

# KOMPAKK

Haushaltsstrukturen und ökonomische Risiken  
während der COVID-19 Pandemie in Ost- und Westdeutschland:  
Kompensation oder Akkumulation

**Interim Report - March 2021**

## Sectors in lockdown in the first wave of the Covid-19 pandemic across federal states in Germany

Hannah Zigel (Humboldt-Universität zu Berlin)  
Emanuela Struffolino (Humboldt-Universität zu Berlin)  
Martin Gädecke (Humboldt-Universität zu Berlin)

*In this report, we offer an overview of which sectors were closed during the first wave of the Covid-19 pandemic, and how many employees were affected directly by those closures across the federal states in Germany. The research project KOMPAKK looks at the accumulation and compensation of economic risks in households during the Covid-19 pandemic in Germany. This interim report a) features the KOMPAKK sector closure database, which we compiled based on the decrees issued by the German federal states in March and April 2020; and b) discusses differences in the impact of the closure across the federal states and by gender using employee statistics and survey data.*

SPONSORED BY THE



## 1. Introduction

A large and rapidly growing number of studies shows the severe social and economic consequences of the governmental measures introduced to reduce the spread of the Covid-19 virus in March and April 2020 in Germany. However, there is yet little systematic analysis of intra-German differences in regulations and outcomes. The federalist system in Germany leaves decisions over implementation of decrees by the federal government to the federal states. This meant that the 16 states issued individual decrees over social distancing measures during the course of the pandemic, which overall followed the Federal government's recommendation but also showed some peculiarities.

The government measures for social distancing included the closure of non-essential business, overall making about 10 percent of employees in Germany stay at home with immediate effect. The decisions by federal states over which sectors to close varied somewhat. Sector closures also had differential implications across states in terms of the number of employees affected, because of the differences in labour market structures.

This report has two aims. First, we feature our newly collected data on the federal state specific sector closures compiled from the original state decrees (March/April 2020). Here, we focus on the extent to which decisions over closure differed between federal states. We do not account for changes in closures over time, but only consider this initial phase of the lockdown. Second, we give a first intra-German comparative insight into the effects on the labour force. We use employment statistics of the Federal Employment Agency to describe the scope of employees affected by business closure during the lockdown. We further draw on data from the German Mikrozensus (2016) to characterize the closed sectors by their gender composition. In closing, we discuss the differential outcomes across federal states in terms of the population of employees affected directly by the closures.

## 2. The “*KOMPAKK index of economic sectors closure during the first wave of COVID-19*” database

The coding procedure involved accounting for all decrees issued by each federal states between 15 March and 17 April 2020. Every federal state issued an own decree in which some economic sectors were defined as entirely closed and others as closed with exceptions. We classified economic activities based on the NACE Rev. 2 code, which includes 4 levels of aggregation of economic activities, level 1 being the most general. The economic sectors defined as closed in the decrees were identifiable on NACE Rev. 2 level 4.

To determine the number of people affected immediately by the closure of non-essential business, we used employment statistics from the Federal Employment Agency. We considered the number of employees including (i) those subject to social insurance contributions (*sozialversicherungspflichtig Beschäftigte*) and (ii) those in marginal employment (*gefangfügig Beschäftigte*) as of 29 February 2020. This means that we give a timely representation of the distribution of employees (excluding self-employed), but that we miss redundancies and recruitments in the sectors between 29 February 2020 and the date when the decrees were issued (15 March to 17 April 2020). The data from the Federal Employment Agency include persons of working age 15-65.

We generalize our classification to the more aggregated levels of 272 economic activities on the NACE Rev. 2 level 3 code in order to link the KOMPAKK index to individual records from the Mikrozensus data 2016<sup>1</sup> (where only level 3 is available) and characterize closed sectors by the gender composition of employees. When aggregating from level 4 to 3, in some cases level 3 sectors contained both open and closed activities on level 4. For these cases, our coding decision was based on the level-4 sector size, drawing on employment data from the Federal Employment Agency. We coded level 3 as closed only when the number of employees in the closed level 4 activities exceeded that of the open level 4 activities. We applied the same procedure when aggregating the economic activities from level 3 to level 2.

For all NACE Rev.2 levels, closed sectors were coded as 0, and all others as 1. The dataset (“KOMPAKK index of economic sectors closure during the first wave of COVID-19”) is available for download on the project [website](#).

### 3. Overview of closed sectors

Twenty-one sectors were closed in all federal states (full list in Appendix Table A1). These were from the following areas: ‘whole sale and retail trade and repair of motor vehicles’, ‘accommodation and food service activities’, ‘administrative and supportive service activities’ (travel agents), ‘arts’, ‘entertainment and recreation’, as well as ‘other activities’ such as the repair of computers and personal and household goods. The number and types of additionally closed sectors varied across federal states. As shown in Table 1, the total number of NACE Rev. 2 level 3 sectors closed ranged between 22 (Bavaria, Brandenburg, Schleswig-Holstein, Thuringia) and 25 (Mecklenburg-West Pomerania) of the 272 sectors.

---

<sup>1</sup> We will update our estimates with the most recent Mikrozensus wave 2018, as soon as the on-site use is no longer restricted due to the pandemic.

The federal states' decrees over closure varied for four sectors. First, the sector of 'sale of motor vehicle parts and accessories' (45.3) was closed in only five federal states (Berlin, Mecklenburg West-Pomerania, Saarland, Saxony, Saxony-Anhalt). This sector includes whole sale and retail trade of all kinds of parts, components, supplies, tools and accessories for motor vehicles, such as: rubber tyres and inner tubes for tyres, spark plugs, batteries, lighting equipment and electrical parts.

**Table 1: Sectors closed in the first lockdown by Federal State**

	N closed	Additional sectors closed (NACE code)
Schleswig-Holstein	22	59.1
Bavaria	22	47.7
Brandenburg	22	47.6
Thuringia	22	47.7
Hamburg	23	47.6, 47.7
Lower Saxony	23	47.7, 59.1
North Rhine-Westphalia	23	47.6, 47.7
Rhineland-Palatinate	23	47.6, 59.1
Berlin	23	45.3, 47.7
Saxony	23	45.3, 47.6
Bremen	24	47.6, 47.7, 59.1
Hesse	24	47.6, 47.7, 59.1
Baden-Württemberg	24	47.6, 47.7, 59.1
Saarland	24	45.3, 47.6, 59.1
Saxony-Anhalt	24	45.3, 47.6, 59.1
Mecklenburg West Pomerania	25	45.3, 47.6, 47.7, 59.1

Source: Database "KOMPAKK index of economic sectors closure during the first wave of COVID-19", based on federal states' decrees. NACE Rev. 2 level 3, total number of sectors 272.

Second, federal states varied in dealing with 'retail sale of cultural and recreation goods in specialised stores' (47.6) and 'retail sale of other goods in specialised stores' (47.7). The former includes the retail sale in specialised stores of cultural and recreation goods, such as books, newspapers, music and video recordings, sporting equipment, games and toys. And the latter includes the sale in specialised stores carrying a particular line of products not included in other parts of the classification, such as clothing, footwear and leather articles, pharmaceutical and medical goods, watches, souvenirs, cleaning materials, weapons, flowers and pets and others. Both sectors were left open in Schleswig-Holstein. In Bavaria, Berlin, Lower Saxony, and Thuringia cultural and recreational retail was left open though not retail of other specialized stores. Next to Schleswig-Holstein, retail in

other specialized stores was also open in Saarland and Rhineland-Palatinate as well as the East German federal states of Brandenburg, Saxony, Saxony-Anhalt and Thuringia.

Bavaria, Berlin, Brandenburg, Hamburg, North Rhine-Westphalia, and Saxony had their 'motion picture, video and television programme activities' sector (59.1) open, while it was closed in the other federal states. This group includes production of theatrical and non-theatrical motion pictures whether on film, video tape, DVD or other media, including digital distribution, for direct projection in theatres or for broadcasting on television; supporting activities such as film editing, cutting, dubbing etc.; distribution of motion pictures or other film productions (video tapes, DVDs, etc.) to other industries; as well as their projection.

## 4. Employees in closed sectors

Figure 1 displays differences in the share of employees in sectors that were closed in this first lockdown period across federal states in Germany. Federal states are classified across quartiles ranging between around 8 and 13 percent.

The larger states in terms of population, North Rhine-Westphalia, Bavaria, Baden-Württemberg, Hesse and Lower Saxony, have the highest numbers of affected employees, but in terms of the share of employees, the city states Berlin, Hamburg and Bremen were more strongly affected. In addition, the share of employees affected in Mecklenburg West-Pomerania also reached 13 percent. A slightly higher share of employees was affected by the closure in West German states than in East German states, 11 percent and 9.5 percent respectively. In the metropolitan areas of the city states (Berlin, Bremen and Hamburg), accommodation and food service activities contribute substantially to the number of employees affected by the closures. This is also the case in the large federal states, whose populous metropolitan areas host many restaurants, bars, and specialized stores, which were closed during lockdown.

Mecklenburg West-Pomerania is a good illustrative case of the non-linear link between the total number of employees directly affected by the closure and what share of the total employees they represent: in this federal state the number of employees in closed sectors is comparatively small, but it makes a large share of its total employees.

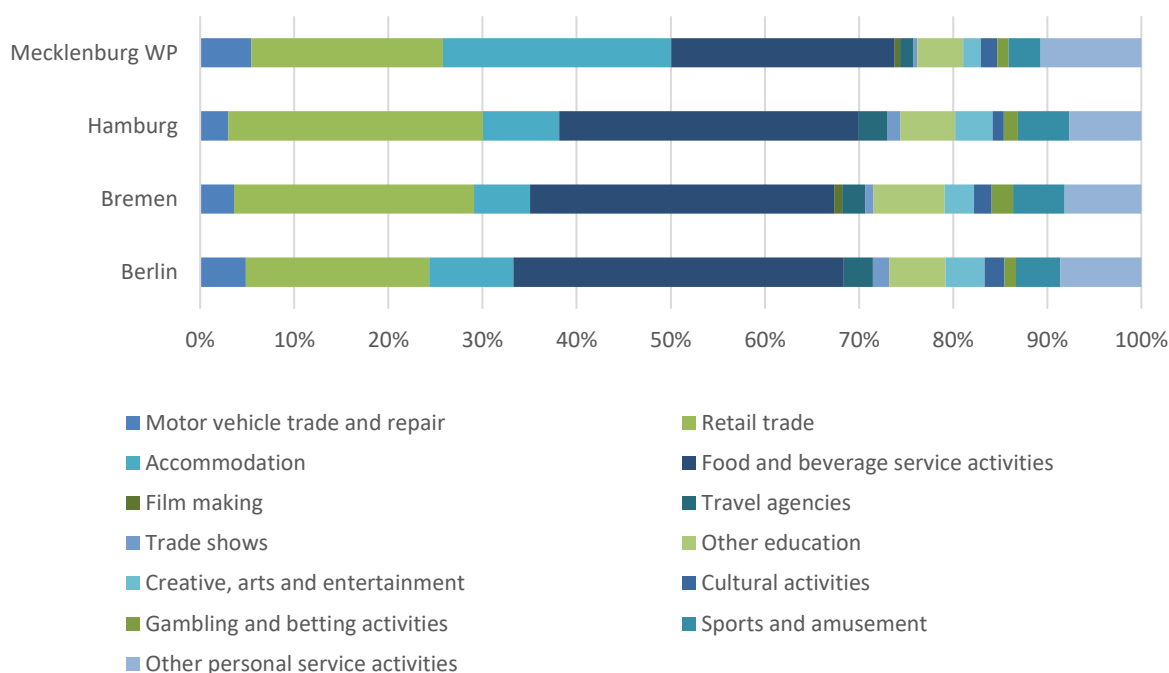
**Figure 1: Share of employees in closed sectors across federal states**



Source: “KOMPAKK index of economic sectors closure during the first wave of COVID-19 database” and employment statistics from the Federal Employment Agency 2021. NACE Rev.2 level 4  
 Notes: Absolute number of employees displayed below to the names of the federal states; Q1-Q4 refer to quartiles; the map was created by Martin Gädecke using services2.arcgis.com ([https://opendata-esri-de.opendata.arcgis.com/datasets/b8d0cc7735774bed8e6df1c5410394a4\\_0](https://opendata-esri-de.opendata.arcgis.com/datasets/b8d0cc7735774bed8e6df1c5410394a4_0))

Taking a closer look at the four most affected federal states, Figure 2 shows how employees were distributed across the closed sectors on the more aggregated NACE Rev.2 level 2 categorisation. The distribution is similar across the four federal states, especially in the city states. Here, employees in retail trade and in the food and beverage service activities were the largest groups affected. Mecklenburg West-Pomerania was particularly hit by the closure of tourism-related sectors, such as hotels, restaurants and other leisure activities.

**Figure 2: Distribution of employees in closed sectors in Berlin, Bremen, Hamburg and Mecklenburg West-Pomerania**

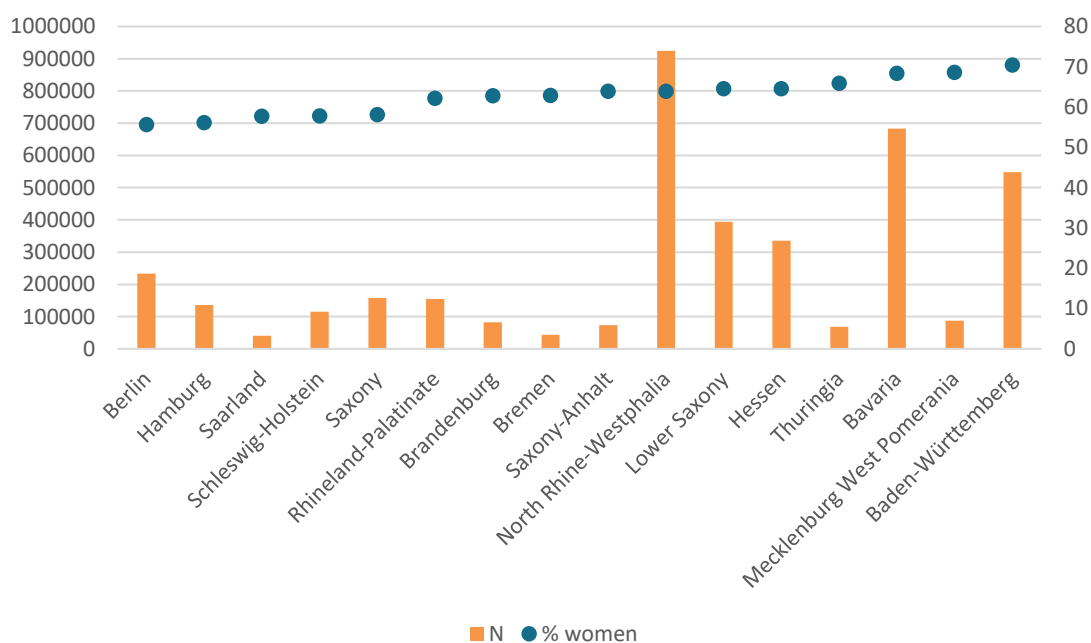


Source: "KOMPAKK index of economic sectors closure during the first wave of COVID-19 database" and employment statistics from the Federal Employment Agency. Sectors on NACE Rev.2 level 2.

We next consider the gender composition in the closed sectors across federal states to explore potential associations with the number of employees affected directly by the sector closures. We characterize the closed sectors by the share of female employees working in that sector in each federal state as of 2016. Figure 3 indicates with dots (right axis) the share of women in closed sectors out of the total number of employees in those sectors, which are represented by the bars (left axis). The figure shows that, across federal states, the closed sectors are characterised by varying shares of women: between 56% in Berlin to 70% in Baden-Württemberg. These numbers also imply that, in all federal states, the closed sectors are dominated by female employees. Figure 3 further shows that in federal

states with comparatively high absolute numbers of employees affected by the closure, closed sectors were also characterised by high shares of women, such as in North Rhine-Westphalia, Bavaria and Baden-Württemberg. In the three city states (Berlin, Hamburg and Bremen) – where the share of employees in closed sectors was the highest although overall numbers were comparatively low – closed sectors show lower shares of women. Mecklenburg West-Pomerania stands out again with closed sectors characterised by a particularly large share of women, and at the same time hosting a comparatively large share of the workforce.

**Figure 3: Number of employees (bars, left axis) and share of female workers (dots, right axis) in closed sectors across federal states**



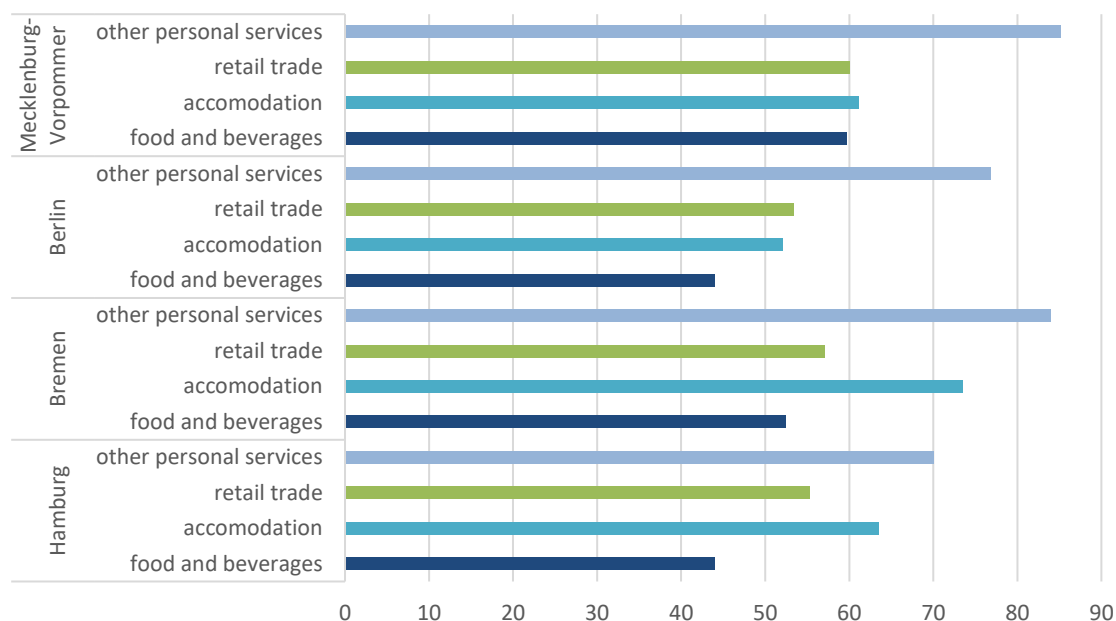
Sources: “KOMPAKK index of economic sectors closure during the first wave of COVID-19 database”; employment statistics from the Federal Employment Agency 2021; Mikrozensus 2016.  
 Note: Economic sectors on NACE Rev.2 level 3.

Because looking at the aggregate picture of all closed sectors conceals differences between the single economic activities, we also consider them separately (on NACE Rev.2 level 2). Figure 4 shows the share of female employees in the four closed sectors with the highest numbers of employees (among all closed sectors) for the city states and Mecklenburg West-Pomerania, where the largest shares of employees were affected. The figure illustrates that the share of female workers is particularly high for economic activities in other personal services, such as washing and (dry-)cleaning of textile and fur products, hairdressing and other beauty treatment, funeral and related activities, and physical well-being activities. In Mecklenburg West-Pomerania and Bremen, women make up over 80



percent of employees in this sector. In food and beverages service activities, on the other hand, the share of women was below 50 percent in the city states.

**Figure 4: Share of female employees in the four closed sectors with the highest number of employees**



Source: “KOMPAKK index of economic sectors closure during the first wave of COVID-19 database”; employment statistics from the Federal Employment Agency; Mikrozensus 2016.

Note: Economic sectors on NACE Rev.2 level 2.

## 5. Summary and outlook

Our new dataset provides opportunities to systematically evaluate the implications of the lockdown measures introduced for reducing the spread of the coronavirus across the German federal states.

We show that the decrees issued to contain the pandemic met with conditions specific to the federal states in terms of both the prevalence and scope of certain economic sectors and the characteristics of the employees working in them. In all federal states, closed sectors were characterised by an overrepresentation of female employees. However, in federal states with the larger proportions of employees affected by the closures, the gender differences were overall less pronounced.

Based on our insights at this step of the research process, we would expect regional differences in how men’s and women’s economic risks develop during the lockdown. This alerts regional administrations to the differential sociodemographic characteristics across

the segments of the workforce affected by the lockdown, but also the federal government to where support may be particularly effective.

In the next steps of our project, we use the sector closure database to assess the economic risks across German federal states at the household level. Our analyses will show the extent to which households were able to compensate for economic insecurity created by the lockdown measures.

### **Acknowledgements**

The dataset “KOMPAKK index of economic sectors closure during the first wave of COVID-19” was compiled with funding from the *Support Network for Interdisciplinary Social Policy Research (FIS)* by the German Federal Ministry of Social and Labour Affairs (BMAS) as part of the research project “Household structures and economic risks during the COVID-19 pandemic in East and West Germany: Compensation or accumulation? (KOMPAKK)”.

## 6. Appendix

### A1. Sectors closed in all federal states as of March/April 2020

	Sector	NACE code
1	Sale of motor vehicles	45.1
2	Sale, maintenance and repair of motorcycles and related parts and accessories	45.4
3	Retail sale of information and communication equipment in specialised stores	47.4
4	Hotels and similar accommodation	55.1
5	Holiday and other short-stay accommodation	55.2
6	Camping grounds, recreational vehicle parks and trailer parks	55.3
7	Other accommodation	55.9
8	Restaurants and mobile food service activities	56.1
9	Event catering and other food service activities	56.2
10	Beverage serving activities	56.3
11	Travel agency and tour operator activities	79.1
12	Other reservation service and related activities	79.9
13	Organisation of conventions and trade shows	82.3
14	Other education	85.5
15	Educational support activities	85.6
16	Creative, arts and entertainment activities	90.0
17	Libraries, archives, museums and other cultural activities	91.0
18	Gambling and betting activities	92.0
19	Sports activities	93.1
20	Amusement and recreation activities	93.2
21	Other personal service activities	96.0

### A2. Sectors additionally closed in some federal states as of March/April 2020

	Sector	NACE code
1	Sale of motor vehicle parts and accessories	45.3
2	Retail sale of cultural and recreation goods in specialised stores	47.6
3	Retail sale of other goods in specialised stores	47.7
4	Motion picture, video and television programme activities	59.1