

A Service of



Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre

Rieth, Malte; Duso, Tomaso; Gornig, Martin; Werwatz, Axel; Kritikos, Alexander

Article

Competitiveness and Convergence: Trade, Merger Control, Industry, and Innovation. Reports

DIW Weekly Report

Provided in Cooperation with:

German Institute for Economic Research (DIW Berlin)

Suggested Citation: Rieth, Malte; Duso, Tomaso; Gornig, Martin; Werwatz, Axel; Kritikos, Alexander (2019): Competitiveness and Convergence: Trade, Merger Control, Industry, and Innovation. Reports, DIW Weekly Report, ISSN 2568-7697, Deutsches Institut für Wirtschaftsforschung (DIW), Berlin, Vol. 9, Iss. 16/18, pp. 140-147, https://doi.org/10.18723/diw_dwr:2019-16-2

This Version is available at: https://hdl.handle.net/10419/197980

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



Europe should address trade conflict with the U.S. in unison

By Malte Rieth

ABSTRACT

- Estimations show that in the course of the steel trade war, share prices of American companies benefited upon the announcement of higher tariffs
- Announcements of higher tariffs between China and the
 U.S. caused share prices to tumble—globally and in the U.S.
- Tariff related announcements involving EU goods have not affected share prices so far
- If the EU addresses the issue in unison and with determination, as China is doing, share prices in the U.S. could be affected and keep the U.S. president from increasing tariffs

The global economic environment is becoming tougher and tougher for German and European companies. In addition to uncertainty about which course Brexit will take and the sluggish turn global growth has taken, the trade conflict with the EU initiated by the U.S. will play a key role in shaping the business cycle in the near future.

So far the U.S. government has incited four trade conflicts. First, it imposed protective tariffs on all imported solar panels and washing machines. Only China and Korea reacted with countermeasures. Next, the U.S. imposed import duties on steel and aluminum from the rest of the world. Alongside China and Canada, the EU adopted countermeasures and taxed the import of selected American goods. In the third round, as a reaction to what it viewed as unfair trade practices and a threat to national security, the U.S. government imposed customs duties on Chinese imports. The government in Beijing immediately reacted with countermeasures to protect the domestic economy. That trade conflict now appears to be devolving.

But a fourth conflict, which involves the export of European automobiles and car parts to the U.S., seems to be brewing. Due to the automotive industry's important role in Europe, an increase in U.S. customs duties would burden exports, investment, and the labor market in many EU member states and in Germany in particular. What can Germany and the EU do to prevent this?

Some lessons can be learned by looking at the most recent conflicts' effects on financial markets. An analysis of stock returns on the days when the conflicting parties announced (or implemented) higher customs duties shows that the steel and China conflicts have had very different impacts until now.¹ When the U.S. raised the customs duties on steel and aluminum, the return on U.S. stocks increased on average (Table). While the effect was not significant for globally active corporations (as reported in the Dow Jones Index of the largest industrial companies, Column 1), companies that are more oriented to the domestic economy seemed to benefit most (as reported in the broad Russell 2000 index, Column 2). For European companies, the measures are primarily estimated to have negative effects, although the effects

¹ The announcement data in the analysis is based on Chad P. Bown and Melina Kolb, "Trump's Trade War Timeline: An Up-to-Date Guide" (2019) (available online, accessed on April 11, 2019).

Table

How selected stock indexes reacted to announcements of customs duty increases

Daily Returns in percent

Modell	1	2	3	4	5	6
Dependent variables						
Change in stock index	Dow Jones	Russel 2000	MSCI Germany	MSCI France	MSCI Italy	MSCI China
Indicator variables						
Higher U.S. steel duties	0.237	0.302*	-0.174	-0.127	-0.388	0.247
Customs duty level of U.S. and China rises	-0.319*	-0.310*	-0.086	-0.091	-0.331	-0.589**
Customs duty level of U.S. and EU rises	-0.014	0.012	-0.079	0.008	0.109	-0.176

Note: The models were separately estimated with one of the three indicator variables. All models are given a linear time trend and a constant: N = 493 Significance level: *p < 0.1, **p < 0.05

Source: Own calculations based on the Peterson Institute for International Economics and Bloomberg

Legend: When the U.S. or China announced higher duties on imports from the other country respectively, the stock indexes in the U.S. (Columns 1 and 2) fell significantly by 0.3 percent. They did in China as well (Column 6) by 0.6 percent.

© DIW Berlin 2019

are not statistically significant (see Columns 3 to 5). Perhaps investors anticipate that U.S. customs duties will redistribute foreign producer surplus to U.S. companies oriented to the domestic market and to the U.S. government in the form of higher customs revenues.

A much different picture resultes for the conflict between the U.S. and China. Announcements that imply an increase in the bilateral customs duty level resulted in stock price declines in all of the countries examined. Above all, on those days the stocks of Chinese companies lost value tremendously (see Column 6). Unlike the steel conflict, the return on U.S. stocks of companies—both globally and domestically oriented—also fell.

Apparently, the conflict with China is being assessed much differently than the steel conflict. This could be a result of the size of the conflict or its dramaturgy. In the eyes of investors, two equally strong opponents—ones that speak in strong unison and immediately apply countermeasures in reaction to the actions of others—are taking each other's measure in the first conflict. The effects on the global business cycle and company profits are predicted to be negative for all sides. On the contrary, the stock market sees the steel conflict as advantageous to the U.S. In this case, a more dominant actor would see a number of typically small countries that only react diffusely and—if at all—only mildly.

Ultimately, looking at the mechanics of the conflict between the U.S. and the EU does not yield a clear picture. The coefficients are all insignificant. The estimation results could teach the EU a lesson, however. Until now, the EU has not been able to emulate China by being powerful and united when dealing with the United States. If the EU succeeds at doing so, this could have a significant effect on the stock markets, as is the case with China. In turn, this has the potential to change the mind of a U.S. president who has declared the level of the leading U.S. stock indexes to be the barometer of his success. It was perhaps not only chance that in the

wake of the dramatic losses on Wall Street at the end of last year, the U.S. government announced it would not trigger the next escalation level against China. In any case, much speaks in favor of Europe demonstrating unity in the trade conflict with the U.S.

Malte Rieth is a Research Associate in the Macroeconomics Department at DIW Berlin | mrieth@diw.de

JEL: F13, F65, G14

Keywords: Trade policy, USA, EU, China, tariffs, stock returns, event study

European merger control: more is better

By Tomaso Duso

ABSTRACT

- Market concentration often leads to unnecessarily high prices and reduced innovation
- European merger control positively affects competition and productivity, though not yet perfectly effectively
- In times of increased market concentration, merger control needs to be enforced even more stringently, especially in digital markets
- Attempts to weaken merger control must be vigorously opposed

Competition policy has been a cornerstone of the European Union since the Treaty of Rome, effective January 1, 1958, established the European Economic Community. The founding member states believed in leaving much of the authority in competition matters to European institutions, since effective competition was considered vital to the creation of a single European market. To support these objectives, the European Commission's (EC) Directorate-General for Competition (DG) received unparalleled independence and enforcement powers in this area. Although the 28 EU member states also have national competition authorities, such as the Bundeskartellamt in Germany, the EU has sole responsibility for EU-wide competition issues. Accordingly, it can block or remedy anti-competitive mergers between companies, even if they are not European; impose heavy penalties for the abuse of market power; punish market cartelization; and control state aid if public funds used by member states are being spent in a manner hindering competition.

Merger control plays a special role in this setting. It is the only area where competition rules are enforced *ex-ante*, as the EC must first clear all major mergers before they are consumed. Consequently, merger control has important implications for other areas of competition law. If the EC fails blocking anti-competitive mergers, it may become more difficult to control abusive behavior by these merged entities in the future.

Although many acclaim the quality and independence of European competition rules and institutions,¹ competition policy, and merger control in particular, have come under criticism from different angles in recent years. Some believe merger control is too aggressive, as mergers are supposed to mostly be pro-competitive, result in important synergies, and allow large national or European companies to remain globally competitive. Therefore, competition authorities should intervene less and make it easier for national and European champions to emerge. Along these lines, various German and French politicians as well as several industrial firms heavily criticized the decision to prohibit the merger between Alstom and Siemens in spring 2019.

In contrast, others find competition policy to be too lax worldwide. This slack enforcement of merger control would be one

¹ Cf. Germán Guitérrez and Thomas Philippon, "How EU markets became more competitive than US markets: a study of institutional drift," Working Papers 24700, National Bureau of Economic Research, 2018.

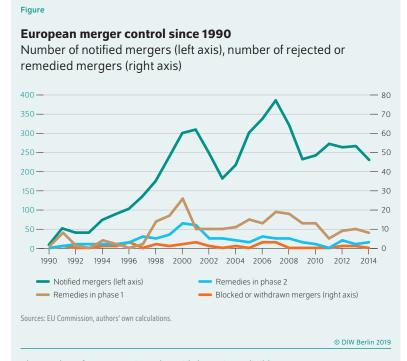
COMPETITIVENESS AND CONVERGENCE

of the main reasons concentration is increasing in many markets. ²Competition authorities should therefore more actively combat the emergence of champions. For example, the permitted takeovers of Instagram and WhatsApp by Facebook have been regarded as critical mistakes.

The question is to what extent these two opposing views on competition policy are justified. Looking at the data, it does not seem that the EC is particularly interventionist. Between 1990 and 2014, the EC reviewed exactly 5,169 mergers. Only 19 were not approved by the EC, while the companies themselves withdrew five others after a long assessment, what is considered to be a "virtual" prohibition. In total, the EC prohibited less than 0.5 percent of all cases. The EC imposed remedies on 239 cases (4.6 percent) during phase-1 and in only 104 cases during an in-depth phase-2 investigation (2 percent) (Figure).³

At the same time, studies indicate that market concentration has grown not only in the United States and Asia, but in Europe as well,⁴ and that the markups and profits of companies in European countries have increased significantly, although less than in the United States.⁵

The results of research conducted at DIW Berlin over the past ten years might help shed light on these issues. It shows that the EC indeed did not always correctly enforce merger control between 1990 and 2001.6 The EC approved some anti-competitive mergers while blocking or imposing remedies on other unproblematic mergers. Particularly frequently, the EC incorrectly enforced merger control on mergers involving companies from small European countries. Indeed, at the beginning of the 2000s, the European Court of Justice revised three EC decisions in light of the fact that the EC had failed to correctly apply economic evidence when reaching its decision. For this reason, too, European merger control underwent a comprehensive reform in 2004. An empirical study of this reform shows that the EC made fewer mistakes after its implementation. In addition, further studies have established and confirmed that merger prohibitions and remedies, in particular during the phase-1 investigation, have become somewhat more effective and had a deterrent effect on future mergers.8 Current DIW Berlin research



The number of mergers rejected or withdrawn is negligible.

is evaluating European merger control and identifying the main determinants of EC decisions and their development over time.

This extensive research shows that while merger control positively affects competition and productivity, room for improvement remains. ¹⁰ To be more effective and continue deterring anti-competitive behavior, the EC should be more consistent in blocking problematic mergers and imposing more severe remedies during phase-1. This is particularly true in digital markets, where hundreds of takeovers of small start-ups by large tech giants have gone through without any competition review. With that in mind, the recent proposals by the German and French Ministers for Economic Affairs attacking the independence of the DG and calling for weaker European merger control do not seem to be well placed.

Tomaso Duso is Head of the Firms and Markets Department at DIW Berlin | tduso@diw.de

JEL: L40, K21, G34

Keywords: Merger Control, Competition Policy, European Commission

² Cf. Guitérrez and Philippon, "How EU markets became more competitive than US markets."

³ Cf. Pauline Affeldt, Tomaso Duso, and Florian Szücs, "EU Merger Control Database: 1990–2014," *DIW Data Documentation* 95 (2018) (available online).

⁴ Cf. OECD. Market concentration. DAF/COMP/WD 46 (2018).

⁵ Cf. Jan De Loecker and Jan Eeckhout, "Global market power," Working Papers 24768, National Bureau of Economic Research, 2018.

⁶ Tomaso Duso, Damien J. Neven, and Lars-Hendrik Röller, "The Political Economy of European Merger Control: Evidence Using Stock Market Data," *The Journal of Law and Economics* **50**, no. 3 (2007): 455–489.

⁷ This was the case with the Airtours/First Choice, Schneider/Legrand, and Tetra Laval/Sidel mergers.

⁸ Cf. Tomaso Duso, Klaus Gugler, and Florian Szücs, "An Empirical Assessment of the 2004 EU Merger Policy Reform," *The Economic Journal* 123, no. 572 (2013): F596–F619; Tomaso Duso and Florian Szücs, "Die Ökonomisierung der Europäischen Fusionskontrolle: eine Evaluierung," *DIW Wochenbericht* no. 29 (2014): 699–701 (in German; available online); and Joseph Clougherty et al., "Effective European Antitrust: Does EC Merger Policy Involve Deterrence?," *Economic Inquiry* 54. no. 4 (2016): 1884–1903.

⁹ Cf. Pauline Affeldt, Tomaso Duso, and Florian Szücs, "Twenty-five years of European merger control," DIW Discussion Paper 1997 (available online).

¹⁰ Cf. also Tomaso Duso, "Eine bessere Wettbewerbspolitik steigert das Produktivitätswachstum merklich," *DIW Wochenbericht* no. 29 (2014): 687–697 (in German; available online); Paolo Buccirossi et al., "Competition Policy and Productivity Growth: An Empirical Assessment," *The Review of Economics and Statistics* 95, no. 4 (2013): 1324–1336.

EU industrial policy must utilize and connect heterogeneous regional potentials

By Martin Gornig and Axel Werwatz

ABSTRACT

- Digitalization is changing the industrial sector and introducing new global challenges
- EU industrial policy aims to counter these challenges by increasing industry's share of value added
- DIW Berlin analyses show that selected regions with a low share of industry can play an important role in the future
- These include metropolitan areas due to the high number of qualified potential workers, tourism regions due to good infrastructure, and rural regions in Southeastern Europe due to cost advantages

EU member states are calling for a more proactive EU industrial policy.1 New technological developments such as digital platforms are making it easier for large companies emerging in the American and Asian mass markets to gain competitive advantages. At the same time, there exists the future risk of China and the USA strategically using their powerful position in the IT sector to the detriment of European industry-for example, if Google or Amazon were to enter the automotive sector.² An increased need for industrial policy action had already been determined after the financial and economic crisis of 2008/2009.3 In early 2014, the EU Commission developed a package of economic policy programs for a European industrial renaissance. The objective is to increase industry's (manufacturing industry including energy and mining) contribution to GDP from 18 percent in 2009 to 20 percent by 2020.4

What does this objective mean for Europe's regions? Are there regions with high potential for increased industrialization where certain action needs to be taken? To estimate the expected share of industrial production for each region, a regression model based on a logistic trend function was used. The logistic trend function captures the general tendency of the share of industry. The regression model also accounts for the impact of national circumstances like supraregional infrastructure and the national education and innovation systems as well as regional economic factors such as geographical location and population density.⁵

The results confirm that regional economic influences indeed play an important role. The longer the transport routes to the core of the EU—which extends from northern Italy via the Rhine to southern England—the lower the expected share of industry of a region. At the same time, the expected industrial share is found to decrease slightly as population density increases. In addition, the country-specific institutional

¹ European Political Strategy Centre, EU Industrial Policy after Siemens-Alstrom, Finding a new balance between openness and protection (2019).

² Bundesministerium für Wirtschaft und Energie, Nationale Industrie Strategie 2030. Strategische Leitlinen für eine deutsche und europäische Industriepolitik (2019).

³ Philippe Aghion, Julian Boulanger, and Elie Cohen, "Rethinking industrial policy," Bruegel Policy Brief No. 4 (2011); Joseph E. Stiglitz, Justin Yifu, and Celestin Monga, "The rejuvenation of industrial policy," Policy Research Working Paper No. 6628, 2013.

⁴ European Commission, For a European Industrial Renaissance, Brussels 14 final (2014).

Martin Gornig and Axel Werwatz, "The potential for industrial activity among EU regions—an empirical analysis at the NUTS2 level," FORLand Working Paper, Humboldt University (forthcoming, 2019).

COMPETITIVENESS AND CONVERGENCE

influences also exert a statistically significant influence on the expected industrial share of a region.

On the basis of this analysis, three types of regions were identified amongst the 20 European regions in which the actual industrial share falls considerably short of their expected industrial share (Figure). The first and most frequently occurring type among these "under achievers" with very low industrial shares are high-income, high-density regions, primarily capitals. Prague, Bratislava, Budapest, Rome, and Stockholm, among others, show the largest negative deviations from their expected industrial share. However, other highly developed regions such as Malmö (Sweden), Surrey (UK), Kent (UK), Namur (Belgium), and Darmstadt (Germany) are also falling short of the expected industrial share. In Malmö, for example, the expected industrial share of around 20 percent is double the actual industrial share of ten percent.

The second type encompasses regions with large tourism sectors. This includes well-known Southern European regions such as the French Riviera, the Algarve (Portugal), the Ionian Islands (Greece), Liguria (Italy), and the Aosta Valley (Italy) as well as Mecklenburg-West Pomerania in northern Germany. Mecklenburg-West Pomerania currently has an industrial share of just under 12 percent, but 18 percent is expected according to the national and regional economic circumstances.

The third type consists of regions in Southeastern Europe. Here the negative deviation from the expected share of industry, especially in regions outside the capitals, is very large. Regions with the highest negative deviation include the Yugozapaden region southwest of Sofia (Bulgaria) and three rural regions in Romania.

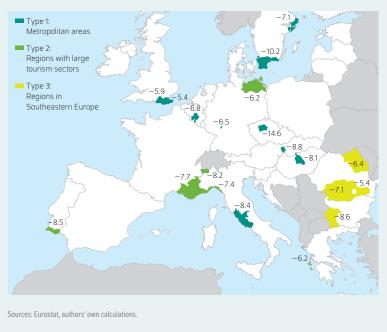
As the three types of regions are very heterogeneous, it is not realistic to expect one common, ambitious industrial policy target of 20 percent to be equally effective across the EU in boosting regional industrial activity. Hence, while it remains important to step up European technology programs, create common technology standards, and improve financing conditions, it is also important to develop a "regionalized" industrial policy strategy that takes account of the different regional potentials (such as research infrastructures, human capital, and cost advantages).

EU research programs, for instance, could work to strengthen the knowledge base in the above-mentioned capital regions in particular. In these highly urban regions, this knowledge potential should be exploited more intensively for modern, smaller-scale industrial developments.⁶ At the same time, however, industry will be competing for scarce space in these high-density areas, and land-use competition with services and housing will have to be better resolved in these metropolitan areas than it is today.



Twenty European regions with very low industrial sharesDeviation of actual industrial share from expected industrial share

Deviation of actual industrial share from expected industrial share in percentage points



© DIW Berlin 2019

In particular, some capital city regions, tourist hotspots, and rural regions in Southeastern Europe are falling short of the expected industrial share.

Regarding the tourism regions with less-than-expected industrial activity, it is important to continue to maintain their unique character that attracts visitors. However, industry's tendency for digitalization and decarbonization can open up new opportunities to develop clean, small-scale industries on the outskirts of tourism hotspots. As a rule, these regions already have effective transport infrastructures and attract well-trained mobile workers who boost the growth of modern industry.

The case of rural regions in Southeast Europe outside the capital regions, on the other hand, illustrates the importance of solid infrastructure for integrating such regions into industrial value chains. These regions will only be able to exploit their cost advantages—which are significant in some production stages—if massive investments are first made into their infrastructure.

Martin Gornig is Research Director for Industrial Policy and Deputy Head of the Firms and Markets Department at DIW Berlin | mgornig@diw.de

Axel Werwatz is Professor for Econometrics at TU Berlin and DIW Research Fellow

JEL: L52, R11, O52

Keywords: Industrial policy, regional growth, Europe

⁶ Martin Gornig et al., "Industrie in der Stadt: Wachstumsmotor mit Zukunft, " *DIW Wochenbericht*, no. 47 (2018) (in German; available online).

"Pact for Innovation" to promote the EU's major aim of convergence

By Alexander S. Kritikos

ABSTRACT

- Economic convergence is a major aim of the EU. Innovation and investment in economically weaker regions are key steps to foster convergence
- Public institutions and the regulatory environment for investments differ substantially across EU member states and increase economic disparities
- Pact for Innovation: structural funds with a strong focus on innovation; access to funding only granted if structural reforms are implemented
- This should ultimately harmonize the regulatory environment and support convergence through growth

When selecting a business location, three criteria are decisive for investors, innovators, and entrepreneurs: the quality of public institutions, including the efficiency of administrative structures or of jurisdiction when enforcing contractual claims; the design and predictability of the tax system; and access to external financing. Innovators are also interested in the quality of the innovation system. For innovative companies competing globally, rapid market entry is decisive, especially when it is about entry into "winner-takes-themost markets". With much at stake, they are not willing to invest additional time, effort, and money to finance bureaucratic activities, and then still entering the market too late.

In the EU, the regulatory environment for founding, operating, and closing a firm are patchwork. Public institutions and innovation systems also vary greatly. For example, the World Bank's Ease of Doing Business Index clearly shows that the Scandinavian and Baltic countries are particularly business-friendly, followed by Central European countries like France, Germany, Austria, and Poland. While some countries, like Spain, are clearly improving in recent years, the quality of public institutions is much poorer in other countries, like Italy and Greece.³ There is also a north-south disparity with respect to the innovation system⁴ and, unlike the business climate, a west-east disparity (Figure).

Gross value added and employment do develop better in countries that offer a better regulatory environment and innovation system. Since the 2000s, the diverging economic trends within the EU have been intensified by migration of innovators from Greece, Italy, Portugal, and Spain to countries with a more attractive regulatory environment.⁵ That

¹ Of course, in addition to these criteria, there are others, for example, labor market regulations, that also influence the selection of a location.

² Benedikt Herrmann and Alexander S. Kritikos, "Growing out of the Crisis: Hidden Assets to Greece's Transition to an Innovation Economy," IZA Journal of European Labor Studies, 2:14 (2013).

³ For example, on average, it takes over four years for claims to be enforced under civil law in Greece. In Italy, court cases like this take more than three years, devouring an average of 23 percent of the contractual claim. In Lithuania, cases like these only take one year. See World Bank, Ease of Doing Business (2019) (available online, accessed on April 11, 2019; this applies to all other online sources in this report unless stated otherwise.)

⁴ Measures are based on indices such as the Global Innovation Index, European Innovation Scoreboard, and the EU Commission digitalization index, relevant for knowledge-intensive services. These indices provide for instance information about R&D investments to generate knowledge and other institutional conditions for innovation.

⁵ See Kyriakos Drivas et al., "Mobility of Highly-Skilled Individuals and Local Innovation and Entrepreneurship Activity," MPRA Discussion Paper, (2018) (available online).

COMPETITIVENESS AND CONVERGENCE

means there is an increasing competition between European regions for business locations. Upon realizing this, Spain implemented significant structural reforms that stopped the exodus of innovators from this country. Knowledge-intensive services that rely on good conditions⁶—like in the new start-up hotspot in Barcelona⁷—are contributing to Spain's recent growth rate.⁸ Other EU member states—like Italy or Greece—are lagging: as policy makers ignore the competitive landscape, their economies stagnate.⁹

To help and support more EU member states, to work toward harmonization, the EU needs a new prestige project, a "Pact for Innovation". Participating countries would make a pact that consists of three components. First is to further develop structural funds, turning them toward sustainable investments into national and regional innovation systems. Monies should be used to finance research and development or to further expand the digital infrastructure. Second, access to the funds is tied to implementing reforms that move toward a better regulatory environment and more efficient public institutions. Under the pact, national governments and the EU will agree to a legally binding roadmap to achieve the primary goal of regulatory harmonization. This includes incentives for structural reforms, with access to further investment funding dependent upon implementing reforms and documenting its realization. Third, member states would receive advice and support from the EU throughout the process of developing more efficient public institutions.¹⁰

It will require another massive political effort between the EU Commission and national governments, to jointly agree on such a reform agenda with governments that are willing to proceed with such structural reforms. Countries that have implemented better public institutions and a better regulatory environment, such as the Baltic Republics or Spain, can serve as role models and examples for such an agenda.



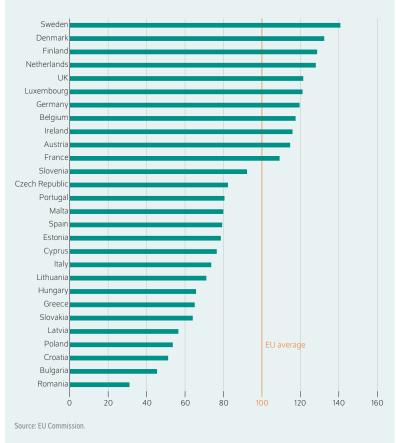
⁷ See Startup Genome, Global Startup Ecosystem Report 2018 (2018) (available online).

Alexander S. Kritikos is Research Director for Entrepreneurship at DIW Berlin | akritikos@diw.de

JEL: L2, O3, O4

Keywords: EU, growth sectors, innovation, SME, knowledge-intensive services, regulatory environment, public institutions

European Innovation Scoreboard 2018 National innovation systems compared to EU average (= 100)



© DIW Berlin 2019

The national innovation systems of Eastern European states and crisis countries still have a lot of catching up to do.

⁸ Unlike companies in the manufacturing sector, even small firms in the knowledge-intensive services are able to successfully innovate. See Julian Baumann and Alexander S. Kritikos, "The Link between R&D, Innovation and Productivity: Are Micro Firms Different?" Research Policy, 45 (2016): 1263–1274; and David B. Audretsch et al., "Firm Size and Innovation in the Service Sector," DIW Discussion Paper, 1774 (2018) (available online). Accordingly, they react relatively quickly to changes in the general conditions.

⁹ See Stefan Gebauer et al., "Italy Must Foster High Growth Industries," *DIW Weekly Report* no. 11/12 (2019): 65–74 (available online) as well as Alexander Kritikos et al. (2018): The Greek private sector remains full of untapped potential. *DIW Weekly Report* no. 29 (available online).

¹⁰ The EU is currently offering on a small scale an institutionalized "structural reform service" to its member states.

LEGAL AND EDITORIAL DETAILS



DIW Berlin — Deutsches Institut für Wirtschaftsforschung e.V. Mohrenstraße 58, 10117 Berlin

www.diw.de

Phone: +49 30 897 89-0 Fax: -200

Volume 9 May 2, 2019

Publishers

Prof. Dr. Tomaso Duso; Prof. Marcel Fratzscher, Ph.D.; Prof. Dr. Peter Haan; Prof. Dr. Claudia Kemfert; Prof. Dr. Alexander Kriwoluzky; Prof. Dr. Stefan Liebig; Prof. Dr. Lukas Menkhoff; Dr. Claus Michelsen; Prof. Karsten Neuhoff, Ph.D.; Prof. Dr. Jürgen Schupp; Prof. Dr. C. Katharina Spieß

Editors-in-chief

Dr. Gritje Hartmann; Mathilde Richter; Dr. Wolf-Peter Schill

Reviewer

Editorial staff

Renate Bogdanovic; Dr. Franziska Bremus; Rebecca Buhner; Claudia Cohnen-Beck; Dr. Daniel Kemptner; Sebastian Kollmann; Bastian Tittor; Dr. Alexander Zerrahn

Sale and distribution

DIW Berlin Leserservice, Postfach 74, 77649 Offenburg leserservice@diw.de

Phone: +49 1806 14 00 50 25 (20 cents per phone call)

Layout

Roman Wilhelm, DIW Berlin

Cover design

© imageBROKER / Steffen Diemer

Composition

Satz-Rechen-Zentrum Hartmann + Heenemann GmbH & Co. KG, Berlin

ISSN 2568-7697

Reprint and further distribution—including excerpts—with complete reference and consignment of a specimen copy to DIW Berlin's Customer Service (kundenservice@diw.de) only.

Subscribe to our DIW and/or Weekly Report Newsletter at www.diw.de/newsletter_en