

Trends in indicators of market power in Germany and Europe

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The full Report (in German) is accessible at:
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The Monopolies Commission is a permanent, independent expert committee which advises the German government and legislature in the areas of competition policy-making, competition law and regulation. Its legal responsibilities encompass, among others, the preparation of a Main Report analysing the development of competition on a biannual basis. The Monopolies Commission has five Members appointed by the Federal President based on a proposal of the German government. Prof. Achim Wambach, Ph.D., is the chairman of the Monopolies Commission.

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Summary

Every two years, the Monopolies Commission has the task under Sec. 44 Para. 1 first sentence ARC to examine the state and development of concentration among companies in the Federal Republic of Germany. Since the beginning of its reporting, it has identified the 100 largest companies in Germany as part of its statutory mandate in order to assess aggregate, i.e. cross-sectoral, macroeconomic concentration. Concentration reporting has been supplemented in this Report by two further aspects with a current relevance.

In the first place, in the USA a long-term increase in concentration among companies and market power has been observed and a corresponding need for action in terms of competition policy is being discussed. In order to analyse the transferability of this observation to Germany and Europe, the Monopolies Commission has, among other things, evaluated concentration statistics and determined company-specific price markups. The development of concentration in Germany does not show an upward trend, as is the case in the USA. However, in contrast to the relatively constant development of concentration, the average markup in Germany has risen since 2013. In 2015, it was at a higher level than before the economic and financial crisis in 2007. However, the picture for Germany differs significantly from that for the USA, where a – much stronger – increase in markups can be observed, particularly in the sectors where markups are already high.

3.1 Introduction

358. This part of the Report forms a supplement to the customary survey of the 100 biggest companies in Germany which the Monopolies Commission conducts in the context of its statutory reporting on market concentration in accordance with section 44 (1), first sentence, of the Act against Restraints of Competition (*Gesetz gegen Wettbewerbsbeschränkungen*, GWB). In the period under review, the debate among international economists and competition policy experts increasingly focused on the concentration of economic activity,⁷⁴ mainly as a result of a controversial debate in the United States around the possible cross-sectoral increase in concentration and the corresponding need for competition policy action.⁷⁵ Empirical studies of market concentration in the United States show that the number of publicly-listed companies has halved over the course of the last two decades, for instance, and that market concentration has increased in 75 per cent of all business sectors since 2000.⁷⁶ Moreover, findings on rising corporate profits are interpreted as indicating that companies' average market power has significantly increased in the United States.⁷⁷ The President of the United States' Council of Economic Advisers also voiced competition concerns in its Issue Brief dated April 2016 and called on policymakers to give attention to competition policy.⁷⁸ In response to these concerns, the President of the United States issued an Executive Order in which the competent authorities were called upon to take steps to more effectively protect market competition.⁷⁹

359. During and in the immediate aftermath of the global financial crisis the Monopolies Commission did not feel there was any need to examine whether there had been any cross-sectoral increase in market concentration in Germany. After a period of economic recovery, however, market structural conditions may well have changed, given that markets sometimes undergo business demographic restructuring following a recession.⁸⁰ In other words, it is fair to assume that it is less competitive suppliers which are more likely to exit a market in a recession because they are unable to compensate for the drop in demand or overcome the difficulties in finding sources of financing. The consequence could be a rise in corporate concentration on these markets, which might have a negative impact on competition but might also be a side effect of more efficient production.

360. The concentration of economic activity can deliver great advantages to an economy so long as it does not impede effective competition. The level of market concentration cannot be used to draw any conclusions about actual competitive intensity, since a few big suppliers can also engage in fierce competition – sometimes especially so. The comprehensive use of economies of scale and economies of scope, for instance, can enable more efficient production, which has the knock-on effect of lowering prices on the demand side and guaranteeing competitiveness at international level. Thus, the competitiveness of markets also plays a key role, because even a monopolist could achieve competitive market results if there were sufficient potential competition.⁸¹ In addition, it may then be easier for heavily-investing big firms to fund resource-intensive research and development (R&D) programmes, which means they have a key role in determining national innovativeness.

⁷⁴ The OECD, e.g., conducted a hearing in June of this year on trends in international market concentration and market power, see OECD, Market Concentration, Issues Paper by the Secretariat, DAF/COMP/WD(2018)46, 20 April 2018.

⁷⁵ Stiglitz, J. E., The new era of monopoly is here, *The Guardian*, 13 May 2016; Ohlhausen, M. K., Does the U.S. Economy Lack Competition, And If So What To Do About It?, Speech at Hogan Lovells, Hong Kong, 1 June 2016; *The Economist*, The rise of the superstars, Special Report, 17 September 2016, p. 3–16; *The Economist*, Too much of a good thing, 26 March 2016, p. 21–24.

⁷⁶ Grullon, G./Larkin, Y./Michaely, R., Are US Industries Becoming More Concentrated?, Working Paper, October 2016.

⁷⁷ *The Economist*, The rise of the superstars, loc. cit.; *The Economist*, Too much of a good thing, loc. cit.; De Loecker, J./Eeckhout, J., The Rise of Market Power and the Macroeconomic Implications, NBER Working Paper No. 23687, 2017.

⁷⁸ Council of Economic Advisers, Benefits of Competition and Indicators of Market Power, CEA Issue Brief, April 2016.

⁷⁹ Executive Order No. 13725 of 15 April 2016.

⁸⁰ Duval, R./Hong, G. H./Timmer, Y., Financial Frictions and the Great Productivity Slowdown, IMF Working Paper No. 17/129, May 2017; Foster, L./Grim, C./Haltiwanger, J., Reallocation in the Great Recession: Cleansing or Not?, *Journal of Labor Economics*, 34(1), 2016, p. 293–331.

⁸¹ Baumol, W. J., Contestable Markets: An Uprising in the Theory of Industry Structure, *American Economic Review*, 72(1), 1982, p. 1–15.

361. It is nevertheless worth paying particular attention to highly concentrated markets from the competition policy perspective because the risk of competitive distortions is generally also high in such markets. First, where the number of suppliers in a market decreases, this facilitates coordinated behaviour because both the number of partners with which a firm needs to coordinate its actions declines and transparency in the market as a whole increases. When competitors coordinate their activities, the possibility of identifying and sanctioning individual members of a cartel which are deviating from that action thus also increases. Second, the barriers to entry in highly concentrated markets are generally also high, which reduces the competitive pressure on potential new competitors. This increases the scope of action of those suppliers which are already active in the market, leading to them increasing their product prices, for example, a move they would otherwise not be able to justify on the grounds of production effort. High economies of scale and high fixed costs for development, production or advertising are examples of such barriers to entry. There may also be less incentive to innovate when it is more difficult for young, innovative businesses to enter a market, for example.

362. Highly concentrated markets also present a potential risk from a macroeconomic perspective, especially when they are important for the economy as a whole. This is because in highly concentrated markets economic aggregates such as gross domestic product (GDP), contributions from foreign trade and unemployment rates are dependent on only a few companies.⁸²

363. Another potential risk associated with the aggregate or market-based concentration of economic activity is that individual players then have means of exerting a political influence. The fact that private-sector representatives are involved in economic policymaking on both a formal and an informal basis is not in itself problematic. The case may be entirely different from a competition policy perspective, though, because established suppliers can use their political influence to erect or maintain barriers to entry.⁸³

364. To sum up, market concentration may be of crucial relevance to competition, both in terms of the aggregate concentration of economic activity in conglomerates (as already discussed in the context of reporting on the 100 biggest companies in Germany) and in terms of the relevant product and geographical markets. In order to be able to examine whether the finding of an overall increase in market concentration and market power in the United States also applies to Germany and Europe, statistical indicators of concentration based on official statistics will therefore be analysed in the following.⁸⁴ Nevertheless, when assessing the prevailing competitive situation and whether a concentrated market structure actually does create a competitive risk and effects which impede effective competition it is of much greater importance to look at the market outcome side. That is why this Report calculates and analyses indicators of the trend in market power which are oriented to corporate profits. The latter are also calculated for other European countries to enable a comparison with outcomes for companies in Germany. The objective of these empirical analyses is to assess, from an overall economic perspective, whether there has indeed been an increase in average market concentration and market power. The results therefore do not permit any concrete conclusions to be drawn regarding competitive intensity in the relevant product and geographical markets, nor can any competition policy recommendations for individual markets be derived from them. The following analysis should therefore be regarded as complementary to sector-specific analyses.

3.2 Reasons for increasing cross-sectoral market power

365. There can be various reasons why individual businesses develop, consolidate or expand their market power. It is generally acknowledged that, in a market economy, entrepreneurial activity aims at the agglomeration of economic activities and avoiding intense competition. This corresponds to the economic principle of profit

⁸² See para. 283 in the original report and para. 371.

⁸³ See para. 282 in the original report.

⁸⁴ Since the Monopolies Commission updated its reporting on market concentration it no longer regularly uses revenue-based statistical indicators of concentration based on official statistics. This is because they say very little about actual competitive intensity in individual markets (Monopolkommission, XVIIIth Main Report, Mehr Wettbewerb, wenig Ausnahmen, Baden-Baden 2010, para. 89 et seq. and section 3.4.1 in this Report).

maximisation and ensures productivity growth and innovation, mainly due to economies of scale and of scope in the production of goods and services as well as competitive advantages due to innovative products and production processes. These determinants of competitive intensity are by no means new, although they may have become less relevant in recent years. Economies of scale and of scope therefore have a decisive role to play in the context of globalised markets and international competition. The pursuit of external growth strategies in the form of mergers and acquisitions (M&A) is one consequence. Hence, an average increase in M&A involving German businesses was observed between 2011 and early 2017.⁸⁵ When it comes to innovativeness and productivity, a recent paper found evidence to suggest that the gap between a small group of global players and all other businesses is widening. This is above all attributed to a deterioration in technology diffusion.⁸⁶ An overall increase in R&D spending on the one hand and a decrease in the number of companies investing in R&D on the other have been observed in Germany in recent decades.⁸⁷

366. Furthermore, under-enforcement on the part of the competition authorities is also discussed to contribute to a cross-sectoral increase in market power. Competition experts in particular criticise the European Commission's at times inadequate enforcement of the EU Merger Regulation.⁸⁸ They claim that as a result of under-enforcement not enough mergers raising competition concerns are being blocked and/or too many concessions are being made when conditions and requirements are imposed on parties to mergers. Some studies have indeed shown that the European Commission has authorised mergers which impede effective competition and that negotiated conditions and requirements were inadequate, respectively.⁸⁹ However, recent studies at least do not indicate any systematic price rises following mergers authorised by the European authorities.⁹⁰ It is impossible to say whether there is in fact any under-enforcement in the context of merger control. It is also unclear how many illegal agreements go undetected in the course of cartel prosecution. It should be noted that the competition authorities are almost exclusively reliant on leniency notices rather than being able to actively prosecute cartels, even though that would no doubt be much more inefficient.⁹¹

367. More recent developments provide another reason to investigate cross-sectoral market power. As already explained in the above, it is possible that market structures may have changed following the global financial crisis due to the disruptive effects of negative demand shocks and difficulties finding sources of financing, leading to numerous suppliers being forced out of their markets. According to economic theory, those businesses which have productivity disadvantages compared to other market players are the first to exit a market.⁹² As a result, aggregate

⁸⁵ ZEW/BvD, M&A Report, Deutscher M&A-Index deutet Trendwende an, October 2017.

⁸⁶ Andrews, D./Criscuolo, C./Gal, P. N., *Frontier Firms, Technology Diffusion and Public Policy: Micro Evidence from OECD Countries*, OECD Background Paper, OECD Publishing, Paris, 2015.

⁸⁷ Rammer, C./Schubert, T., *Concentration on the few: mechanisms behind a falling share of innovative firms in Germany*, *Research Policy*, 47(2), 2018, p. 343–542.

⁸⁸ Motta, M., *Problems with Merger Control*, presentation at the annual MaCCI Conference in Mannheim on 17 March 2017, <https://sites.google.com/site/massimomottawebpage/presentations>. Reasons for this under-enforcement could, e.g., be that the importance of innovation, future markets and acquisitions as barriers to entry is being underestimated (see, for more details, section 3.2.2 in chapter III of this Report). Another reason may be that profit margins are not examined as part of a merger reviews.

⁸⁹ Duso, T./Neven, D. J./Röller, L. H., *The Political Economy of European Merger Control: Evidence using Stock Market Data*, *Journal of Law and Economics*, 50, 2007, p. 455–489; Duso, T./Gugler, K./Szücs, F., *An empirical assessment of the 2004 EU merger policy reform*, *The Economic Journal*, 123(572), 2013, p. F596–F619; Monopolies Commission, XVIIIth Main Report, loc. cit., para. 664 et seqq. In regard to the United States, Kwoka, J., *Mergers, Merger Control, and Remedies. A Retrospective Analysis of U.S. Policy*, MIT Press, Cambridge, among others, 2016, and Blonigen, B. A./Pierce, J. R., *Evidence for the Effect of Mergers on Market Power and Efficiency*, NBER Working Paper No. 22750, October 2016, note the anticompetitive effects of authorised mergers.

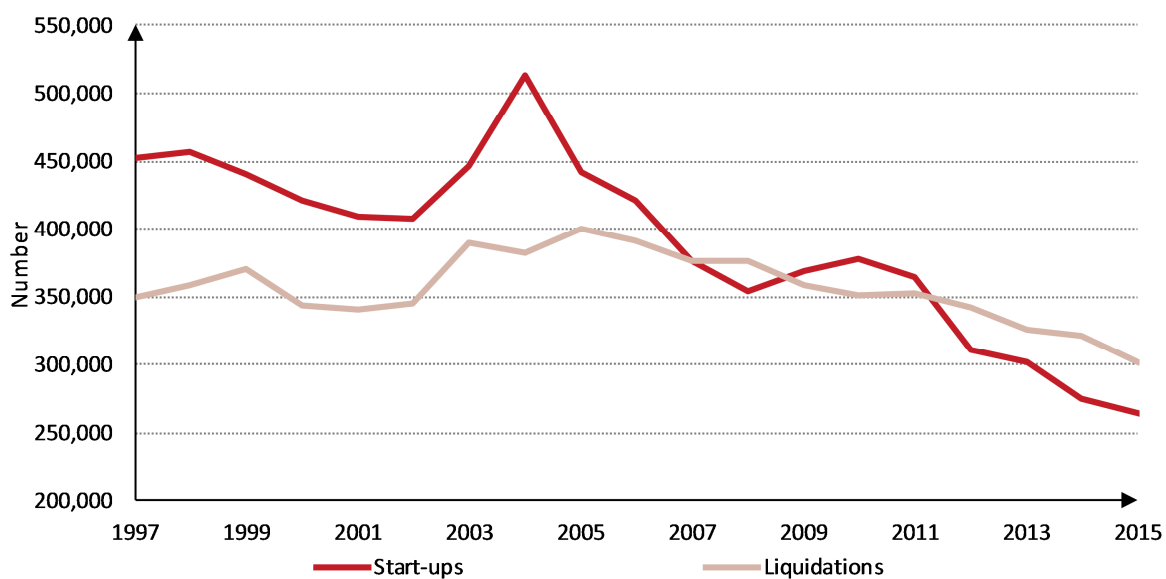
⁹⁰ Mariuzzo, F./Ormosi, P. L./Havell, R., *What Can Merger Retrospectives Tell Us? An Assessment of European Mergers*, CCP Working Paper No. 16-4, 2016. The authors analysed a total of 29 surveys of the price effects of mergers between 1995 and 2009.

⁹¹ Monopolies Commission, XXth Main Report, *A Competitive Order for the Financial Markets*, Baden-Baden 2014, para. 815 et seqq.

⁹² Foster, L./Grim, C./Haltiwanger, J., loc. cit.

productivity increases, but market concentration and thus the likelihood of individual suppliers increasing their market power also increases. Nevertheless, figures for Germany indicate that there were no dramatic business demographic restructuring effects in 2009, the year of the financial crisis. However, the number of reported insolvencies briefly increased during the crisis – although the general trend observed since 2003 had been downwards.⁹³ Figure II.23 illustrates the downwards trend in company closures since the mid-2000s based on the number of liquidations. At the same time, though, the number of start-ups in Germany also dropped, sometimes more strongly than the number of closures.⁹⁴ Figure II.23 thus shows that over the past few years the number of commercial start-ups has been significantly lower than the number of companies being wound up. Overall, these numbers indicate a decrease in the rate of churn and may indicate rising barriers to entry and exit.

Figure II.23: Commercial start-ups and liquidations in Germany



NB: The numbers for the second half of 2017 are based on estimates by the Institut für Mittelstandsforschung (IfM) Bonn.

Source: IfM Bonn's statistics based on the Federal Statistical Office's business notification statistics

368. Another possible reason for the increase in market power may be the growing importance of internet- and data-based business models. These are often found in multilateral platform markets in which network effects are pertinent at least to one side, which is why no monetary prices are charged for services on that side. Classic examples include social media, dating portals, internet search engines, delivery services and hotel booking portals. In a digital economy, therefore, winner-takes-most markets (where one supplier has high market shares and a certain degree of market power on account of network effects) are gaining increasing importance.⁹⁵ Whether such markets are already so relevant as to lead to an overall increase in market concentration and market power is, however, doubtful, especially in Germany's case.

369. Furthermore, the rise in institutional investors' level of investment in recent years has in many markets led to a concentration of shareholdings among only a few investors.⁹⁶ The resulting indirect horizontal links between

⁹³ Röhl, K.-H./Vogt, G., Zahl der Unternehmensinsolvenzen rückläufig, Wirtschaftsdienst, 11/2016, p. 852 et seqq.; Federal Statistical Office, Unternehmen und Arbeitsstätten – Insolvenzverfahren, Fachserie 2, Reihe 4.1.

⁹⁴ See also Rink, A./Seiwert, I., Unternehmensdemografie: methodischer Ansatz und Ergebnisse 2005 bis 2010, Wirtschaft und Statistik, Federal Statistical Office, 2013, p. 422–439, and ZEW Gründungsreport, Weiterer Einbruch der Gründungstätigkeit, 13(1), December 2013.

⁹⁵ Monopolies Commission, Special Report 68, Baden-Baden 2015; Monopolies Commission, XXIst Main Report, Competition 2016, Baden-Baden 2016, chapter V.

⁹⁶ See section 4 of chapter II in the Main Report.

companies (referred to as “common ownership”) could be contributing to a drop in competitive intensity. Where these ownership structures exist in many markets which are of relevance to the economy as a whole, this may potentially also have competitive effects on the economy as a whole. Nevertheless, whether or not minority holdings by diversified institutional investors do actually impede effective competition is still a matter of controversy.

370. All in all, therefore, specific aspects of current economic trends give cause to investigate market concentration and market power. It is, however, by no means the case that these developments necessarily suggest that average market power has increased in Germany. Those involved in the debate on the problems regarding market concentration and market power in the United States have so far been unable to clearly identify any causes and effects.

3.3 Macroeconomic consequences of increasing market power

371. Reference was already made in the introduction to this part of the Report to the increased risk potential of concentrated markets. If competitive intensity were in fact to drop across various industries, this could have far-reaching macroeconomic consequences, mainly on account of the suboptimal allocation of economic resources and the fact that economic parameters would then be increasingly dependent on only a few players. The latter aspect has long been the subject of economic research in the context of the “granularity hypothesis” (generally understood to refer to the concentration of economic activity).⁹⁷ A macroeconomic perspective which ignores the relevance of individual companies for aggregate parameters such as productivity, contributions from foreign trade and unemployment rate is therefore no longer tenable. Rather, the performance and conduct of individual big businesses must be regarded as determinative indicators for describing macroeconomic parameters. This applies to Germany’s manufacturing industry, for example.⁹⁸ General market concentration leads to greater efficiency but at the same time poses the risk that the economy as a whole will become dependent on only a few businesses or even a few private-sector decision-makers. The emissions scandal currently enveloping German carmakers is one example of entrepreneurial decision-making which is having far-reaching negative consequences not only for individual firms but also for the market they are in and even the economy as a whole.

372. Given that it may lead to the less efficient allocation of economic resources, economists are currently investigating whether a change in competitive intensity across an economy may be triggering current macroeconomic developments.⁹⁹ Studies are being conducted, for example, into whether the drop in productivity growth at international level and in labour shares of income is linked to a decrease in competitive intensity. Both possible links will be explained and discussed in the following.¹⁰⁰ First, this stresses the relevance of the empirical analysis which follows for economic policy and, second, it enables an assessment as to whether this debate is currently of relevance to Germany.

⁹⁷ Gabaix, X., The Granular Origins of Aggregate Fluctuations, *Econometrica*, 79(3), 2011, p. 733–772; Ghironi, F., Macro needs micro, *Oxford Review of Economic Policy*, 34(1-2), 2018, p. 195–218; Di Giovanni, J./Levchenko, A. A./Mejean, I., The Micro Origins of International Business-Cycle Comovement, *American Economic Review*, 108(1), 2018, p. 82–108; Ebeke, C./Eklou, K. M., The Granular Origins of Macroeconomic Fluctuations in Europe, IMF Working Paper No. 17/229, November 2017; Zingales, L., Towards a Political Theory of the Firm, *Journal of Economic Perspectives*, 31(3), 2017, p. 113–130, and para. 283 in the Main Report.

⁹⁸ Wagner, J., The German manufacturing sector is a granular economy, *Applied Economics Letters*, 19(17), 2012, p. 1663 et seqq.

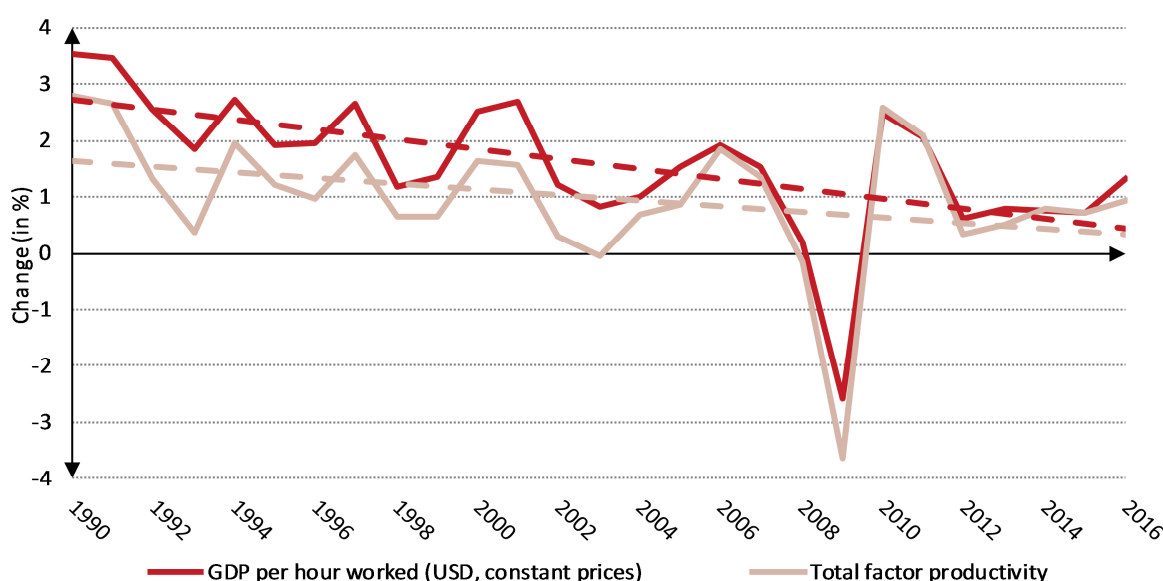
⁹⁹ Including De Loecker, J./Eeckhout, J., The Rise of Market Power and the Macroeconomic Implications, NBER Working Paper No. 23687, 2017; Autor, D. et al., The Fall of the Labor Share and the Rise of Superstar Firms, IZA Discussion Paper No. 10756, May 2017.

¹⁰⁰ De Loecker, J./Eeckhout, J., loc. cit., also suggest, in the case of the United States, a link to the drop in capital ratio, a drop in wages for low-skilled workers, a drop in labour force participation and a drop in labour market fluctuation.

3.3.1 Competition and productivity growth

373. A slowing down of macroeconomic productivity growth has been observed in many OECD countries in recent decades.¹⁰¹ In Germany's case this is true of both labour productivity and multifactor productivity, as Figure II.24 shows. While labour productivity merely measures total output against labour input, multifactor productivity also takes other production factors such as capital into account. Both economic researchers and economic policymakers are currently paying a great deal of attention to this development and in particular the debate around what is causing it.¹⁰² In view of ongoing technological advancement and great innovation potentials, for instance on account of digitalisation, the availability of better qualified personnel, the growing relevance of intangible assets and the internationalisation of value-creation chains, the slowdown in productivity growth may be a surprising development. It is therefore also referred to as the "productivity paradox", and an analysis of its root causes seems all the more challenging.

Figure II.24: Productivity growth in Germany



NB: The figure shows year-on-year percentage changes. The dotted lines plot the linear trend.

Source: Monopolies Commission, based on the OECD's productivity statistics

374. The exact causes of the slowdown in productivity growth are not yet clear.¹⁰³ However, it should be noted that this trend is not being observed to the same extent across all business sectors. Since the slowdown also does not apply to all companies in the same measure, the decline in technology diffusion is being posited as one factor.¹⁰⁴ It is assumed that innovative production technologies are increasingly focused within a small group of companies operating at the global productivity frontier. At the same time, the productivity gap between this group and other enterprises is widening. It is also possible that the potential for innovations to increase overall

¹⁰¹ This is particularly clear in regard to labour productivity, although it also applies to multifactor productivity in many countries. See, e.g., OECD, OECD Compendium of Productivity Indicators 2017, OECD Publishing, Paris, and, with regard to the United States, Gordon, R. J., The rise and fall of American growth: The US standard of living since the civil war, Princeton University Press, 2016.

¹⁰² Council of Economic Experts, Focus on Future Viability, Annual Report 2015/16, Wiesbaden, 2015; IfW, Produktivität in Deutschland – Messbarkeit und Entwicklung, Beiträge zur Wirtschaftspolitik Nr. 12, November 2017.

¹⁰³ Some blame mismeasurement for the observed slowdown in productivity growth. Although it does appear necessary to adapt statistical measuring concepts, the measuring errors are not deemed to be sufficient to fully explain the trend being noted (see Ahmad, N./Ribarsky, J./Reinsdorf, M., Can potential mismeasurement of the digital economy explain the post-crisis slowdown in GDP and productivity growth?, OECD Statistics Working Paper No. 2017/09, 2017, and IfW, loc. cit.).

¹⁰⁴ Andrews, D./Criscuolo, C./Gal, P. N., loc. cit.

productivity has decreased in recent years, which could also be having a negative impact on innovative efforts.¹⁰⁵ What has no doubt played a key role in the slowdown in productivity growth during and since the financial crisis is the fact that companies are facing difficulties in finding sources of financing, combined with the fact that some were already financially vulnerable prior to the crisis.¹⁰⁶ A report recently published by the Kiel Institute for the World Economy (IfW) identifies five main factors which are responsible for the slowdown in productivity growth in Germany:¹⁰⁷ a “process of normalisation” has had a dampening effect following Germany’s reunification; investments in information and communication technologies (ICTs) and their productivity-increasing effect were comparatively low; the tertiarisation process mainly favoured business-related services, whose productivity worsened over the years compared to other sectors; demographic change has had a negative impact on labour productivity; finally, the successful labour market integration of workers with below-average productivity rates since the mid-2000s has had a negative impact on productivity growth. According to the IfW, Germany’s weak productivity growth should therefore be regarded as cyclical in nature, giving no cause for any “secular productivity pessimism”.¹⁰⁸

375. The possible cross-sectoral drop in competitive intensity has only recently been taken up in the broader debate around the causes of decreasing productivity growth.¹⁰⁹ At first glance this is surprising, since the link between competition and productivity has always been the subject of both theoretical and empirical research.¹¹⁰ One reason may be that so far the debate around the drop in aggregate productivity growth rates has mainly focused on the macroeconomic perspective, while the majority of corresponding research on competition has adopted a microeconomic perspective. Recent studies are increasingly linking the two perspectives, including those by De Loecker and Eeckhout.¹¹¹ These authors show that there has been no slowdown in productivity growth in the United States since 2000, when market power is kept constant. Instead, productivity even increases. The authors thus suggest that competitive intensity in individual markets plays a key role for aggregate productivity growth.

376. It is generally assumed in economic science that competitive pressure affects a company’s productivity, traditionally through two channels: a company’s innovative activities and general allocative efficiency (i.e. the optimum allocation of resources across an economy as a whole). It can be assumed that the greater the competitive pressure, the greater the incentives for a business to be innovative – provided that this innovativeness promises to generate a competitive advantage and thus less competitive pressure, at least temporarily.¹¹² On the other hand, high competitive pressure can negatively impact a business’s innovative activity if the profit margins in a market are sufficiently low due to the competitive intensity: first, the benefits expected on account of

¹⁰⁵ Gordon, R. J., loc. cit.

¹⁰⁶ Duval, R./Hong, G. H./Timmer, Y., loc. cit.

¹⁰⁷ IfW, loc. cit.

¹⁰⁸ IfW, loc. cit.

¹⁰⁹ The aforementioned report by the IfW also does not explicitly investigate competitive intensity as a reason for developments in regard to productivity. The IfW does, however, cite lower competitive intensity as a potential explanation for the fall in productivity (IfW, loc. cit., p. 195–196).

¹¹⁰ Numerous studies indicate that policy measures which promote competition lead to an increase in productivity, e.g.; see Nicoletti, G./Scarpetta, S., Regulation, productivity and growth: OECD evidence, *Economic Policy*, 18(36), 2014, p. 9–72; Griffith, R./Harrison, R./Simpson, H., Product Market Reform and Innovation in the EU, *Scandinavian Journal of Economics*, 112(2), 2014, p. 389–415; Aghion, P., et al., Entry and Productivity Growth: Evidence from Microlevel Panel Data, *Journal of the European Economic Association*, 2(2-3), 2004, p. 265–276. Further, studies by Ospina, S./Schiffbauer, M., Competition and Firm Productivity: Evidence from Firm-Level Data, IMF Working Paper No. 10/67, March 2010, and Hynes, K./Opoku, E. E. O./Yan, I. K. M., Reaching Up and Reaching Out: The Impact of Competition on Firms’ Productivity and Export Decisions, UCD Centre for Economic Research Working Paper No. 17/19, September 2017, e.g., indicate a causal link between competitive intensity and firm-level productivity.

¹¹¹ De Loecker, J./Eeckhout, J., loc. cit.

¹¹² Aghion, P., An Inverted-U Relationship, *The Quarterly Journal of Economics*, 120(2), 2005, p. 701–728.

innovations will likewise be low; second, market entry is less attractive as a result.¹¹³ The intra- or inter-sectoral diffusion of new technologies or of other innovations is most likely also linked to competitive intensity. Less innovative competitors may be incentivised if they can benefit from the market leaders' innovations through external effects such as positive know-how and productivity effects. At any rate, market leaders may be less inclined to prevent this happening. Depending on which effect predominates, a deterioration in technology diffusion may also be due to a drop in competitive intensity (in the same way as it may be a cause of the drop in productivity growth, see above).

377. As well as incentivising innovations, competitive pressure can also influence general allocative efficiency, that is the optimum allocation of resources across an economy. The efficient distribution of production resources (i.e. moving resources to where they can be employed the most productively) appears all the more important from a company-internal perspective the greater the competitive pressure. However, it will also increase in the market aggregation scenario where there is intense competition and the most productive competitors can thus hold their own in the market in the long term. Decker et al. as well as Bartelsman, Haltiwanger and Scarpetta present studies which suggest that a slowdown in economic momentum (as measured by a drop in the number of start-ups, the number of rapidly growing young businesses and job-switching among the workforce) has caused the drop in allocative efficiency and aggregate productivity growth.¹¹⁴ It should be noted that the business demographic restructuring of markets and of entire economies on account of competitive intensity may lead to a change in aggregate productivity without that competitive intensity having a significant influence on individual competitors' productivity. Likewise, such a restructuring or shift in economic activity can lead to a shift in economic weight between economic sectors, which can thus lead to changes in aggregate productivity. Such a shift in economic activity away from the manufacturing industries towards the more labour-intensive and thus less (labour) productive services sector has been noted in Germany since 2000.¹¹⁵

3.3.2 Competition and labour shares of income

378. Economists have of late increasingly been pointing out the long-term decline in the labour shares of income at international level, although this does not apply to all countries without exception.¹¹⁶ The labour share of income indicates which share of an economy's total income falls to the workforce. Karabarbounis and Neiman, for example, calculate an average drop in global labour shares of 5 percentage points over the past 35 years.¹¹⁷ Around 70 per cent of the 59 countries surveyed showed a negative trend. This finding is above all being discussed in connection with the fact that income inequality is increasing in many countries because the earned income share tends to be higher in low and medium private income households.¹¹⁸ However, the growing unequal distribution of earned incomes alone may also be responsible for the increase in income inequality. The reason for the growing unequal distribution of earned income may, in turn, be the unequal distribution of corporate profits due to the growing number of companies with strong market power.¹¹⁹

¹¹³ Ibid. and references therein.

¹¹⁴ Decker, R. A. et al., loc. cit.; Bartelsman, E./Haltiwanger, J./Scarpetta, S., Cross-Country Differences in Productivity: The Role of Allocation and Selection, *American Economic Review*, 103(1), 2013, p. 305–334; Bijmans, G./Konings, J., Declining Business Dynamism, CEPR Discussion Paper No. DP12615, January 2018, make similar findings as regards Belgium.

¹¹⁵ Council of Economic Experts, loc. cit., p. 288–289; IfW, loc. cit., p. 290.

¹¹⁶ Dao, M. et al., Why is Labor Receiving a Smaller Share of Global Income? Theory and Empirical Evidence, IMF Working Paper No. 17/169, July 2017; Karabarbounis, L./Neiman, B., The global decline of the labor share, *The Quarterly Journal of Economics*, 129(1), 2013, p. 61–103; Krämer, H., Die Entwicklung der funktionalen Einkommensverteilung und ihrer Einflussfaktoren in ausgewählten Industrieländern 1960–2010, IMK Study No. 1/2011; Autor, D. et al., loc. cit.

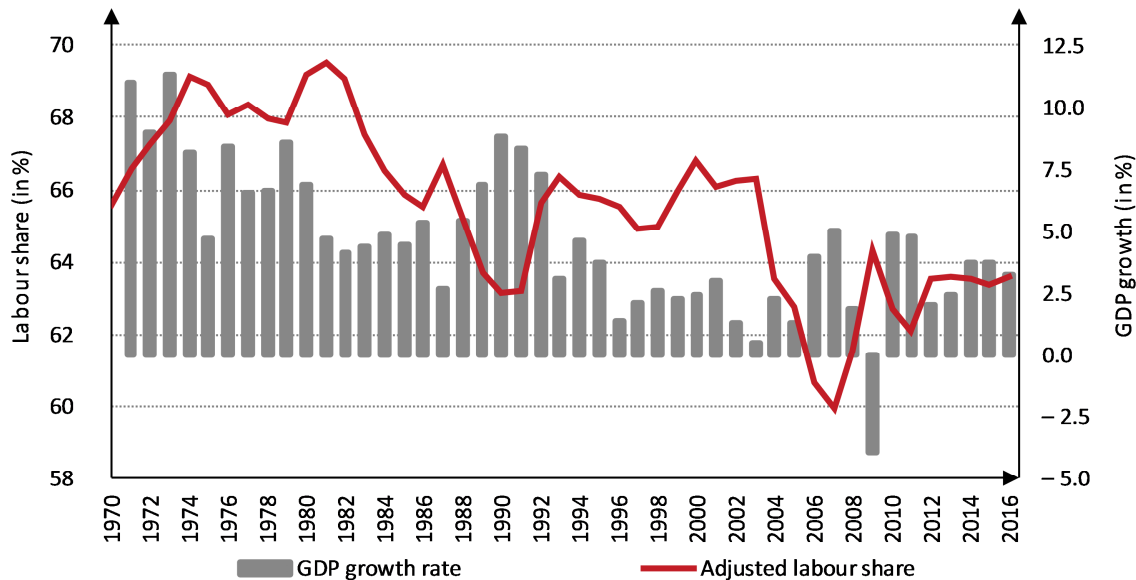
¹¹⁷ Karabarbounis, L./Neiman, B., loc. cit.

¹¹⁸ Bourguignon, F., World changes in inequality: an overview of facts, causes, consequences and policies, BIS Working Paper No. 654, August 2017.

¹¹⁹ Furman, J./Orszag, P., A Firm-Level Perspective on the Role of Rents in the Rise in Inequality, presentation at Columbia University on 16 October 2015; for an up-to-date overview of studies into the link between income inequality and competitive intensity, see

379. Figure II.25 shows that the long-term trend in the adjusted labour share in Germany is a slightly downwards one, although there is strong cyclical fluctuation. It also shows clearly that the opposite trend generally applies to the labour share and GDP growth on account of the dynamic trend in corporate profits.

Figure II.25: Trend in the labour share of income in Germany



NB: The adjusted labour share is the ratio between the wage paid per employee and national income per gainfully employed person, weighted by the ratio between the number of employees and gainfully employed persons in the base year (1970). Pre-1991: Values for the former West Germany are based on the 2005 revised national accounts. Post-1991: Values for reunified Germany are based on the 2014 revised national accounts.

Source: Monopolies Commission, calculations based on data supplied by the Federal Statistical Office

380. As in the case of overall productivity, the drop in the labour share may be due to inter- or intra-sectoral composition effects or company-internal processes. Technological progress and the disproportionate increase in productivity in regard to the factor “capital” compared to the factor “labour” and the increase in incidental wage costs may lead to labour being substituted by capital and thus to effects both at the sectoral and the company level.¹²⁰ It must be noted that changes in the allocation ratio or cost ratio of factors of production at the firm level do not correspond to the labour share in the classic economic sense, but rather to the share of personnel costs in overall production spending. One key difference is that corporate profits are not regarded as capital income or capital costs. A change in the allocation or cost ratio of the factors of production “labour” and “capital” may have an impact on the share of national income which goes to labour. Managements’ increasing capital market- and shareholder-orientation and the associated efficiency increases at the workforce’s expense are also cited as reasons for changes in the allocation of factors of production at the company level.¹²¹ A deterioration in employees’ negotiating power due to trade unions’ weakened position could be contributing to this.¹²² As well as company-internal reasons, the inter-sectoral shift in economic activity which can be observed in many economies may also be responsible for the change in the labour share. Tertiarisation processes and the increasing division of

Ennis, S. F. et al., *Inequality: A Hidden Cost of Market Power*, Working Paper, 6 March 2017. The authors simulated the impacts of market power on income distribution in Canada, France, Germany, South Korea, Japan, Spain, the United Kingdom and the United States and found that market power leads to an average increase in income inequality.

¹²⁰ Aretz, B. et al., *Ursachenanalyse der Verschiebung in der funktionalen Einkommensverteilung in Deutschland*, ZEW Project Report, Mannheim, October 2009; Dao, M. et al., loc. cit.; Karabarbounis, L./Neiman, B., loc. cit.

¹²¹ Krämer, H., loc. cit.; Bassanini, A./Manfredi, T., *Capital’s Grabbing Hand? A Cross-Country/Cross-Industry Analysis of the Decline of the Labour Share*, OECD Working Paper No. 133, July 2012.

¹²² Aretz, B. et al., loc. cit.

labour at international level in particular lead to inter-sectoral shifts in economic activity.¹²³ This trend has a key role to play in Germany: if Germany's sectoral structure is kept constant when calculating the labour share, then there is no longer a clear downwards trend in the labour share.¹²⁴ In other countries, though, such a composition effect tends to be less relevant and the change in the labour share is mainly due to developments within individual economic sectors.¹²⁵

381. As is the case in the debate around productivity, aspects of competition are also being discussed as the possible causes of the drop in the labour share. Barkai, for example, finds that the share of capital costs in gross value creation in the United States dropped between 1984 and 2014.¹²⁶ Because the labour share is also decreasing, the author concludes that the drop in the labour share cannot be due to labour being substituted by capital. At the same time, the author finds that in the period under investigation there was a rise in corporate profits (defined as operating surplus minus capital costs¹²⁷) and that this could be due to companies' rising markups.¹²⁸ The simultaneous increase in market concentration is evidence of such a link.¹²⁹ However, since a decrease in companies' competitive pressure goes hand in hand with less incentive to make efficiency gains and thus the potential to optimise production may go untapped, two opposing mechanisms of action can at least theoretically be made out here: thus, an increase in market power could, due to a drop in cost pressure and rise in pricing scope, prevent a drop in the share of personnel costs in overall production spending at company level, even if the factor of production "capital" were comparatively cheaper. At the same time, increased market power could also be responsible for the drop in the labour share because higher markups are not absorbed by labour costs but lead to higher corporate profits, which would increase an economy's capital ratio.

382. Both Autor et al. and Kehring and Vincent claim that the increase in competitive pressure at international level in conjunction with the great pressure to increase productivity is responsible for the emergence of "hyper-productive" or "superstar" firms with enormous productivity advantages.¹³⁰ Following this logic, the labour share has dropped as a consequence of jobs having shifted to particularly productive companies. However, Kehring and Vincent also explain that the labour share within companies has changed to the benefit of productivity improvements. Nevertheless, given its competitive advantages, the group of especially productive companies in turn has a great deal of market power. Therefore, from a static perspective it does not appear implausible to simultaneously look at high market power and low labour shares. Taking a dynamic perspective, one can assume that when a sufficient level of market power is achieved in a well-functioning market, the lack of pressure to make efficiency gains first leads to a rise in the labour share but will, ultimately, lead to a loss of market power.

383. Bassanini and Manfredi calculated that, between 1990 and 2007, 80 per cent of the decrease in the labour share of income in OECD countries was due to the growth in total factor productivity and capital deepening, but that only a comparatively small share of the decrease was due to the increase in national and international

¹²³ According to the Heckscher-Ohlin Theory, economies orient their international trade to those factors of production of which they have abundant quantities. In view of increasing trade liberalisation since the 1980s, differences in factor endowment have therefore led to an inter-sectoral shift in economic activity (Aretz, B. et al., loc. cit.; Dao, M. et al., loc. cit.).

¹²⁴ Aretz, B. et al., loc. cit.

¹²⁵ Elsby, M. W./Hobijn, B./Sahin, A., The decline of the US labor share, *Brookings Papers on Economic Activity*, 2013(2); Dao, M. et al., loc. cit.; Karabarbounis, L./Neiman, B., loc. cit.

¹²⁶ Barkai, S., Declining labor and capital shares, *Stigler Center for the Study of the Economy and the State New Working Paper Series No. 2*, November 2016. Capital costs are here defined as the product of required return on investment and capital stock on material and immaterial investments.

¹²⁷ See fn. 126.

¹²⁸ See, as regards this line of argument, also Karabarbounis, L./Neiman, B., loc. cit., and De Loecker, J./Eeckhout, J., loc. cit., e.g.

¹²⁹ Barkai, S., loc. cit., and Hutchinson, J./Persyn, D., Globalisation, concentration and footloose firms: in search of the main cause of the declining labour share, *Review of World Economics*, 148(1), 2012, p. 17–43.

¹³⁰ Autor, D. et al., loc. cit.; Kehrig, M./Vincent, N., Growing Productivity without Growing Wages: The Micro-Level Anatomy of the Aggregate Labor Share Decline, *CESifo Working Paper No. 6454*, 2017.

competition.¹³¹ However, if one considers that productivity increases can be down to competition, these findings speak in favour of competition in some countries being a factor in the reduced relative use of the factor “labour”, but that less competition leads to a lower labour share of income on account of higher corporate profits.

3.4 Empirical indicators of market power

384. Both empirical economic research and antitrust authorities face huge challenges when it comes to measuring competitive intensity and the actual market power of individual suppliers. In the case of empirical research this in particular applies to broad-based cross-sectoral studies because of the lack of appropriate market definitions as well as of information on prices and sales volumes.¹³² For that reason the Monopolies Commissions based its analysis on various indicators of market power.

3.4.1 Revenue concentration

385. One indicator of market power which has been around for a long time and is still often used is the revenue concentration of suppliers in a market. Nevertheless, this measure raises both substantive (or validity-related) and methodological (or reliability-related) problems. Some of these problems will be outlined in brief in the following.

386. Although revenue concentration is in itself an interesting parameter because it can identify a certain risk of conduct which impedes effective competition, it does not permit any meaningful conclusions regarding actual competitive intensity in a particular market.¹³³ Further, the belief that under the structure conduct performance (SCP) paradigm exclusively market structures give rise to specific market performance is outdated.¹³⁴ It also appears possible that the converse may be true, namely that market structure is (also) the result of market performance. There is, therefore, of necessity neither a correlation nor a unilateral causal relationship between the parameters “concentration” and “competitive intensity”. Nevertheless, due to the concomitant risk of, for example, coordinated action, revenue concentration is of interest in relation to competition.

387. When it comes to the reliability of statistical indicators of concentration, cross-sectoral investigations conducted without any market-specific surveys likewise have little meaning. It is, for instance, almost impossible to define the markets surveyed from a product or geographical perspective based on competition economic considerations. The literature therefore usually resorts to statistical industry classifications which include all those firms (usually in one country) which report that most of their revenue is generated in the relevant industry. It is usually not possible to break down the corporate turnover figures used for statistical indicators of concentration into individual areas of activity, which is why total turnover is assigned to the respective sector based on the focus of sales principle. This leads to even more serious distortions of the indicators being used the more detailed the industry classification. Foreign trade activities are also almost entirely excluded from the majority of these surveys, which include neither exports nor imports on account of a lack of the relevant information.

388. Despite the aforementioned problems, often no alternative indicators of competitive intensity are available, which explains why indicators of concentration are frequently still used in scientific studies and antitrust practice as an indicator of competitive intensity.¹³⁵ The frequent lack of any adequate discussion of the meaningfulness of statistical indicators of concentration is surprising, however, especially in the empirical economic sciences. This applies all the more in regard to the debate around the market concentration and competition problem in the

¹³¹ Bassanini, A./Manfredi, T., loc. cit.

¹³² For a comprehensive discussion of empirical strategies for measuring competition, see, e.g., Perloff, J. M./Karp, L. S./Golan, A., *Estimating Market Power and Strategies*, Cambridge University Press, Cambridge et al., 2007.

¹³³ See section 3.1.

¹³⁴ See, e.g., Schmalensee, R., *Inter-industry studies of structure and performance*, in: Schmalensee, R./Wittig, R. T. (eds), *Handbook of industrial organization* Vol. 2, Amsterdam, Elsevier, 1989, p. 951–1009.

¹³⁵ Valletti, T., *Concentration trends in Europe*, presentation at the annual CRA conference in Brussels on 12 December 2017; Autor, D. et al., loc. cit.

United States.¹³⁶ The Monopolies Commission believes that the cross-sectoral analysis of statistical indicators of concentration based on official business statistics is of little relevance or even misleading in regard to strongly disaggregated industries.¹³⁷ By contrast, a strongly aggregated analysis can permit general conclusions about market concentration across an economy, allowing a comparison to be drawn with the studies on US markets in particular. Nevertheless, it is especially the absolute values used for the statistical indicators of concentration which are of limited relevance. Thus, it may be of little relevance for the actual concentration of market shares in German markets to know how concentrated the total domestic and foreign turnover of companies based in Germany is. This especially applies to an economy such as Germany, which is strongly integrated into international trade. Nonetheless, the long-term trends in such indicators indicate an increase or decrease in market concentration if other conditions are presumed to remain sufficiently constant.

389. In the following the Monopolies Commission analyses the trend in average Herfindahl-Hirschman indices supplied by the Federal Statistical Office (*Statistisches Bundesamt*) for the period 2007 to 2015. The Herfindahl-Hirschman Index (HHI) is defined as the sum of the square of the revenue shares (s) of all the suppliers (i) in a market (j) for a year (t), and thus measures the concentration of revenue shares in a market:

$$HHI_{jt} = \sum_{i \in j, t} s_{ijt}^2$$

The HHI ranges between 0 and 10,000, where 10,000 describes a monopoly. In the following, those revenue shares in a 4-digit industry based on the 2008 Classification of Economic Activities (WZ 2008) are used which were attributed to companies based on the focus of sales principle. A special analysis was conducted on behalf of the Monopolies Commission using data drawn from the Federal Statistical Office's business register. When determining revenue shares, all those firms (legally independent entities for the purposes of official statistics) in a sector were combined into economic units which can be assigned to a joint group parent on the basis of majority interests and are thus regarded as a corporate group. Since such links between companies are not recorded in the Federal Statistical Office's primary survey, this information was supplied by private data providers.¹³⁸ Market concentration would otherwise have been strongly underestimated.

3.4.2 Markups

390. When it comes to measuring actual competitive intensity in a market, preference is given to indicators which are oriented to economic profit margins. Economic profit margins (μ) describe the relationship between the marginal costs of producing a good (λ) (i.e. the costs of producing the last unit) and its price (P):

$$\mu_{it} = \frac{P_{it}}{\lambda_{it}}$$

In contrast to profits disclosed, in the theoretical case of perfect competition no economic profits are generated because the price of a product then equals the marginal costs of producing it. However, as soon as a company has the chance to increase its product prices via marginal costs or competitive level, it will generate positive markups. Following this concept, markups are a suitable indicator of market power. However, it must be borne in mind that there is generally no perfect competition in real markets and that each supplier has a certain amount of market power, for example on account of product heterogeneity. As well as the key validity benefits which profit-oriented indicators have when it comes to measuring competition, they also have the advantage – particularly in the context of inter-sectoral investigations – that they can be calculated for each individual supplier and there is thus no need for any market definition.

¹³⁶ See Ohlhausen, M. K., loc. cit.

¹³⁷ The Monopolies Commission used to regularly cite such indicators in its main reports (see Monopolies Commission, XVIIIth Main Report, loc. cit., para. 89 et seqq.).

¹³⁸ Sturm, R./Tümmeler, T./Opfermann, R., Unternehmensverflechtungen im statistischen Unternehmensregister, Wirtschaft und Statistik 8/2009, p. 764–773.

391. Nevertheless, determining the economic profit margins of individual companies is not without problems, mainly due to the lack of available information on marginal costs or the economic costs of production. Moreover, cross-country and cross-sectoral business databases do not contain product-specific information as they mainly record information derived from external accounting. One method of approximating companies' market power based on balance sheet data was recently proposed by De Loecker and Warzynski, and has since been regularly applied in empirical economic research.¹³⁹ As well as the general possibility of approximating markups at the company level from balance sheet data, other advantages of this method include the fact that neither a time-constant need be assumed for these markups nor constant economies of scale, as is the case when applying other methods.¹⁴⁰ The Monopolies Commission applies this method in the following to enable an assessment of the trend in market power in Germany and Europe.

392. According to De Loecker and Warzynski, a markup (μ), in terms of economic profit margins, can be defined as the relationship between the factor price elasticity of supply for a variable factor of production (θ_{it}^X) and the revenue share of the costs of that factor of production:

$$\mu_{it} = \theta_{it}^X \left(\frac{P_{it}^X X_{it}}{P_{it} Q_{it}} \right)^{-1}$$

The factor price elasticity of supply is here determined using an econometric estimate of a production function.¹⁴¹ This method is based on the assumption that, when under high competitive pressure, a supplier will reduce (raise) prices if the costs of the relevant variable factors of production decrease (increase). Considering only one factor of production, then the price changes proportional to this factor of the production's share in total production spending, that is in the case of perfect competition and if prices equal the marginal costs. If that were the case, there would be no markup and μ would be 1. If the supplier does not cut prices or cuts them disproportionately to the reduction in the cost of the required factor of production, the cost benefits are not passed on to customers. In this case it can be assumed that a supplier has a certain degree of market power, as it would otherwise not be competitive in the event of perfect competition. Then μ would be > 1 .

393. The data used to determine markups represent a European subsample of the Orbis business database supplied by Bureau van Dijk.¹⁴² Information on financial indicators was collated by the data provider's national contracting partners from trade balances and profit-and-loss accounts; data were put into a standardised format to permit international comparability. This permits a microdata-based cross-country analysis, which would be much more complex and costly using data from national statistical offices. The business data prepared in this way for use in the following analysis cover the period 2007 to 2015 and thus enable the trend in market power to be observed before, during and after the global financial crisis. Another key advantage of using these data is that they include both publicly-listed and non-listed companies. Nevertheless, the data basis represents neither a full population survey nor a representative sample, which is why only limited conclusions can be drawn regarding the business population as a whole.¹⁴³

¹³⁹ De Loecker, J., Recovering markups from production data, *International Journal of Industrial Organization*, 29(3), 2011, p. 350–355; De Loecker, J./Warzynski, F., Markups and Firm-Level Export Status, *American Economic Review*, 102(6), 2012, p. 2437–2471.

¹⁴⁰ See, as regards time-constant estimates of markups at the sectoral level, e.g., Christopoulou, R./Vermeulen, P., Markups in the Euro Area and the US over the Period 1981–2004, ECB Working Paper No. 856, January 2008.

¹⁴¹ For a formal derivation of μ and a detailed description of production function estimates, see section 3 of the Annex in the Main Report.

¹⁴² For a detailed description of the data preparation method, see section 4 of the Annex in the Main Report.

¹⁴³ However, a comparison of the revenue included in the data and Eurostat's country-level estimates of revenue in the manufacturing industry carried out for the Monopolies Commission's XXIst Main Report showed that the coverage rate in 24 out of a total of 30 countries is more than 50 per cent, in 17 countries more than 70 per cent and in 12 countries more than 80 per cent (Monopolies Commission, XXIst Main Report, loc. cit., B. Annex, chapter III).

3.5 Findings: Constant level of concentration and rising markups

3.5.1 Constant level of concentration

394. Average revenue concentration in German business sectors remained almost constant over the period 2007 to 2015. Figure II.26 shows the trend in the unweighted average (arithmetic mean) values for the Herfindahl-Hirschman Index (HHI) for all 4-digit sectors.¹⁴⁴ The HHI ranges from 0 to 10,000, where 10,000 describes a monopoly. The average level of concentration is significantly lower than an HHI of 1,500. The median (i.e. the value above and below which exactly half of all values are plotted) is constant and less than 1,000 across all years. In US antitrust practice, markets with an HHI value of less than 1,500 are classified as unconcentrated.¹⁴⁵ Within the context of EU merger control, HHI values of between 1,000 and 2,000 are regarded as unproblematic in terms of antitrust law if the change in concentration due to a merger is not more than 250 or if the HHI is higher than 2,000 and the change due to the merger is less than 150.¹⁴⁶ However, applying such thresholds to interpret HHI values can only be seen as providing a rough guide. It should also be pointed out once again that the values presented here are based on an industry classification which draws on official statistics and may thus deviate from the level of concentration calculated for economically defined markets, and that account was taken neither of exports nor of imports. It should also be borne in mind that the Federal Statistical Office's calculations concerning market concentration for the respective reporting years are of limited comparative value due to methodological changes having been made. For example, information on corporate groups was supplied by one private data provider for 2007, 2009, 2011 and 2013 and by another provider for 2015.

395. While there has been no appreciable change in unweighted average concentration, average concentration weighted by revenue shares has increased very slightly in recent years (figure II.26). Weighting the average HHI by the relevant sectors' revenue shares of total revenue ensures that when calculating average concentration greater consideration is also given to those sectors which are more important to the economy as a whole. The slight increase in the weighted HHI since 2009 is due to a relative increase in revenue in more strongly concentrated sectors or to an increase in concentration in high-revenue sectors. Thus, figure II.26 shows that the revenue share in the most strongly concentrated 10 per cent of sectors increased from around 7 per cent in 2009 to almost 9 per cent in 2015.

396. No upwards trend can be observed at the peak of the distribution of concentration, i.e. when looking at only the most highly concentrated sectors. Quite the contrary, instead of an increase in market concentration in what are already highly concentrated sectors, a slight drop in market concentration can be made out. While the 90th percentile is around 3,000 in the period under review, the 95th percentile drops from around 4,500 in 2007 to approximately 4,000 in 2015. The 95th (90th) percentile describes the HHI value above which the highest 5 (10) per cent of values are observed. Nevertheless, the HHI values along the upper margin of the distribution indicate highly concentrated sectors. The US competition authorities assume that an HHI of 2,500 already indicates a highly concentrated market.¹⁴⁷ However, 75 per cent of the sectors surveyed have an HHI of less than 2,000 (75th percentile).

397. In contrast to the situation in the United States, for instance, there is no upwards trend in market concentration in Germany. Nor are there any indications of any disproportionate increase in concentration in what are already highly concentrated sectors. The global financial crisis does not appear to have led to an increase in average concentration either. However, 10 per cent of the surveyed sectors had HHI values of more than 3,000 in 2015; a shift in revenue shares in highly concentrated sectors or greater concentration in high-revenue sectors can

¹⁴⁴ Based on the WZ 2008; see also section 3.4.1.

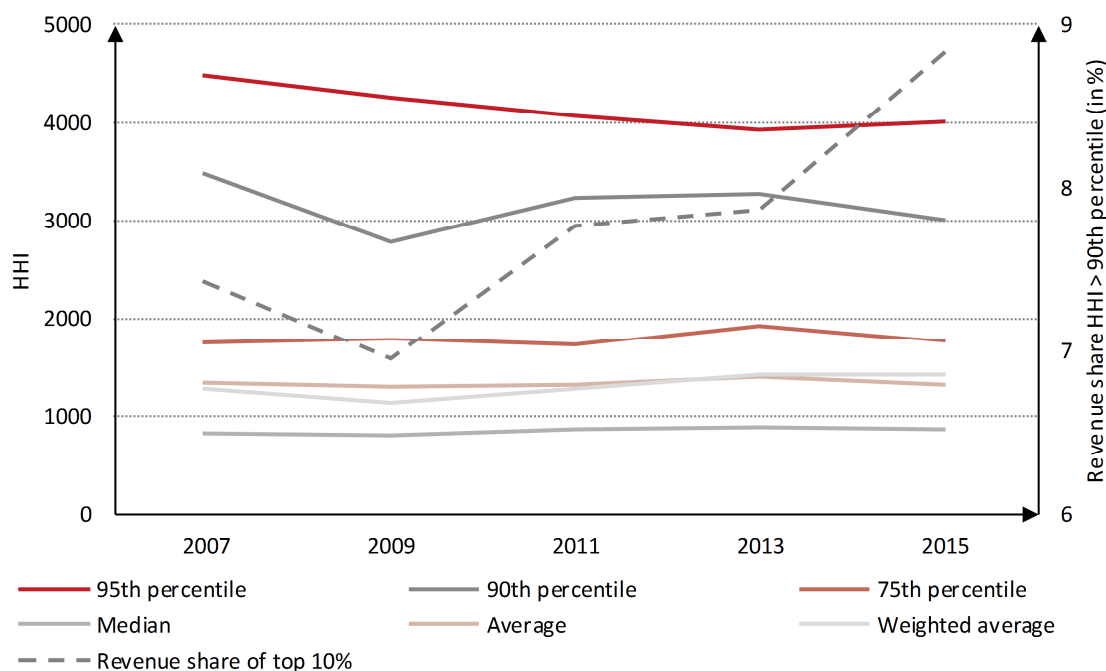
¹⁴⁵ U.S. Department of Justice and the Federal Trade Commission, Horizontal Merger Guidelines, 19 August 2010.

¹⁴⁶ Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings (2004/C 31/03).

¹⁴⁷ U.S. Department of Justice and the Federal Trade Commission, Horizontal Merger Guidelines, 19 August 2010.

be observed, too. Nevertheless, no conclusions about actual competitive intensity in the sectors surveyed can readily be drawn from this. As well as there being methodological reasons, this is due to the fact that competitive intensity can also be high in highly concentrated markets and that indicators of market concentration can at most indicate a potential risk to competition in such cases.¹⁴⁸

Figure II.26: Trend in market concentration in Germany



NB: Calculations on the basis of Herfindahl-Hirschman values for 4-digit sectors based on the WZ 2008, taking account of corporate groups.

Source: Monopolies Commission, calculations based on data in the Federal Statistical Office's business register

3.5.2 Rising markups

398. Unlike the level of market concentration, which has remained relatively constant, the average markup has been rising in Germany since 2013. Markups are calculated individually for each company and are thus an indicator of a company's market power because they show the relationship between actual prices and prices under ideal competitive conditions.¹⁴⁹ Figure II.27 reveals a very clear rise in Germany both in the unweighted average markup and the average markup weighted by suppliers' revenue shares since 2013 and even since 2012.¹⁵⁰ In 2015, the average markup in Germany was higher than before the financial crisis in 2007 and thus also suggests an increase in market power compared to pre-crisis levels. This increase is quite strong compared to

¹⁴⁸ See section 3.4.

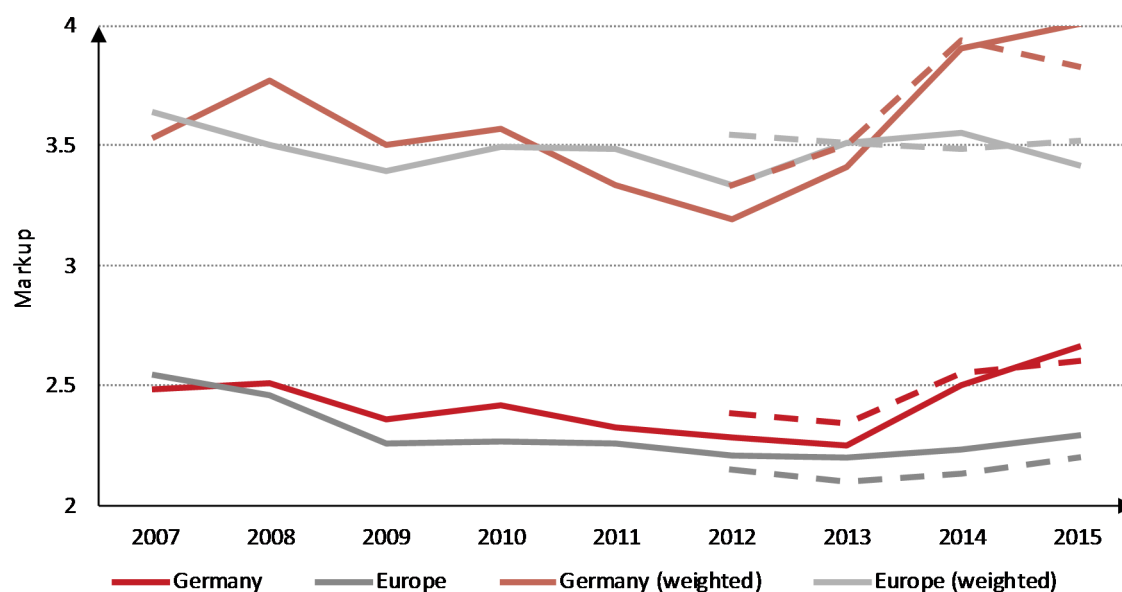
¹⁴⁹ See section 3.4.2.

¹⁵⁰ An absolute markup value of 1 represents a case in which the price equals the marginal costs and no markup can be made out due to market power. A markup of, e.g., 2.5 equals a markup of 150 per cent. The markups determined for Germany and Europe appear very high, and the estimated absolute value may be methodologically distorted on account of the lack of information on prices and sales volumes in particular. For this reason, the Monopolies Commission did not carry out a detailed interpretation of absolute amounts and the focus was instead placed on the change in estimated markups over time (see, in more detail, Annex 3 in the Main Report).

other European countries, too (Figure II.27). The unweighted markup in European countries excluding Germany indicates only a very slight increase in recent years, and none achieved their pre-crisis markups in 2015.¹⁵¹

399. The increase in average market power in Germany is also evident when only those companies are included in the sample for which figures are available for the entire observation period (2012–2015) (dotted lines in Figure II.27). Accordingly, the balanced sample does not include any suppliers which exited or entered the market during the relevant period. A comparison of results for the unbalanced and the balanced sample permit conclusions to be drawn as to whether the increase in average markups is due to business demographic changes. It may, for instance, be due to innovative suppliers with competitive advantages entering a market, or to uncompetitive suppliers exiting a market – especially on account of the additional burdens imposed by the financial crisis. However, in the current context there are also methodological reasons for analysing a balanced sample, because suppliers do not immediately add financial information about individual companies to the database and sometimes only do so after a significant delay. This leads to a drop in the number of values included towards the end of a time series (known as “sample attrition”). If this delay correlates systematically with the observed feature, the results will be distorted. A balanced sample with a constant number of values is therefore analysed to ensure that the increase in markups is not solely due to delayed data entry. However, this, in turn, means that account cannot be taken of business demographic effects. The trend in markups in the balanced sample in Figure II.27 shows, first, that the observed increase is robust in the face of changes in sample size and, second, that the increase in markups is not solely due to business demographic developments but also applies to those suppliers which were active throughout the relevant period.

Figure II.27: Markups in Germany and Europe



NB: The dotted lines represent values for balanced samples. Weighted by revenue shares. See fn. 151 for the list of countries included in the European average.

Source: Monopolies Commission, calculations based on the Orbis business database supplied by Bureau van Dijk

400. Analysing the trend in markups reveals a disproportionate increase at the peak of the distribution, i.e. in companies which already have high markups (Figure II.28a and b). The higher the percentile, the stronger the

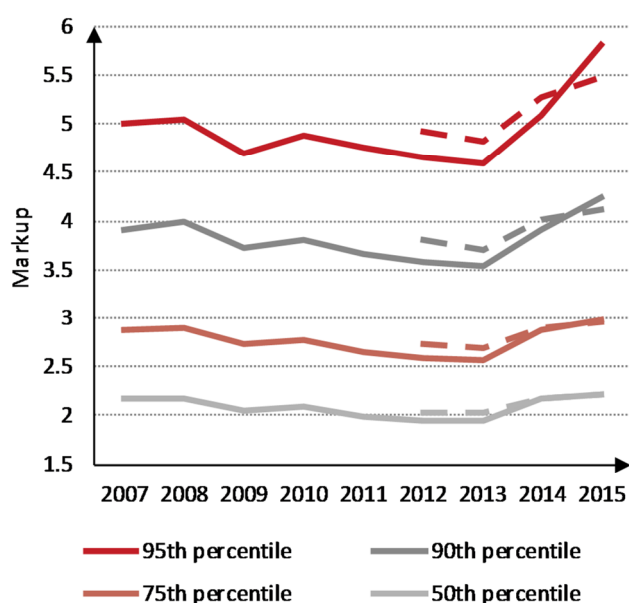
¹⁵¹ The following European countries were included: Belgium, Bulgaria, Czech Republic, Germany, Estonia, Spain, Finland, France, Croatia, Hungary, Italy, Norway, Poland, Portugal, Romania, Sweden, Slovenia, Slovakia. For a comparable study of markups in Europe, see Weche, J./Wambach, A., The Fall and Rise of Market Power in Europe, ZEW Discussion Paper No. 18-003, January 2018.

increase in 2014 and 2015. A percentile p and a value x indicate what percentage p of the values observed in the sample are below the value x . This indicates that firms which were already powerful further expanded their market power – to a greater extent than those with relatively low market power did. However, an absolute increase can be observed for all percentiles, even for the median (i.e. the value above and below which exactly half of all values are plotted). The picture which emerges in Germany thus differs considerably from that observed in the United States, where the rise in markups (which is also significantly stronger) can only be observed in the upper half of the distribution.¹⁵² The changes in markups in other European countries are distributed largely symmetrically.

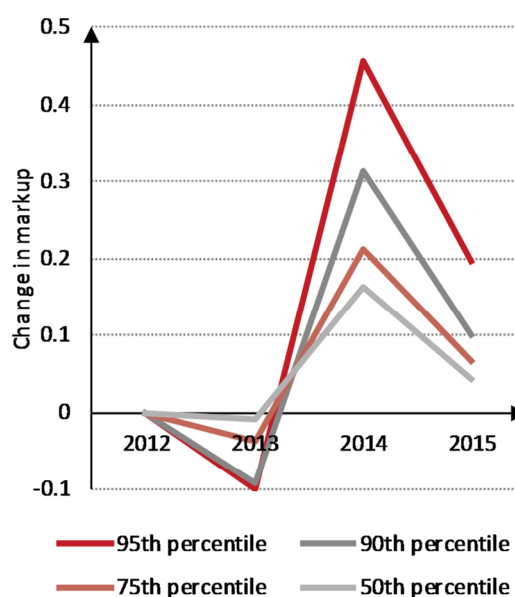
401. It is also worth noting that companies with the highest markups generate most of their revenue in quite highly concentrated sectors. Figure II.29 shows the trend in average markups by business sector concentration. To plot this graph the sectors were divided into four groups of equal size, sorted by HHI value. It is evident that companies generating most of their revenue in the highest and second-highest HHI group also have the highest and second-highest average markup – across the entire observation period. The average markup in the lower two HHI groups follows this positive correlation in most but not in all years.

Figure II.28: Distribution of markups in Germany

a) Distribution of markups



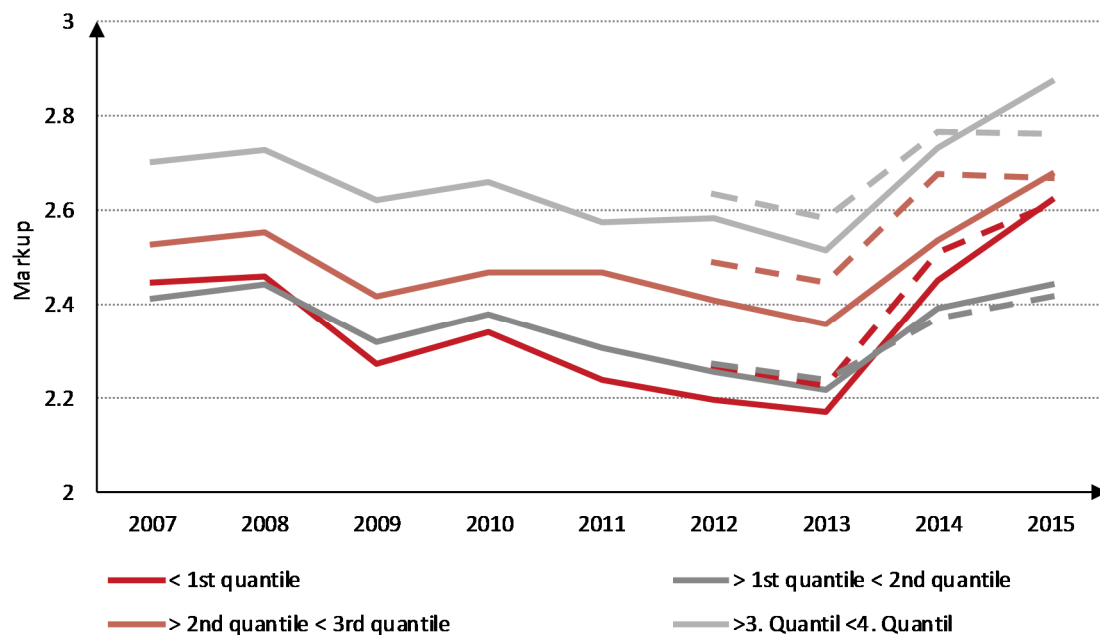
b) Year-on-year change



NB: The dotted lines in a) represent values for a balanced sample. In b), all values are for a balanced sample.

Source: Monopolies Commission, calculations based on the Orbis business database supplied by Bureau van Dijk

¹⁵² De Loecker, J./Eeckhout, J., loc. cit.

Figure II.29: Average markups based on HHI distribution

NB: The dotted lines represent values for a balanced sample.

Source: Monopolies Commission, calculations based on the Orbis business database supplied by Bureau van Dijk

3.5.3 Increase in disclosed corporate profits

402. In parallel with the increase in markups, average disclosed corporate profits are also increasing in Germany. The average profit margins presented in Figure II.30 relate to returns on sales, measured as the ratio of earnings before interest and taxes (EBIT) to turnover.¹⁵³ Figure II.30 shows an increase in profit margins not only in Germany but also across a European average. Moreover, profit margins increased both in the unbalanced and balanced samples.

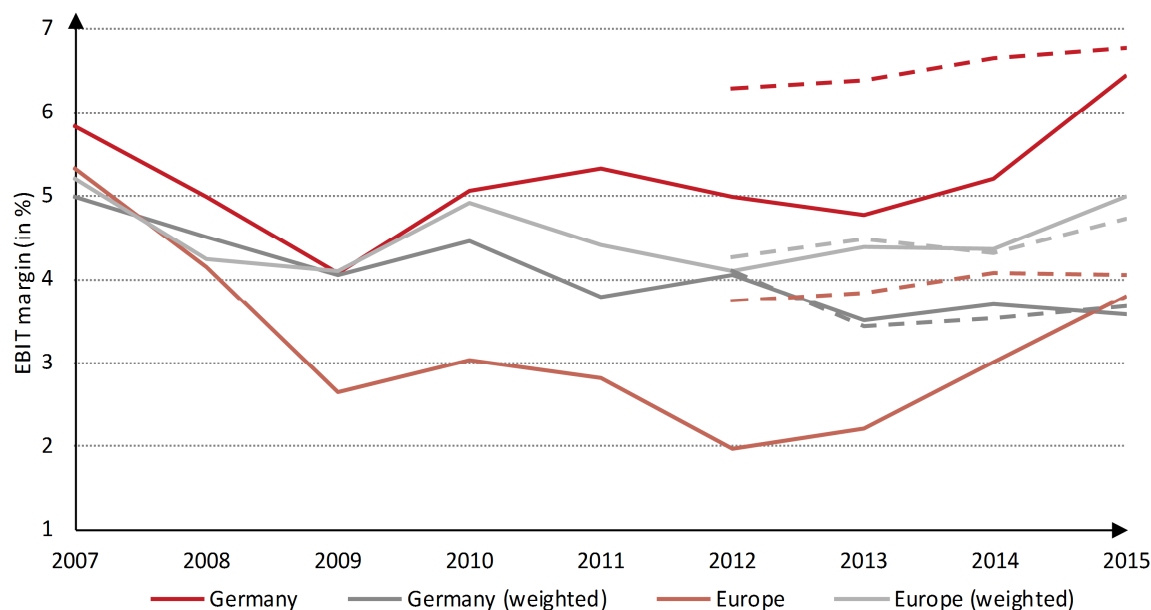
403. Rising accounting profit margins suggest that rising markups may actually be an indicator of increasing market power, because the calculated markups are based on the factor price elasticity of supplies for variable factors of production.¹⁵⁴ Therefore, if profits in regard to a variable factor of production increase, these could be required to cover fixed costs and would thus mean no profits are generated above the competitive level.¹⁵⁵ If, however, rising fixed costs were responsible for the observed rise in markups, for example as part of technological change, then the disclosed corporate profits would stay the same – all else being equal.

404. No increase in disclosed corporate profits can be made out in Germany if these are weighted by companies' revenue share. This could explain the stronger rise in markups in the weighted average (see Figure II.30) with the higher investment costs of relatively high-revenue suppliers. No significant increase in weighted EBIT margins can be made out for the European average either.

¹⁵³ If accounting depreciations are not accounted for when determining profit margins (earnings before interest, taxes, depreciation and amortisation, EBITDA), then the weighted average also increases.

¹⁵⁴ See section 3.4.2.

¹⁵⁵ De Loecker, J./Eeckhout, J., loc. cit.

Figure II.30: Trend in disclosed corporate profits in Germany and Europe

NB: The dotted lines represent values for a balanced sample. The EBIT margin is the ratio of earnings before interest and taxes to net revenue.

Source: Monopolies Commission, calculations based on the Orbis business database supplied by Bureau van Dijk

3.5.4 Strong sector-specific differences

405. Strong sector-specific differences can be made out in regard to the trend in revenue concentration and markups. Revenue concentration in the manufacturing industry equals the macroeconomic average (Figure II.31a). However, in the services sector a slight decrease in the weighted average HHI can be made out when the unweighted average HHI is kept constant (Figure II.32a). This is either due to a shift in revenue shares from highly concentrated sectors to less concentrated sectors or to a stronger increase in concentration in lower-revenue sectors. The drop in revenue share of the most highly concentrated 10 per cent of business sectors, namely from 17 per cent in 2007 to less than 11 per cent in 2015, illustrates this process. In the services sector, the values for both the 95th percentile and the 90th percentile were lower in 2015 than before the financial crisis in 2007. When it comes to trade, the weighted HHI average remains constant over time and the unweighted average increases slightly (Figure II.33a). However, in contrast to the manufacturing industry and the services sector, the upper percentiles for trade increased disproportionately to the median from 2011 onwards. No trend in market concentration can be made out in the construction and infrastructure sectors over the observed time period (Figure II.34a). However, it is striking that there are significant outliers at the upper end of the HHI distribution and as regards the revenue share of the most concentrated 10 per cent of sectors. This may possibly be due to the impact of the financial crisis and the economic stimulus packages launched as a result. Average concentration (arithmetic mean) is around between 1,500 and 2,000 in nearly all sectors, although it is around 1,000 for trade. The upper HHI percentiles (90th and 95th percentiles) were significantly higher in the construction and infrastructure sectors in 2015 compared with the other sectors surveyed, namely over 4,000 and 6,000, respectively.

406. An increase in markups can be made out in the manufacturing industry only in the weighted average, following a dip in 2012 (Figure II.31b). This is in line with the results of the analysis of market concentration, namely that either revenue is shifting proportionately to more highly concentrated sectors in the manufacturing industry or that higher-selling sectors are becoming more concentrated. In a European average, no noteworthy increase in markups can be made out in the manufacturing industry. In the services sector, a rise in unweighted markups can especially be made out in Germany following the financial crisis, and the level reached in 2015

exceeds the pre-crisis level in 2007 (Figure II.32b). No comparable rise following the crisis can be made out in other European countries, where the markup level in 2015 is significantly lower than in 2007. A rise in markups in trade can also be made out in Germany, although this is not the case in the European comparison (Figure II.33b). As regards the construction and infrastructure sectors, no clear trend in the period up to 2015 can be made out either in Germany or in Europe (Figure II.34b).

407. In sum, there are enormous differences in the level of and trend in both indicators of market concentration and of markups even between very roughly defined sectors. It is therefore not possible to transfer general economic trends to individual sectors and markets. Nor is any basic trend in concentration recognisable at sectoral level. Taking the competition perspective, the only notable outcome are the relatively constantly high HHI values in some sectors over time, such as in the construction and infrastructure sectors, and the disproportionate increase in HHI values in already highly concentrated business sectors of trade. This may indicate that further studies are needed. By contrast, the increase in market power-related markups appears much more significant.

3.6 Summary and conclusions

408. There is no upwards trend in market concentration in Germany similar to that, for instance, in the United States. There are also no indications of any disproportionate increase in market concentration in already highly concentrated sectors. The global financial crisis does not appear to have led to an increase in average concentration either. However, what is noteworthy is an increasingly pronounced link between above-average market concentration and overall economic weight as defined by a business sector's revenue shares. This is either due to the fact that revenue shares are shifting to more highly concentrated sectors or that high-revenue sectors are concentrated to an above-average degree. Nevertheless, it is not possible to readily draw any conclusions regarding actual competitive intensity in the sectors surveyed. As well as methodological reasons, this is due to the fact that competitive intensity can also be high in highly concentrated markets and that indicators of market concentration in such cases at best suggest a potential risk to competition.

409. In contrast to the relatively constant level of market concentration, the average markup in Germany has been rising since 2013; in 2015 it was higher than before the financial crisis in 2007. This rise is not solely down to business demographic reasons. Further, an analysis of the trend in markups shows a disproportionate rise at the peak of the distribution, i.e. in companies with already high markups. However, an absolute increase can be observed in the entire upper half of the distribution and as regards the median (i.e. the value above and below which exactly half of all values are plotted). The picture which emerges in Germany thus differs significantly from that in the United States, where a – significantly stronger – increase in markups can only be observed in the upper half of the distribution.

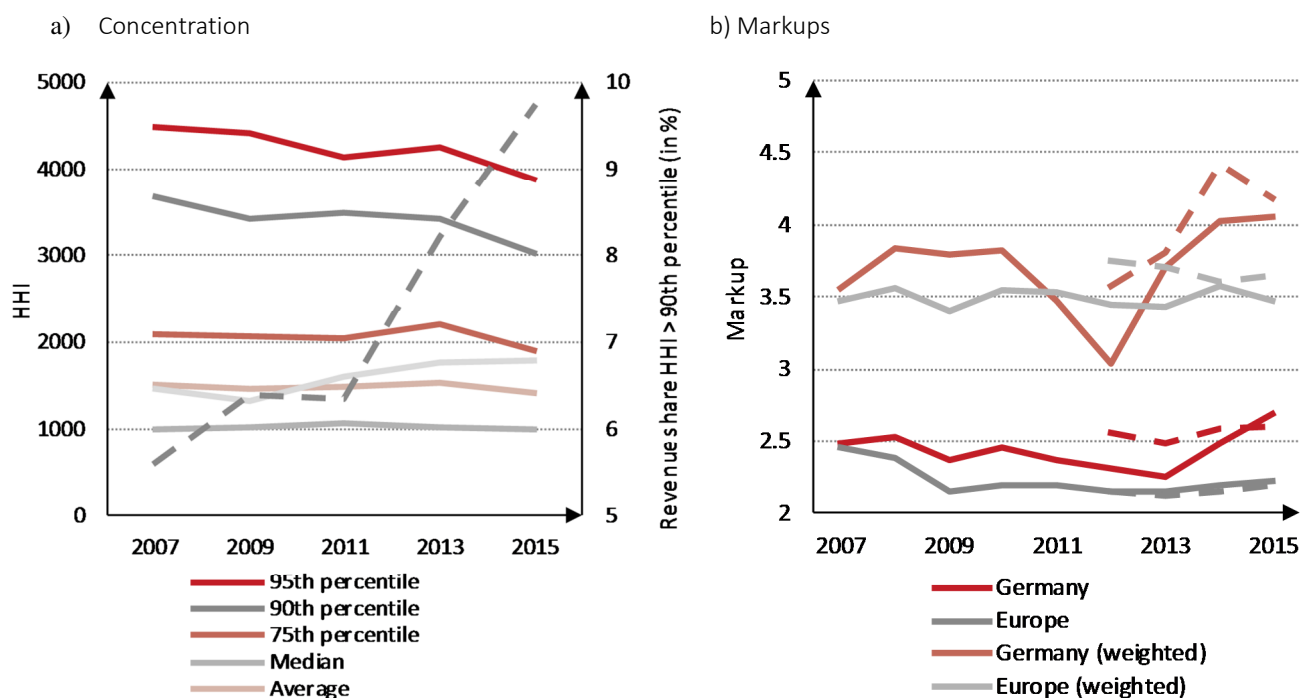
410. Nevertheless, it is not possible to transfer these findings wholesale to individual sectors. The analysis reveals great differences in the trend in revenue concentration and markups across sectors. No basic trend in concentration can be made out at sectoral level either. The only remarkable aspects from the competition perspective are the relatively constantly high HHI values over time in some sectors, such as in the construction and infrastructure sectors, and the disproportionate increase in HHI values in already highly concentrated business sectors of trade. Compared to that, a slight decrease in the weighted HHI average can even be made out in the services sector. The observed increase in markups appears more important from the competition perspective than the trend in market concentration: with the exception of the construction and infrastructure sectors, an increase in markups can be made out in Germany in all of the sectors surveyed. This development contrasts with the relatively constant markups across a European average.

411. The Monopolies Commission thus feels there are indications of an increase in average market power in Germany. However, this development appears much less dramatic than in the United States, and it at least in part indicates a return to pre-crisis levels. Nevertheless, the debate around the macroeconomic significance of competitive intensity once more indicates how fundamentally important unimpaired competition is for a well-functioning market economy. Notwithstanding, one should bear in mind that market power is not in itself a bad

thing and that it can create both investment opportunities and offer incentives for companies to engage in innovative behaviour.

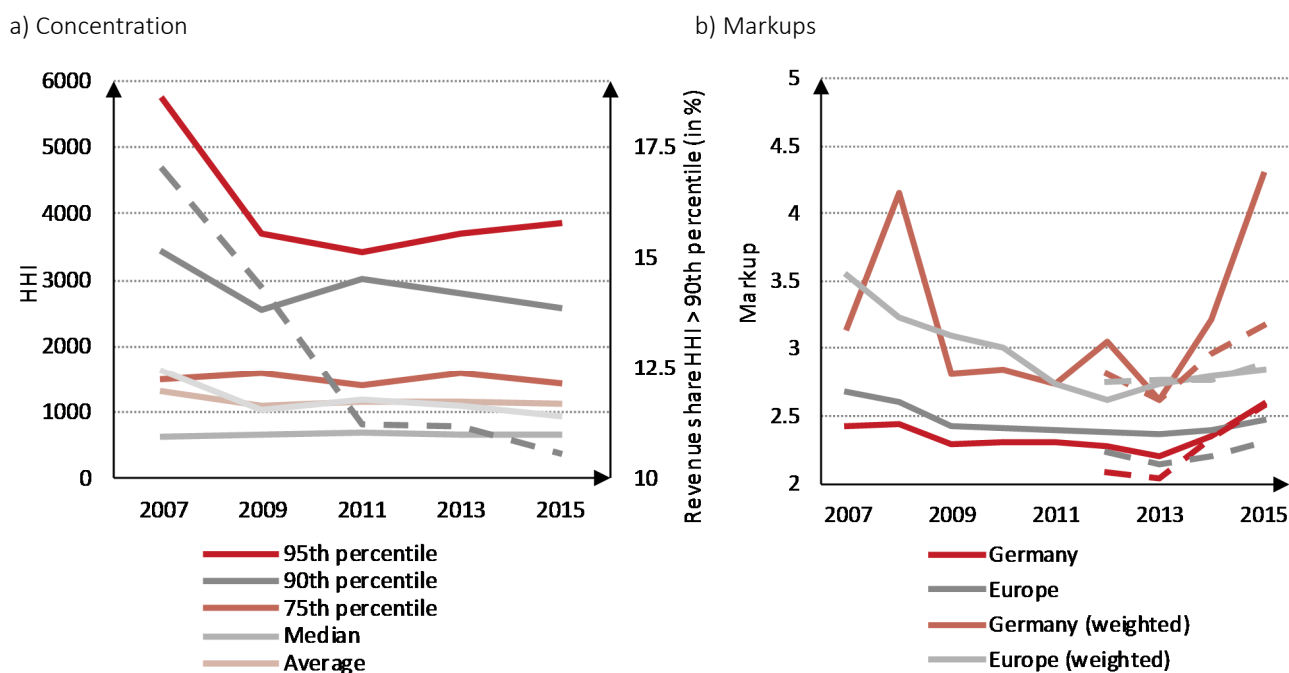
412. Little can currently be said as to the reasons for this increase in average market power. What is of particular interest from the competition economics perspective is whether and to what extent the antitrust authorities may be responsible for this increase due to a lax enforcement practices. A glance at the absolute number of European mergers in the observation period (2007 to 2015) does not suggest any clear correlation (see Figure A.1 in the Main Report): the overwhelming majority of mergers were authorised in the manufacturing industry but it neither has the most marked increase in market power nor is there any indication of a basic trend in market concentration. It is in particular the discrepancy between the trend in these two market indicators (market concentration and markups) which suggests that merger control procedures should take greater account of the level of markups to avoid underestimating the negative impacts on competition. A debate is already underway around the need to take greater account of markups in the context of merger control.¹⁵⁶ The Monopolies Commission welcomes this debate.

¹⁵⁶ Padilla, J., Should Profit Margins Play a More Decisive Role in Horizontal Merger Control?, *Journal of European Competition Law and Practice*, 2018, p. 260–266; Valletti, T./Zenger, H., Should Profit Margins Play a More Decisive Role in Horizontal Merger Control? – A Rejoinder to Jorge Padilla, *Journal of European Competition Law and Practice*, 2018, p. 1–7.

Figure II.31: Concentration and market power in the manufacturing industry

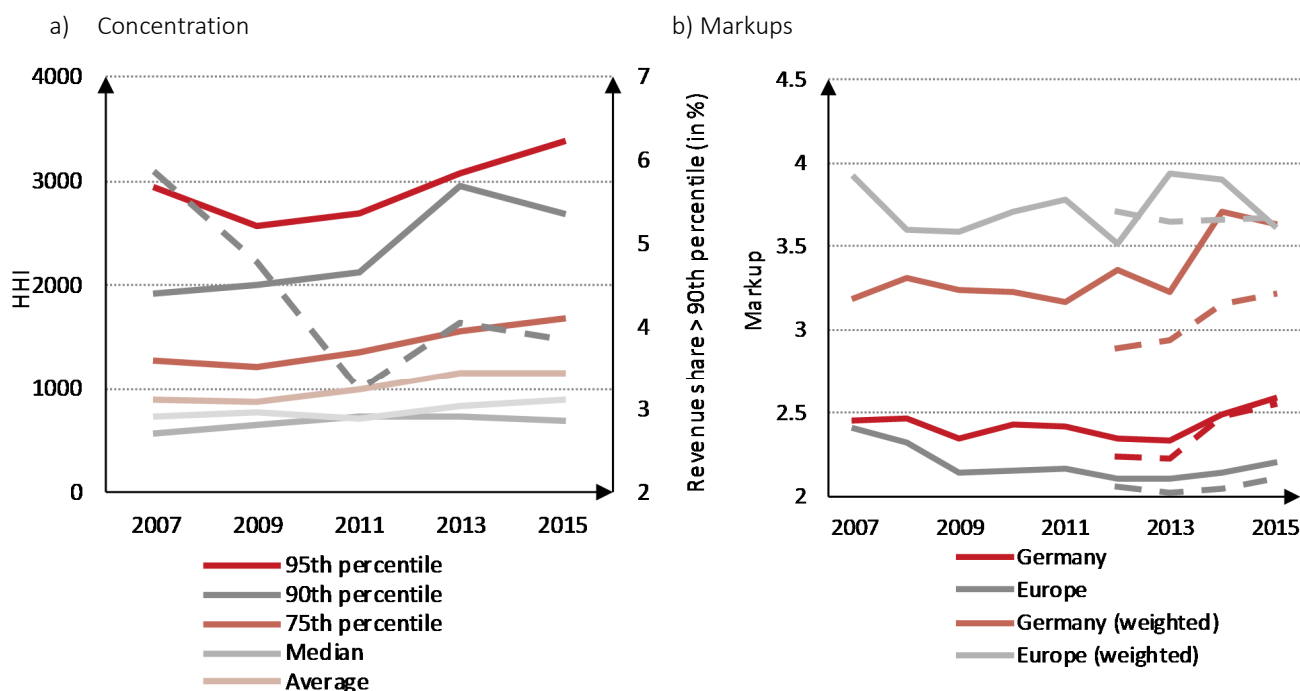
NB: a) Calculations on the basis of Herfindhal-Hirschman values for 4-digit sectors based on the WZ 2008, taking account of corporate groups. b) The dotted lines represent values for a balanced sample. Weighted by revenue share.

Source: Monopolies Commission, calculated based on a) the Federal Statistical Office's official business register, b) the Orbis business database supplied by Bureau van Dijk

Figure II.32: Concentration and market power in the services sector

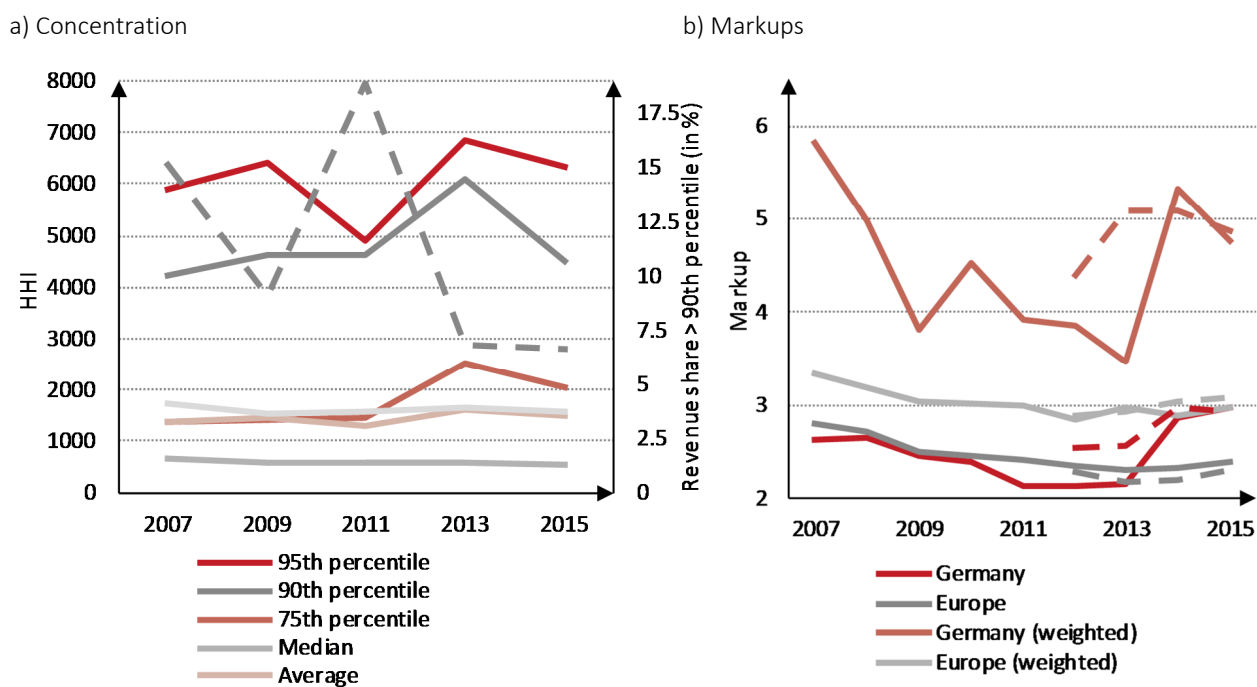
NB: a) Calculations on the basis of Herfindhal-Hirschman values for 4-digit sectors based on the WZ 2008, taking account of corporate groups. b) The dotted lines represent values for a balanced sample. Weighted by revenue share.

Source: Monopolies Commission, calculated based on a) the Federal Statistical Office's official business register, b) the Orbis business database supplied by Bureau van Dijk

Figure II.33: Concentration and market power in trade

NB: a) Calculations on the basis of Herfindhal-Hirschman values for 4-digit sectors based on the WZ 2008, taking account of corporate groups. b) The dotted lines represent values for a balanced sample. Weighted by revenue share.

Source: Monopolies Commission, calculations based on a) the Federal Statistical Office's official business register, b) the Orbis business database supplied by Bureau van Dijk

Figure II.34: Concentration and market power in the construction industry and infrastructure sector

NB: a) Calculations on the basis of Herfindhal-Hirschman values for 4-digit sectors based on the WZ 2008, taking account of corporate groups. b) The dotted lines represent values for a balanced sample. Weighted by revenue share.

Source: Monopolies Commission, calculations based on a) the Federal Statistical Office's official business register, b) the Orbis business database supplied by Bureau van Dijk