



COVID-19 – Impact on the Pork Sector in Germany

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ABSTRACT

The adaptation of slaughtering and meat cutting processes to the COVID-19 risk situation resulted in an estimated capacity reduction of 15% compared to the pre-coronavirus period. As a consequence, a bottleneck effect occurred in the pig meat value chain. Reducing imports of live animals and increasing exports could decrease, but not eliminate the resulting surplus of live pigs. At the end of 2020, the number of pigs waiting to be slaughtered was estimated at approximately one million and due to this surplus German standard quality pig prices dropped by roughly 12%. Moreover, farmers faced price cuts as a result of pigs being overweight, additional feeding costs from pigs remaining on farms, and foregone profits because stables could not be used for further production. The COVID-19 effects were accompanied by the outbreak of African swine fever in Germany and subsequent export restrictions. This led to an additional price cut of 13% and aggravated the situation of German producers of fattened pigs and piglets. A short-term adjustment of production quantities to prices has not been possible, as present supply is determined by the sow insemination a year ago. As a result, it will take until mid-late 2021 before low prices lead to lower supply. In the first quarter of 2021, the situation on the German slaughter pig market relaxed. Average prices for fattened pigs, slaughter-weight as well as piglet prices approached the long-term average again. To reduce the impact of future crises on the meat sector, it is necessary to develop contingency plans that take into account the high interdependency among the individual stages of the value chain.

Keywords: COVID-19, Slaughterhouse Sector, Pork Value Chain.

INTRODUCTION

In 2020 the coronavirus pandemic confronted Germany's supply systems for fast-moving consumer goods (FMCG) with major challenges. In general, these challenges were met without relevant gaps in consumer supply. Retailers and processors re-organized their sourcing and adjusted production volumes. As a result, only toilet paper and flour packages for household use were temporarily scarce.

While the coronavirus pandemic hardly impacted the availability of FMCG, some food value chains were severely affected.

- Fruit and vegetable value chains: These chains deal with perishable goods and goods with an optimal harvesting time. Therefore, they are dependent on the smooth functioning of production and processing chains in order to realize their value creation potential. Once production begins, frictions in value chains can hardly be balanced by holding up or accelerating the process. The pandemic especially affected the availability of workforces during harvest time. In normal years, a considerable share of the staff for harvesting is hired in Eastern European countries because the German labor market does not provide a sufficient number of workers willing to carry out these jobs for the given payment. However, in 2020 only a limited number of migrant workers particularly from Eastern Europe were available due to travel restrictions. As a consequence, significant volumes of fruits and vegetables went unharvested.

- Meat value chains: In a similar way, meat value chains are prone to disturbances because live animals lose quality and value if they are not slaughtered at the optimal time. Moreover, delays in slaughtering lead to additional costs because the animals need feeding as well as block stable capacity, limiting its availability for further production. In the coronavirus pandemic, slaughtering and cutting produced a bottleneck in the value chain due to a high number of infections in slaughter and cutting premises.

In particular, COVID-19 impacted the meat sector through coronavirus infections in slaughterhouses and the resulting temporary shut-downs to limit the spreading of the virus. This did not affect all branches of the meat industry in the same way. There was little effect on the poultry and the beef industry¹, but infections in slaughterhouses had severe consequences for the pork value chain. This paper therefore concentrates on the impact of COVID-19 in the pork value chain, describing the specific susceptibility of slaughterhouses to infections, the impact of risk-reducing measures on slaughter capacity and the resulting effects on upstream sectors.

Expert interviews² as well as statistics and reports in specialized agricultural and food media form the basis of the analysis. Expert interviews are necessary to identify relevant effects, explain the consequences, make sense of statistics and fill gaps not covered by statistics. Moreover, adjustments of the legal framework entered into force in January and April 2021, meaning the effects can only be estimated. However, we recognize that experts may have vested interests. That is why we have attempted to substantiate their statements by cross-validating them in interviews with other experts, by our own expertise and by available statistics.

The paper is structured as follows: we start with some background information on the pork value chain in Germany to facilitate the understanding of the effects of the COVID-19 pandemic. We then present the development of 2020, which was the year with considerable disruptions in the pork value chain. The subsequent chapter deals with the development in 2021 which is not the post-pandemic year but the year in which disruptions eased.

SOME BACKGROUND INFORMATION

The structure of the pork value chain is depicted in Figure 1. Farmers market their pigs either through livestock traders or directly to the slaughterhouses. Moreover, imported live animals are delivered to the slaughterhouses mainly by livestock traders. The slaughterhouse companies are organized differently: some have integrated downstream functions like cutting and processing and some just deliver carcasses to the meat processing industry or to export markets. On the domestic markets, meat is distributed to consumers via retailers, butchers and canteens. A considerable share of roughly 51% is exported of which about 37% goes to EU Member States and 14% to non-EU countries

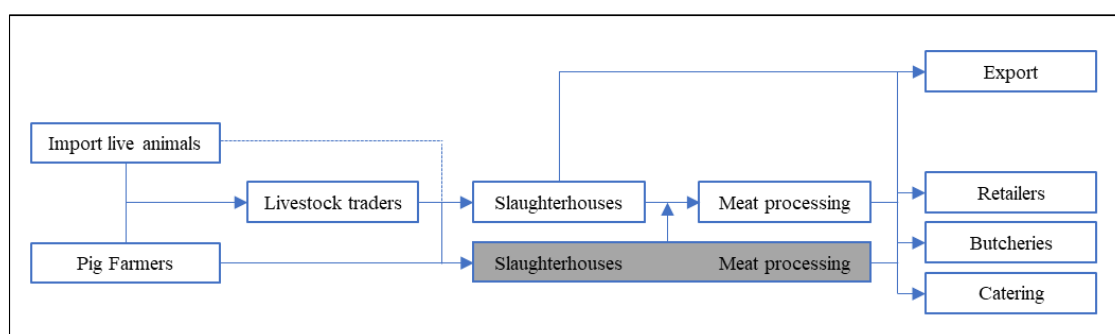


Figure 1. Structure of the German pork value chain

Source: Own representation.

In total, Germany's 21,100 pig farmers kept roughly 26 million pigs and produced roughly 51.8 million slaughter pigs in 2019. Nearly half of the animals are kept on farms with more than 2,000 pigs and by less than 15% of pig farmers (Table 1). These farms are especially dependent on pig production and the development of the pig market.

¹ Due to the shut-down of restaurants from March 22nd, 2020 to the mid of May 2020 and again since November 2nd, 2020 the prices for valuable cuts of beef dropped considerably leading to lower producer prices.

² One of the authors is department head at the most important specialist medium for the German food industry, the food newspaper. He is responsible for the areas of fruit and vegetables, dairy products and meat. In this role, he conducted a large number of interviews with representatives of slaughter and meat processing companies about the effects of the Corona crisis. In addition, interviews were held with representatives of the pig farmers.

Table 1. Structure of pig farming in Germany total and by herd size (November 2019)

	Pig farmers							
	Total	herd size (heads)						
		<100	100-249	250-499	500-999	1000-1999	2000-4999	≥ 5000
1,000 farmers	21.1	1.4	2.5	3.3	5.4	5.8	2.3	0.5
% of farmers		6.5	11.7	15.4	25.2	27.1	10.7	2.3
	Pigs							
	Total	<100	100-249	250-499	500-999	1000-1999	2000-4999	≥ 5000
1,000 pigs	25,926	102	417	1,220	4,059	8,096	6,589	5,443
% of pigs		0.4	1.6	4.7	15.7	31.2	25.4	21

Source: AMI (2020).

The German pig slaughter sector is highly concentrated with a concentration rate of the three largest companies (CR3) of close to 60%. The largest company, the Tönnies Group, accounts for roughly one third of overall slaughtering (Figure 1). The dominating slaughterhouse companies are integrated downstream and combine slaughtering and meat cutting as well as meat processing and packaging. They run large production sites, of which the largest accounts for approximately 15% of the slaughtering and cutting capacity in Germany.

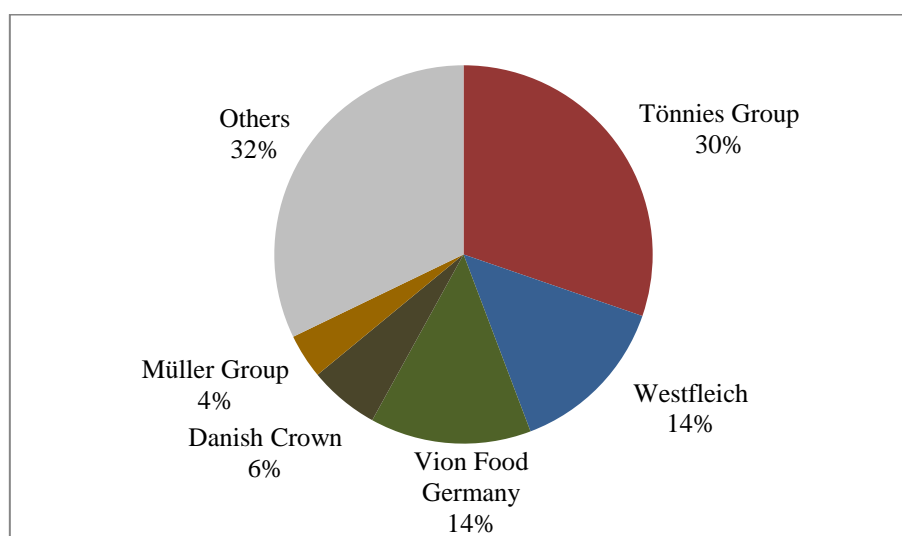


Figure 2. Concentration in the German pig slaughtering sector in 2019

Source: ISN Interessengemeinschaft der Schweinehalter Deutschlands e.V. according to company reports and Statistisches Bundesamt (Hungerkamp 2020).

During the 1990s, the German slaughter sector faced a severe crisis. Overcapacities resulted in intense price competition and as a consequence, several companies faced serious financial situations. Against this background, a structural crisis cartel was prepared in order to reduce capacities by joint action (Bongaerts, 2001). However, the structural crisis cartel did not enter into force and the slaughterhouse sector recovered by means of company takeovers, mergers and closures of unprofitable sites. Additionally, Germany's pig production and imports of slaughter pigs increased and the slaughtering and meat processing sector grew. Within 25 years, (between 1994 and 2019), the number of pigs slaughtered in Germany increased from roughly 37m to 52m: a rise of approximately 40% (Figure 2).

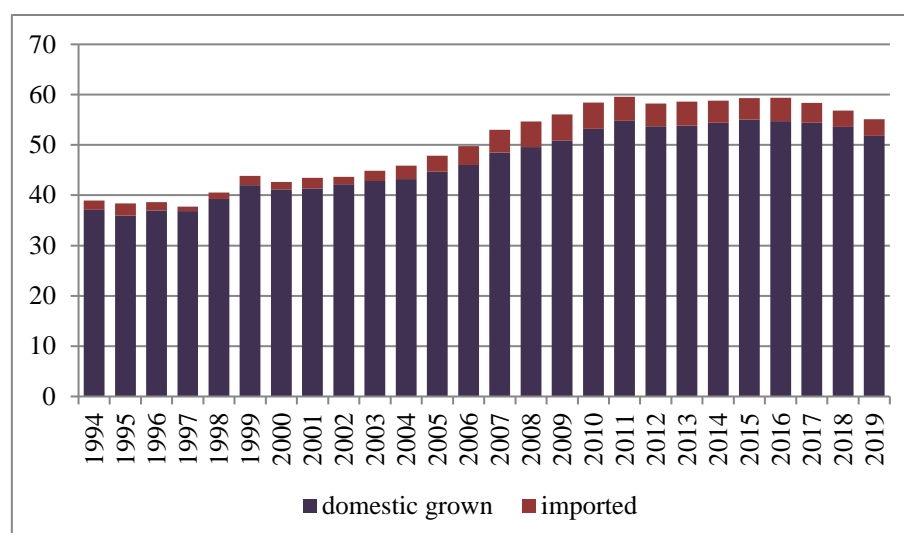


Figure 3. Development of number of pig slaughtering in Germany (million pigs)

Source: Destatis (2020).

Slaughter capacity before the coronavirus pandemic was estimated by experts to be slightly above 100%. Therefore, slaughter companies competed for pigs and had little buyer power. Moreover, the possible market power of slaughterhouse companies was balanced because many farmers are organized in producer organizations.

The competitiveness of the German meat sector is based, among others, on the efficiency of labor organization. Meat companies state that they do not find sufficient labor within Germany and must rely on migrant workers, particularly from Eastern Europe. Specialized agencies and labor intermediaries recruit workers on behalf of German subcontracting companies. Subcontracting companies in turn employ the workers and offer services to the meat industry.

Subcontracting offers flexibility and low administrative burden for service-demanding companies. They simply buy the service they require. Subcontracting companies can shift their workforces from one company to another to balance out peaks and reduce workloads within a sector as well as between different sectors. The European Federation of Food Agriculture and Tourism Trade Unions (EFFAT) estimates that approximately 80% of the labor in Germany's meat industry was carried out by migrant workers from Eastern Europe before 2020 (EFFAT, 2020).

Workers unions complain that the subcontracting system leads to lower costs in the meat industry because of an exploitation of migrant workers. Examples are wage disparities compared to workers directly employed, a higher number of working hours which can even exceed the legal limits and lead to unpaid overtime. In addition, recruiting agencies would charge inappropriately high recruitment fees and travel costs and workers unions put poor accommodation in the context of the service contract system. Employees share rooms and bathrooms and the hygiene status of the accommodation is regarded as very poor. Subcontracting companies would directly or indirectly act as landlords and charge excessive rents for poor accommodation (EFFAT, 2020). A report on the results of surveillance conducted by the occupational health and safety administration of the Federal state North-Rhine Westphalia provides empirical evidence for these complaints (MAGS, 2019). Yet it remains contentious whether or not the results are representative and to what extent the meat industry and/or the subcontractors benefit from the system.

Regardless of ethical considerations, work and accommodation conditions fostered the spread of the virus in the meat sector. According to our research, the following factors are especially relevant:

- Low temperature and ventilation systems in the meat cutting and processing areas of factories.
- Small distance between workers, especially in the meat cutting sections.
- Sending workers of the same accommodation to different plants.
- Using minibuses for transport between accommodation and workplaces that do not allow for the necessary minimal distance between the employees.
- Poor hygiene conditions in accommodation blocks and the lack of opportunity for social distancing.

Moreover, it is generally assumed that subcontractors put pressure on workers so that they do not stay home even if they feel ill. As a result, individuals with low levels of symptoms have spread the virus during working hours.

2020: IMPACTS OF COVID-19 ON THE PIG SECTOR AND THE ADAPTATION OF THE STAKEHOLDERS

The high infection risk has become evident through Coronavirus outbreaks in the meat sector. Relevant events can be summarized as follows:

- Calendar week 19/2020: a massive COVID-19 outbreak in a slaughterhouse of the Westfleisch Company with a capacity of about 55,000 pigs per week led to a shut-down. After roughly 10 days, the plant reopened with a reduced capacity in the initial phase. The shut-down did not lead to lasting disturbances on the market due to the limited time span and the ability of neighboring premises to take over additional slaughtering.
- Calendar week 25/2020: Germany's biggest slaughterhouse with a capacity of about 130,000 pigs a week closed because of coronavirus outbreaks. This single plant of the Tönnies Group covers about 15% of the total German pig slaughter capacity. After roughly four weeks, operations restarted and slowly increased the number of slaughters. In October 2020 however, the official permit was still limited to roughly 90,000 pigs a week, which is 40,000 pigs or 30% below pre-crisis level. The capacity loss could not be offset by other slaughterhouses.
- From calendar week 40/2020 onwards: Outbreaks in two other slaughterhouses further reduced Germany's slaughter capacity by roughly 80,000 pigs a week.

In addition, the coronavirus pandemic and the infections in slaughterhouses fueled public discussion about work and accommodation conditions and increased pressure on politicians to adjust the legal framework. The government reacted and announced a new law (Arbeitsschutzkontrollgesetz, Working Conditions Control Act) in order to abolish the subcontracting system and service contracts in the meat industry from 2021 onwards, because they are supposed to be responsible for inappropriate working conditions and accommodation.

Adjustment processes in the meat industry

Several measures were taken to limit the risk of coronavirus outbreaks: Hygiene concepts had to be developed for all slaughterhouses and be approved by health authorities. Concepts are specific to each plant, however measures to reduce the infection risks which are comparable: widening the space between employees and/or installing Plexiglas shields and a high density of testing is mandatory. While a minimum of two tests a week was prescribed by law, some companies intend to conduct daily tests for people working in the slaughtering and meat cutting business. The Tönnies Group installed a high performance HEPA filter in the plant which closed in May in order to prevent the spread of the virus through the ventilation system.

As a consequence of the hygiene concepts, the number of slaughters carried out had to be reduced as the meat cutting areas proved to produce a bottleneck because the number of workers was reduced in order to comply with distancing regulations. To increase the meat cutting capacity, the Tönnies Group installed additional cutting belts in a building once used for cattle. However, it took time to convert the building and to install the technology.

Increasing slaughter and processing capacity by extending operation hours (e.g. on Sundays) was technically feasible, but experts assume a lack of labor because of the COVID-19 crisis and an intended change in working conditions for the meat industry. The meat industry already reacted in advance and committed not to rely on service contracts from 2021 onwards. Several reasons have been mentioned regarding why this development may have led to a shortage of workers in the meat industry: (1) Service-providing companies reacted to the risk of losing their business basis by withdrawing their workforce from the meat industry and offering services to other sectors. (2) The meat industry had yet to develop its own system of recruiting its labor force. (3) Stricter control on working hours may not be in the interest of all workers. Given that staying in Germany means staying away from family and friends, workers may be rather interested in earning as much money as possible in a given period of time and therefore look for other work opportunities. (4) Travel restrictions due to the coronavirus pandemic hamper the recruitment of workforces in Eastern European countries. (5) Working conditions in the meat industry are harsh and it might be assumed that the infection risk is higher than in other sectors such that there is an incentive to look for alternative employment.

In total, there were two limiting factors in the meat sector resulting from COVID-19: (1) the slaughter and meat cutting capacity and (2) a shortage of labor. According to expert opinions, capacities in the slaughterhouses not mentioned above had to be reduced by about 4- 5% or roughly 30,000 pigs a week to meet the hygiene requirements. Altogether, Germany's pig slaughter capacity in October 2020 was estimated to be roughly 150,000 pigs a week, or 15% lower compared to during the pre-corona period. By the end of 2020, capacity increased once more, due to the measures taken by the slaughterhouse companies.

Figure 3 compares the number of slaughters in Germany in 2019 and 2020. It gives evidence of the reduced slaughter capacity of the sector.

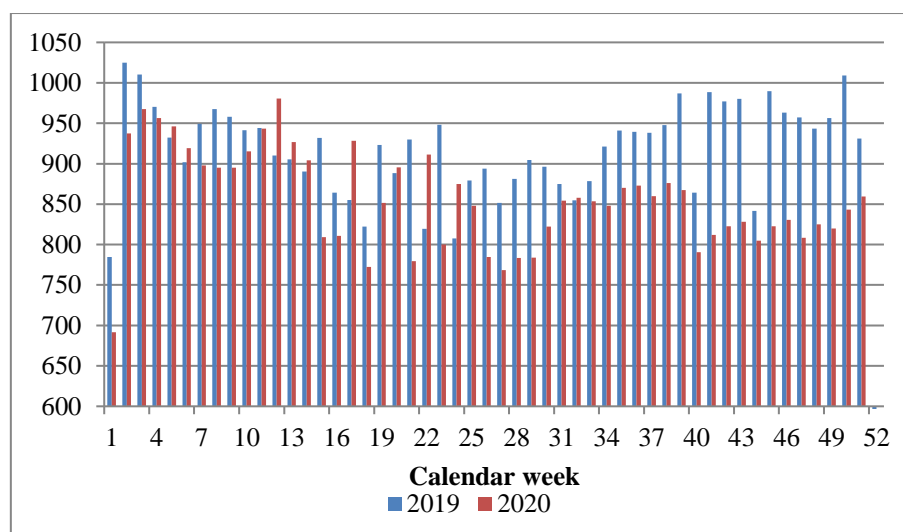


Figure 4. Number of pig slaughters in Germany in 2019 and 2020 (1,000 heads)

Source: Chamber of Agriculture Lower Saxony (2020)³.

Repercussions for pig producers

Regarding pig production, short-term adjustment of quantities to prices was and is not possible, as present supply was determined by the insemination of sows in the previous year. However, Germany's indigenous production in 2020 was indeed lower than in 2019 due to stock reduction. Moreover, during the crisis, imports of live animals decreased and exports increased after the shutdown of slaughterhouses. However, these developments did not balance out the slaughterhouse capacity reduction. As a consequence, the supply of fattened pigs exceeded slaughtering capacity and a so called "pig-jam" emerged (see Figure 4). The exact extent of the "pig-jam" is unknown because no reliable data regarding imports and export of live animals and indigenous production are available. Expert estimations amount to approximately one million pigs that were ready for slaughter at the end of 2020.

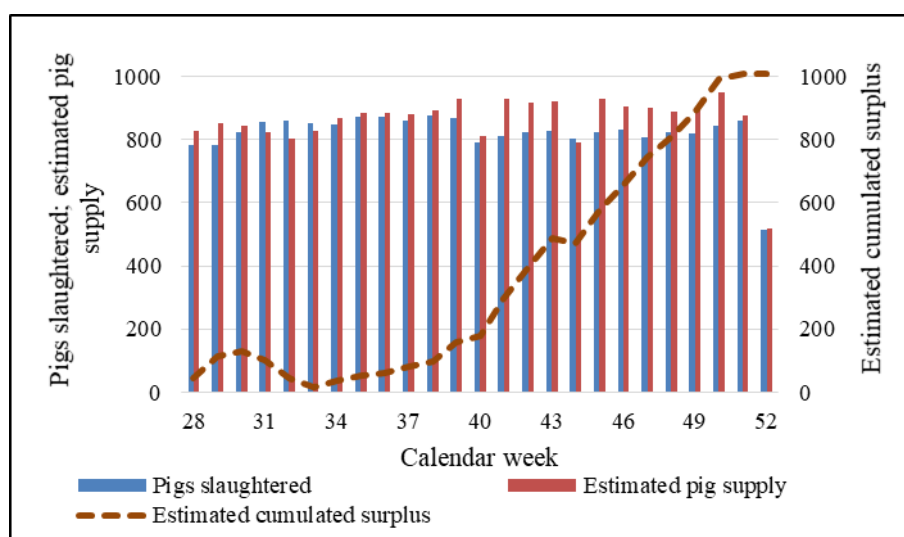


Figure 5. Estimation of cumulated oversupply with live pigs in Germany (calendar 28 to end of 2020)

Source: Own calculations based on Chamber of Agriculture Lower Saxony (2020)⁴.

³ Note: Chamber of Agriculture Lower Saxony (2020), unpublished data and results.

⁴ Note: Chamber of Agriculture Lower Saxony (2020), unpublished data and results. Assumptions: Pig supply in 2020 about 4% lower than slaughters in 2019 from calendar week 28 to 43.

After the shut-down of Germany's biggest slaughterhouse, the surplus of live animals resulted in a decline in pig prices by roughly 12% compared to previous weeks (compare Figure 5). For farmers, it became increasingly difficult to find buyers for the pigs that were ready to be slaughtered, because the slaughter capacity no longer corresponded to the amount of pigs.

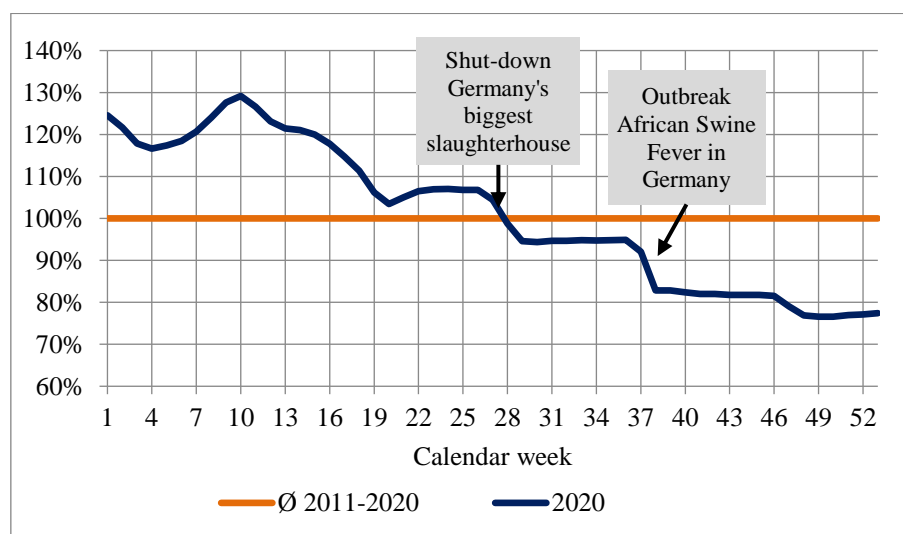


Figure 6. Development of pig prices in Germany related to average price (grading class S and E)

Source: BMEL (2020).

In addition to the price fall for a standardized quality, experts suppose that farmers were confronted with a downgrading of the carcass quality because of increasing weight (Figure 6) and the actual price cut was even higher.⁵

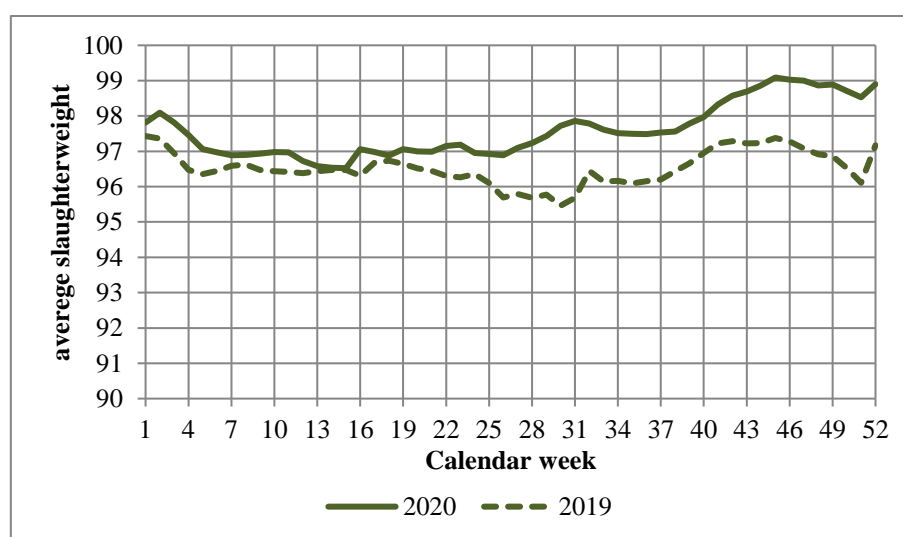


Figure 7. Carcass weight of slaughter pigs in Germany (grading class S and E)

Source: Own calculations based on BMEL (2021).

But farmers did not only face price drops: Pigs ready for slaughter had to remain on farms, leading to additional feeding costs. Moreover, the stables could not be used for further production. Pig producers bound to slaughter companies by long-term delivery contracts were not affected by delivery problems as slaughterhouses complied with the obligation to buy the pigs. This in turn meant that producers without contracts singularly bore the adverse consequences resulting from delayed deliveries.

The COVID-19 effects were compounded by the outbreak of African Swine Fever in Germany and the subsequent export restrictions, especially to Asian countries. This led to an additional price cut of 13% because

⁵ In general slaughterhouses did not change their price mask due to the increasing slaughter weight.

exports to Asian markets represent considerable value to German pig producers. The two prices together worsened the financial situation of pig farmers (Figure 5).

Falling prices for slaughtered pigs led to a price cut for piglets to an even greater extent. In total, piglet prices fell between June and December 2020 from about 15% above average to more than 50% below (Figure 7).

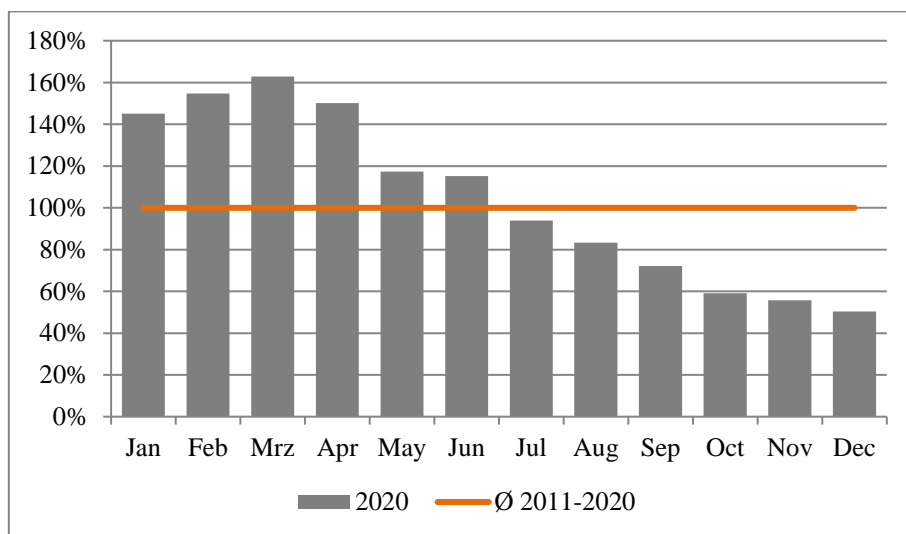


Figure 8. Development of piglet prices in Germany related to average price (quotation North West)

Source: AMI (2020).⁶

2021: STABILIZATION OF THE MARKETS

In the first quarter of 2021, the situation on the market for fattened pigs relaxed. The adjustment processes in slaughterhouses and the strategies to limit outbreaks of COVID-19 increased and stabilized slaughterhouse capacity compared to at the peak of the coronavirus crisis in mid-2020. The “pig jam” was decreased during the first quarter of 2021 and prices as well as average slaughter weight approached again the long-term average (Figure 9 and Figure 10) In general, slaughterhouse companies and the administration that controls the slaughterhouses had learned to manage the crisis.

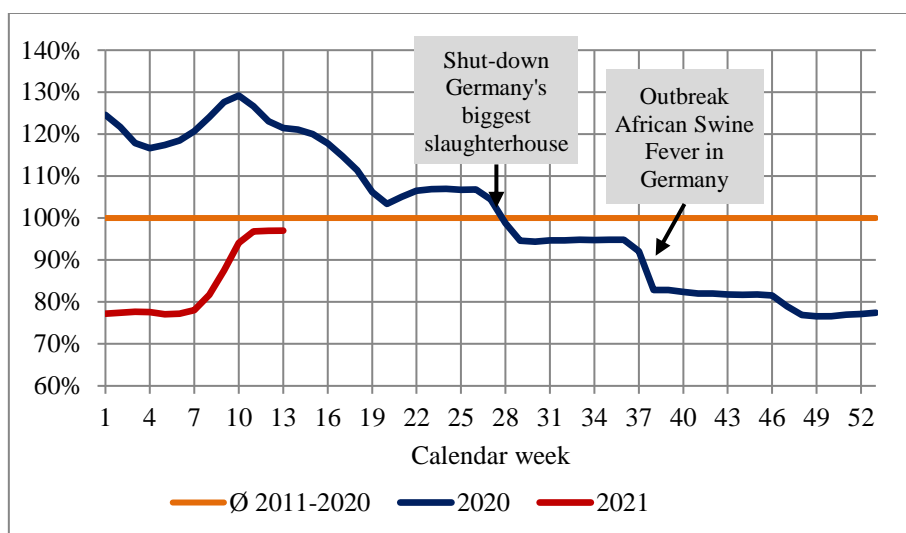


Figure 9. Slaughter pig prices in Germany related to average price (grading class S and E)

Source: BMEL (2020).

⁶ AMI (2020), Datensammlung Nutzvieh: Preis- und Mengeninformationen. Unpublished data.

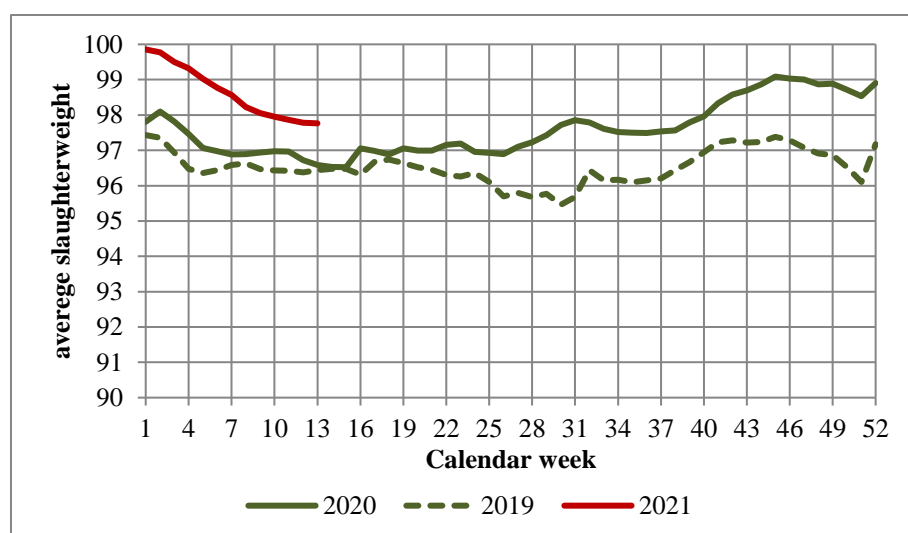


Figure 10. Carcass weight of slaughter pigs in Germany

Source: BMEL, own calculations

With the combined effect of the coronavirus pandemic and the breakout of the African swine fever, piglet prices dropped corresponding to pig prices, but to a greater extent. The fall in price coincides with a change in the legal framework for keeping sows and piglets which leads to an increase in animal welfare standards and requires additional investments in stables. Against a background of low piglet prices and high investments, experts expected that a relevant share of piglet producers will leave the sector and by that threaten the basis of German pig production. One expert called the COVID-19 impact a contribution to a severe violation of the backbone of the German pig production and processing. Still it must be stressed that while the COVID-19 crisis may not have a long-term impact on the German pig value chain, but it may have especially exacerbated the problems for piglet producers. In line with prices for slaughter pigs, piglet prices increased in the first quarter of 2021 (Figure 10).

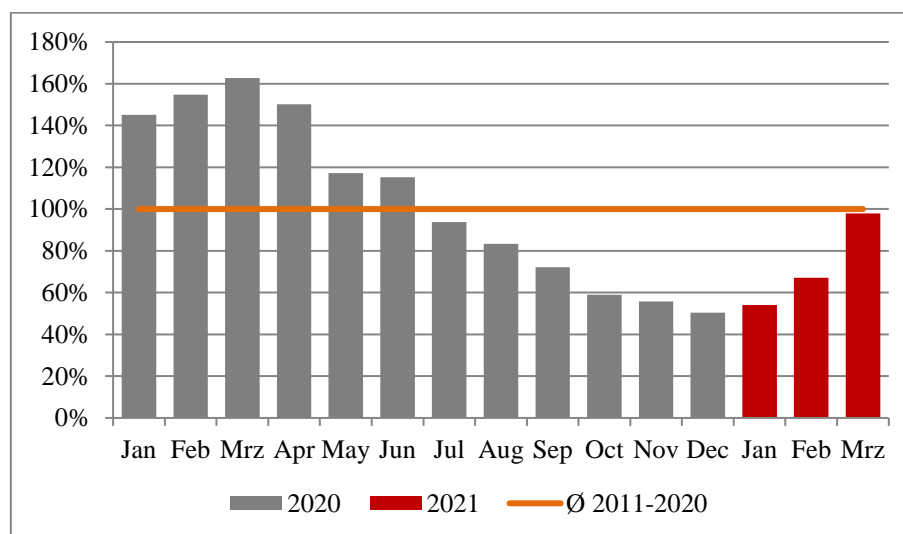


Figure 11. Development of piglet prices in Germany related to average price (quotation North West)

Source: AMI (2020)

SUMMARY

The coronavirus crisis has revealed the weaknesses and vulnerability of the highly competitive German slaughterhouse sector. The size of some slaughterhouses and the subcontracting system for employees have resulted in low costs and enabled efficient marketing. However, these advantages turned out to be equally disadvantageous with respect to managing the impact of the COVID-19 pandemic in the pork value chain. The shutdown of the largest and most efficient German slaughterhouse revealed that the entire value chain was dependent on a single slaughterhouse. Moreover, the subcontracting system which allows for the use of workers in different companies and in different facilities turned out to be a major driver of coronavirus outbreaks.

The development on Germany's market for fattened pigs in 2020 was not only influenced by the coronavirus crises. The outbreak of African Swine Fever exacerbated the crisis due to the loss of export opportunities. In addition, labor legislation and its expected changes made it difficult to expand slaughterhouse capacity by extending operating hours. Nevertheless, the COVID-19 pandemic was the decisive factor in the 2020 development.

Since the outbreak of the COVID-19 pandemic the German meat sector has undergone several changes which limit the probability of an outbreak and the dissemination of the virus. The distance between working places has been increased and the subcontracting system has been largely abolished. In addition, ventilation systems have been adapted and extensive tests now help to ensure that infected people are detected at an early stage and do not pass the virus on. Nevertheless, the functioning of the pig value chain still depends on a few slaughterhouses.

Overall, the effects of a crisis like the coronavirus crisis could be mitigated by building up additional capacities along the individual stages of the value chain. However, this would lead to additional costs and thus to a deterioration in competitiveness.

In order to be better prepared for future crises, it might be helpful to draw up contingency plans to co-ordinate the activities of competing companies. Based on stat measures the actors of the value chain could be urged to co-operate to better overcome the crisis.

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