by Prades Illanes and Tello Casas (2020) show that the impact on activity of a severe shutdown (including the closure of non-essential businesses) can be over twice as large as the impact of a moderate shutdown.

A summary of the national estimates, and assumptions in scenario analyses, is shown in Table 2.1, alongside the initial benchmark assumptions made in OECD (2020a). All national estimates point to a significant hit on the accommodation and food services and on the arts and recreation sectors, but the results for other sectors are much more heterogeneous. In part, this variation reflects differences in the stringency of the containment measures, as well as the inclusion of spillover effects in some national estimates. Shutdowns in construction, for instance, are larger in the national estimates for France and the United Kingdom than in OECD benchmark assumptions, but similar in Italy and lower in Germany, Spain,¹³ Estonia and Portugal. Such differences can probably be explained by national policy divergences. In other sectors, the heterogeneity of sectoral impact estimates may reflect the large uncertainties surrounding the impact of the lockdown in the absence of timely hard data. Estimates for Spain (Banco de España, 2020 and Prades Illanes and Tello Casas 2020) and the United Kingdom (OBR, 2020) are assumptions for scenario analyses, although high frequency data and business survey results may have informed the assumptions for some sectors.

¹² The ranges of sectoral shutdown effects across the scenarios were 20-100% for construction, 50-80% for wholesale trade, 20-50% for retail trade, 20-100% for accommodation and food, and 20-50% for real estate activity; arts and entertainment was assumed to be fully shut down in all the scenarios (see appendix to Dorn et al., 2020b).

¹³ Construction sector activity was fully halted during the first phase of the shutdown (between March 30 and April 9) when all non-essential activities were suspended (Prades Illanes and Tello Casas, 2020).

Table 2.1. Cross-country differences in sectoral shutdown estimates

	ISIC4	OECD shutdown assumption	DEU	ESP	EST	FRA	GBR	ITA	PRT
Industry	VB+VC+VD		14.8	23.3		38	46	55.9	30
Manufacturing	VC		14.6	24.2	27		55		35.3
Transport equipment manufacturing	V29_30	100	41	100		69			78.7
Construction	VF	50	3	5	8	75	70	55	26.5
Wholesale & retail trade	VG	75	18.6	64	26	47	50	51.8	35.6
Transportation & storage	VH		30		21	59	35		57.4
Air transport	V51	75	76	75	.				87.1
Accommodation & food services	VI	75	68	100	82	90	85	63.9	70.3
Real estate services (excluding imputed rent)	VL-V68A	100	5.2	71.2	10.4	5.4	66.7		79.7
Professional services	VM	50	10	23	0	4.4	40		23.4
Arts, entertainment & recreation	VR	100	43	100	90	76	60	65.6	62.2
Other personal services	VS	100	31	0	0				
Total economy shutdown (% of GDP)			16.6	28.2	13.4	33	35	27.6	30.7
Proportion due to sectors OECD assumed shut down			0.45	0.73	0.57	0.57	0.62		0.56
OECD illustrative estimate of shutdown (% of GDP): direct impact			29.2	29.1	24.9	25.9	26.4	26.3	26.6

Note: The national total economy shutdown estimates and assumptions include changes in other sectors that are not shown in the table. For France, data refer to INSEE estimates released on 7 May. Real estate estimates for Estonia, Germany, France, Portugal, Spain and the United Kingdom have been rescaled from the national sources, as the national estimates and assumptions for real estate are assumed to apply only to real estate services excluding imputed rent. For Spain, the figures reported correspond to the moderate closure scenario with spillover effects in Prades Illanes and Tello Casas (2020), augmented by information from Banco de Espana (2020). The shock to real estate renting and business activities is assumed to apply to both real estate and professional services. For Portugal, the Banco de Portugal does not report the aggregate declines in activity for the whole economy, industry, manufacturing, transportation and storage, and wholesale and retail trade. The numbers shown are OECD estimates based on national accounts data and the declines in the detailed sectors used by the Banco de Portugal. Source: Bank of Italy; Bank of Spain; Banco of Portugal; IFO Institute for Economic Research; INSEE; Office for Budget Responsibility; and OECD calculations.

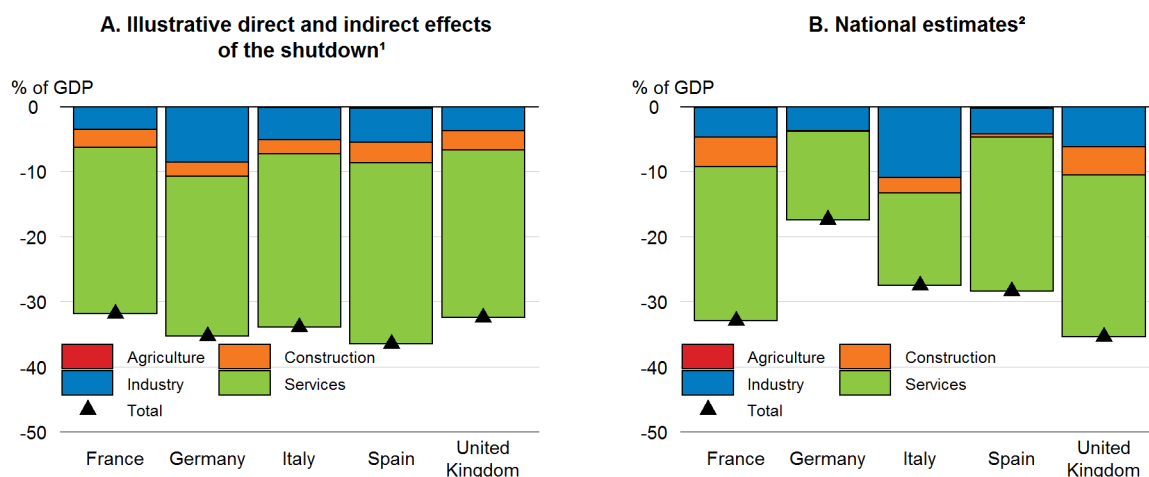
Overall, the sectors in which the OECD benchmark estimates had assumed shutdowns would occur account for between 50% and 75% of the aggregate impact on GDP in the national shutdown estimates. The main differences with the OECD benchmark assumptions are in wholesale and retail trade, professional services and real estate services, where the activity impact in national estimates is weaker than assumed by the OECD. Differences for wholesale and retail trade are likely to result primarily from the implicit benchmark assumption for wholesale trade (a decline of 75%), given the indications of weakness in retail sales in many economies in March and April.

In spite of sectoral differences, the overall impact on activity in the OECD illustrative shutdown estimates is broadly similar to national estimates in countries that have implemented relatively stringent containment measures, such as Italy, France, Spain or the United Kingdom, with activity declining by around 30% or more (Figure 2.9), and with the largest contribution coming from service sectors. An implication of this finding is that the impact in the sectors included in the OECD estimates may collectively be smaller than assumed, while the impact in other parts of the economy (including second-round input-output effects) may be larger. The major difference is with Germany, where the activity estimate by IFO (2020) is around one-half of the illustrative shutdown estimate. Around two-fifths of this gap is accounted for by differences in judgements and assumptions about activity in transport manufacturing and construction.

Equivalent national estimates and scenario analyses are not directly available in most other countries, including the United States, and Canada. However, the evidence for Germany points to the possibility of a smaller overall decline in output than in the illustrative benchmark estimates that assumed common confinement measures. Such an outcome would be consistent with business surveys and high-frequency activity indicators (see Chapter 1). These also point to sizeable, but smaller, declines in Germany and some smaller economies than in the other major European economies.

Figure 2.9. Differences between national estimates of shutdowns and OECD illustrative estimates

Per cent of GDP, constant prices



1. The estimates combine the illustrative direct impact of shutdowns plus the calculated input-output spillovers.

2. The national estimates include estimates comes from INSEE (2020) for France, IFO (2020) for Germany, Bank of Italy (2020) for Italy, Prades Illanes et al (2020) for Spain (the chart illustrates the moderate closure scenario with spillover effect) and OBR (2020) for the United Kingdom.

Source: IFO Institute for Economic Research; Banco de España; INSEE; Office for Budget Responsibility, Banca d'Italia; OECD Annual National Accounts; OECD STAN database; and OECD calculations.

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