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BERLIN CENTRE FOR CONSUMER POLICIES

BCCP Newsletter

Research results for policy

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Dear readers,

Welcome to the sixth issue of the BCCP Newsletter.

In this newsletter, we focus on the consequences of digitization, health markets and outcomes, as well as behaviors in markets. For the first, we show that transparency in AI systems does not always increase trust in them. Communicating the uncertainty of AI predictions causes experimental subjects to not follow the suggestion of the AI. We further investigate the potential of deep learning for detecting antisocial online behavior. We show that deep pre-trained transformers help to identify unintended bias in algorithmic recommendations. In another contribution, we experimentally show that online advertising can increase charitable giving by generating new donations. Lastly, exploiting two regulatory changes in Berlin affecting short-term rental markets, we empirically show that the presence of Airbnb significantly increases asked rents. Various other contributions focus on health markets and outcomes; for example, we empirically show that reducing patent protection and data exclusivity decreases the likelihood that ongoing drug development projects will be successfully completed. Further, we find that the unisex mandate on risk segmentation in the German health insurance market increases the probability of switching from social to private health insurance for women relative to men. Furthermore, we analyze how a tax on unhealthy food can be applied to reduce child obesity. We show that it is optimal for a government to tax unhealthy food even if parents only ignore a small part of their children's future health costs. The last two contributions consider questions related to behaviors in markets. In an experiment, we investigate gender discrimination in hiring decisions, finding evidence of both explicit and hidden discrimination against women. In a last theoretical contribution, we study political corruption in the execution of public contracts. We find that selfish enough politicians choose a lax auditing policy to induce embezzlement by the contracting firm, later claiming a share of the embezzled funds.
In this issue of our newsletter, we also continue to re-publish the texts written by BCCP Fellows as "Berlin School of Economics Insights on the Corona Crisis" on topics as diverse as the role of border controls and face masks in containing the spread of Covid-19 across Europe, as well as the importance of financial literacy in times of crisis. Furthermore, we introduce a new feature of the BCCP newsletter: BCCP opinions. It entails the opinion of BCCP fellows on a topic of current policy interest. This time, we republish a piece co-authored by myself together with 16 other international economist on the Google/Fitbit merger.
Lastly, to keep BCCP Fellows and Friends connected in this difficult time, we continue to organize events online. Our weekly seminars, like the Berlin Applied Micro Seminar, the Berlin Micro Theory Seminar, and the Berlin Behavioral Economics Seminar are all held online. We also continue to organize the Virtual Digital Economy Seminar together with several renowned international institutions. Lastly, instead of our annual BCCP Conference and Policy Forum, we organized a Virtual Mini-Conference on the future of artificial intelligence for policymaking. In this newsletter we review the discussions by the panel of international speakers.

We wish you an interesting reading, season's greetings, and a happy new year!

Tomaso Duso

BCCP speaker

Freepik: kjpargeter

Transparency and Trust in Artificial Intelligence Systems

Many of us use Artificial Intelligence (AI) Systems based on Machine Learning (ML) every day. When judges, police, or doctors use assistive AI, the proper level of trust in such systems is especially critical for their responsible use. Too much, or even blind, trust can lead to ill-considered decisions – and not enough trust may ignore valuable information. In recent years, many methods

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were proposed to render AI systems and their predictions more transparent in order to foster trust in these systems. To what extent, however, transparency really increased user trust remained largely unexplored.

In this recent study, BCCP Senior Fellow Felix Biessmann, BCCP Fellow Timm Teubner, and co-author Philipp Schmidt investigate whether and when transparency in assistive AI actually increases trust in AI systems.

In a behavioral experiment, the authors asked 200 subjects to classify short text as either "positive" or "negative." Subjects were

paid for each correctly classified text. In addition, subjects were able to draw on an ML-based decision support tool for text classification, which also gave an assessment (positive or negative). The authors then experimentally varied the information that subjects received in a 2-by-2 treatment design. The AI system ›explained‹ its decision by 1) highlighting the most relevant words in the text (i.e. ›wonderful‹ as an indication of a positive assessment) and/or 2) by providing a score on the confidence of its prediction (i.e. 65% or 98%).

In contrast to the common assumption that transparency is always beneficial, the results demonstrate that increased transparency does not necessarily increase trust in an AI System. Quite to the contrary, subjects relied significantly less often on the AI prediction and deviated in their own assessment from the AI's assessment – and were wrong more often by doing so. Interestingly, there are many cases in which the AI was correct but attributed a high uncertainty to its prediction. Communicating this uncertainty to subjects resulted in subjects not following the suggestion of the AI.

The right amount of trust also implies not following incorrect AI predictions. This is precisely what transparency should achieve. However, the results indicate that humans made up to six times more mistakes when they followed incorrect AI predictions rather than when ignoring correct ones. The results show that transparency in AI systems does not always increase trust in such systems. Furthermore, transparency often does not lead to humans recognizing incorrect AI assessments. As a next step, the authors seek to investigate whether and how fast trust in AI Systems can be restored after incorrect AI predictions have led to a loss of trust.

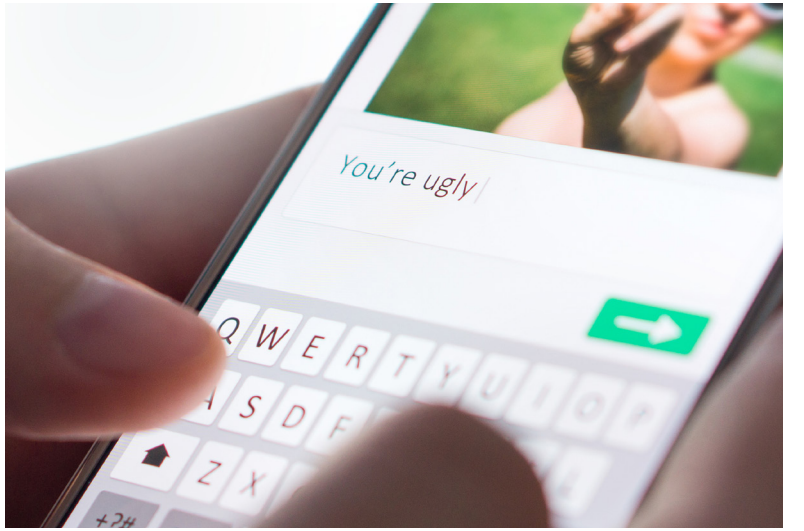
The full paper ›Transparency and Trust in Artificial Intelligence Systems‹ is forthcoming in *Journal of Decision Systems*.

Antisocial Online Behavior Detection Using Deep Learning

The shift of communication to online platforms not only brings social and economic benefits, like the opportunity to share opinions, discuss the hottest topics, get immediate feedback, and create new business opportunities, it can also create a new space for malicious behavior, such as spreading hateful comments, bullying, or usage of rude and obscene language. Therefore, detecting malicious behavior is crucial. For example, the German law NetzDG requires social media providers like Facebook and Google, among others, to remove posts with obviously illegal content within 24 hours and report on their progress every six months. The mass of postings shared on social media call for an algorithmic approach to screen and flag potentially harmful content. Corresponding screening technologies help social media providers to comply with legislation, raise the efficiency of content moderation, and contribute to social welfare by preventing the spread of malicious user generated content.

In this paper, Elizaveta Zinovyeva, Wolfgang Karl Härdle, and BCCP Senior Fellow Stefan Lessmann investigate the potential of deep learning for detecting antisocial online behavior (AOB). They propose AOB as an umbrella term for using rude, hateful, sexist, and/or racist textual content in communication. Using datasets from different social media platforms, the authors show that deep learning models, especially deep pre-trained transformers, almost always outperform traditional machine learning methods independent of the dataset structure and retrieval process. To derive policy recommendations, the paper also investigates the determinants of deep learning success and finds that the marginal utility of computationally heavy deep learning algorithms decreases with the prevalence of AOB in a training data set. Assuming that AOB is – fortunately – a relatively rare event in the plethora of text-based social media communication, this result implies that platform providers will benefit from, and should employ, advanced deep learning techniques when deploying content screening systems.

Moreover, the authors raise the question of detection model explainability. Machine learning – especially deep learning methods – are often considered "black boxes". Legal frameworks, like the EU data protection act, and research into technology acceptance enforce the use of interpretable models for decision support. Against this background, the authors demonstrate the use of local interpretation methods that facilitate clarifying the decision logic of an AOB detection model. The authors suggest the model interpretation component of their framework raises acceptance among users and regulators and contributes to identifying unintended bias in algorithmic recommendations.



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The full paper ›Antisocial Online Behavior Detection Using Deep Learning‹ is published in *Decision Support Systems*, Volume 138, 2020. A pre-print together with codes is available in the discussion paper series of the IRTG1792.

Online Advertising Can Help NGOs Increase Donations

Online fundraising is on the rise. Until recently, however, little was known about whether advertisements on Facebook or Google are actually effective at generating donations. To fill this gap, BCCP Senior Fellow Maja Adena and co-author Anselm Hager conducted a live experiment on Facebook with the NGO Save the Children. Together with the NGO, the researchers placed video ads on Facebook. To assess whether the ads work, the authors randomly

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assigned some zip-codes to be targeted by a 14-day ad campaign, while other zip codes did not see any ads. After the experiment, the researchers compared the actual volume of donations in the treatment and control zip-codes. The results show that the ads raised donations by almost €4 per €1 spent (on advertising) in treated zip codes. This constitutes a 300 percent return on the money invested.

The assessment of whether an internet advertising campaign works or does not is not as trivial as it seems. Advertisers are often easily misled by the level of direct response to an ad. On the one hand, if they observe donations through the ad link, this does not necessarily mean that there are more donations overall. Those donations might be coming from existing donors who find it convenient to use an online-link instead of their usual donation channel. On the other hand, if advertisers observe a low volume of donations through the ad link relative to the costs, it does not necessarily mean that the advertising is ineffective. Ad recipients might react with a lag, after some deliberation or after another trigger.

The authors overcome the above challenges to causally assess the effects of an online fundraising campaign with a smart research design - they observe donations from all channels over a longer period of time and compare donation volume in treated versus untreated zip codes. They conclude that firstly, the videofundraising campaign on Facebook increased the volume and frequency of charitable giving. Secondly, this holds true for short- as well as long-term donations, the latter pointing to a long-term advertising effect. Thirdly, they found that existing donors do not switch from offline to online giving and do not expedite their decision to donate after seeing online advertising. Online fundraising generates genuinely new donations. Fourthly, however, they also found that the fundraising campaign for Save the Children reduced donations to other similar charities, indicating that charities compete for scarce resources.

The full paper ›Does online fundraising increase charitable giving? A nation-wide field experiment on Facebook‹ is available as *WZB Discussion Paper* SP II 2020–302.

Airbnb and Rents: Evidence from Berlin

Short-term rental platforms, like Airbnb, are often suspected of causing rent increases because they remove apartments from the housing market. However, empirically documenting this effect is difficult because neighborhoods that are more popular among tourists usually also have higher average rent levels for various other reasons. At the same time, cities around the world are now regulating short-term rental platforms. Therefore, understanding the effect of short-term rental policy and quantifying the impact of short-term rental platforms on rents is important to inform the policy debate.

BCCP Spokesperson Tomaso Duso, BCCP Fellow Claus Michelsen, and BCCP Doctoral Students Maximilian Schaefer and Kevin Ducbao Tran use the introduction and subsequent update of short-term rental regulation in Berlin (the so-called "Zweckentfremdungsverbot-Gesetz") to assess the effects of the law on Airbnb in the city. They find that both the introduction as well as its update (which introduced a mandatory registration number display for hosts on short-term rental websites) substantially reduced the number of Airbnb listings in the city. The reduction is largest for entire homes listed on the platform as opposed to shared or private rooms. Furthermore, the authors show that the introduction of the law mostly resulted in apartments leaving the platforms which were available for booking for more days in a year, resulting in a stark decrease in the average booking availability of listings remaining on Airbnb. However, the update of the law mostly caused listings that were only available for rent for fewer days to leave the platform, resulting in a slight increase in average booking availability.

Using these policy-induced changes in the short-term rental market in Berlin, the authors assess the causal impact of Airbnb on rents in the city. Their results suggest that each additional nearby entire home on Airbnb increases rents by at least seven cents per square meter on average. The authors further document effect heterogeneity in various dimensions. First, when focusing on high-availability Airbnb listings, the marginal effect of additional Airbnb listings on rents is larger at ten to 13 cents per square meter. Second, the effect size varies across districts of the city. In particular, the marginal effect tends to be larger in districts with a lower Airbnb density, suggesting decreasing marginal effects on rents of nearby Airbnb listings. Finally, in further calculations, the authors show that renters in high-Airbnb-density districts saved up to 38 euro per month on average due to the introduction of the law. As a caveat, note that the entire analysis in the paper is based on asked rents for apartments available for rent. The effects of Airbnb on average rents of the entire stock of apartments are likely lower.

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The full paper ›Airbnb and Rents: Evidence from Berlin‹ is available as *DIW Discussion Paper* No. 1890.

Patents, Data Exclusivity, and the Development of New Drugs

With more than 100 vaccines against COVID-19 currently being developed across the world, a debate has been sparked about access to new drugs and the role of patents. The recent paper by BCCP Senior Fellow Stefan Wagner and co-author Fabian Gaessler confirms that calls for weakening the protection of new pharmaceutical drugs likely are counterproductive, as reduced protection might slow the speed of technological progress in the pharmaceutical industry. Pharmaceutical firms typically enjoy market exclusivity for new drugs through two mechanisms: the protection of invention by patents and the exclusivity of data collected in clinical trials. This market exclusivity typically drives up the prices of new drugs charged to consumers. Yet, they are the main incentive for private pharmaceutical companies to invest in R&D for new remedies.

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The authors calculate that one year of lost market exclusivity, which grants pharmaceutical firms a quasi-monopoly on a certain drug, reduces the chances of ongoing drug development projects to be successfully completed by about 16 percent. This is the first time that an academic paper quantifies the deterrence effect of reducing market exclusivity. The estimated impact of the duration of market exclusivity on the completion of drug development is larger than what many observers previously thought.

To collate their findings, the authors gathered data on 1,769 unique drug candidates tested in clinical trials whose underlying patents were at risk of invalidation, and linked the development histories of these projects with their associated intellectual property rights. Specifically, they examined a group of drugs that lost associated patent protection during clinical trials and compared them to drugs whose patent protection remained intact. Revoking the patent during clinical trials leads to a reduction in overall market exclusivity, which in turn determines the period in which pharmaceutical firms can exclusively offer the drug on the market. Patent invalidation reduces the duration of market exclusivity in the former group of projects only and thus creates a natural experiment suitable for this analysis. In order to avoid that the estimates are affected by unobservable characteristics of the patent or the drug, the authors rely on instrumental variable estimations. By using the rate of eventual drug approval as a proxy for R&D effort, they determine the decline in innovation for the group of drug projects characterized by a shortened period of market exclusivity.

There is a difficult trade-off between the length of market exclusivity for novel drugs, and thus the effectiveness and speed of creating a new drug, and its price to consumers. This research, for the first time, quantifies how market exclusivity reduction impairs innovation. If we as a society do not want to rely on patents and related intellectual property rights to drive R&D investment - and with regard to the current pandemic there might be good reasons for this - we need to find other ways to incentivize innovation.

The full paper ›Patents, data exclusivity and the development of new drugs‹ is forthcoming in *Review of Economics and Statistics*.

Risk Segmentation in the German Health Insurance Market

With the Covid-19 pandemic placing additional financial burdens on health care in many countries, the issue of financing a national health insurance system's is gaining increased importance. Germany is, next to the United States in parts and Chile, one of the few countries with a dual sector health insurance system. On the one hand, companies in the public health insurance sector in Germany are not allowed to price insurance to reflect the expected health care expenses for an applicant and cannot reject an applicant based on health risk. On the other hand, companies in the private health insurance sector in Germany set prices according to health risk, such that prices are lower for healthier applicants.

This difference in pricing makes the private sector particularly attractive for individuals with lower health risks and might lead to disproportionately more individuals with worse health risk to be enrolled in the public sector. Segmentation by health risk between the public and private sectors can increase health expenses in the public sector and threaten its financial sustainability. However, regulations are in place to restrict switching between sectors. For example, only certain employment groups may opt to move from the public into the private sector and voluntary switching from the private into the public sector is not possible. Thus, it remains an empirical question whether individuals are price-sensitive regarding their choice between public and private health insurance.

To empirically study whether individuals' choices between public and private health insurance are responsive to changes in pricing, BCCP Doctoral Student Shan Huang and co-author Martin Salm examine the effects of a regulatory ban on gender-based pricing for the private sector. Private health insurance plans were more expensive for women than for men prior to the so-called unisex mandate. In contrast, gender was never used as pricing factor in the public sector. The unisex mandate made private health insurance more attractive for women and less attractive for men. While the unisex mandate only changed regulation in the private sector, it may have unintended effects on the composition of risks in the public sector.

Using yearly information on individuals' type of health insurance from the German Socio-Economic Panel, the authors provide empirical evidence that the unisex mandate substantially increased switching from the public into the private sector by women relative to men. Moreover, the size of the effect varies over employment groups and is in line with different financial incentives regarding the choice between the public and private sectors. The effect is largest for the groups of self-employed and mini jobbers. In contrast, the unisex mandate had a weaker effect on employees, for whom choosing the private sector is more restricted. The unisex mandate had no effect on civil servants, for whom employer subsidies have always made private health insurance financially more attractive.

The changes induced by the unisex reform in the pools of private compared to public insurees imply a worsening of the private sector risk pool and an improvement of the public sector risk pool, as women have on average higher health expenses than men. The study's findings also demonstrate that regulatory changes for targeting only one sector, like the unisex mandate for the private sector, can have unintended consequences on the degree of risk segmentation across the entire health insurance market.

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The full paper ›The Effect of a Ban on Gender-Based Pricing on Risk Selection in the German Health Insurance Market‹ is published in *Health Economics*, Volume 29, Issue 1, 2020, pp. 3-17.

Taxes on Unhealthy Food and Externalities in the Parental Choice of Children's Diett

Childhood obesity is widespread in many countries. In the OECD, the prevalence of obesity among children is 15.5%. Child obesity causes high health care costs and is associated with adult obesity as well as multiple morbidities in adulthood.

Most of the theoretical studies on the taxation of unhealthy food focus on the effects of these taxes on adult obesity. The scarce existing literature analyzing the impact of taxes on unhealthy food on the intergenerational transmission of obesity assumes that parents are nonaltruistic and neglect the impact of their own choices on the future health of their children. It finds that there is a tax on unhealthy food that fully corrects for the negative effects that parents ignore, thus leading to a first-best situation.

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In this paper, BCCP Fellow Zarko Kalamov and BCCP Senior Fellow Marco Runkel develop a different theoretical framework to analyze how a tax on unhealthy food can be applied to address child obesity. They analyze a situation where parents may only partially neglect the future health costs of unhealthy consumption by their children.

The paper shows that it is optimal for a government to tax unhealthy food, even if parents ignore only a small part of the future health costs of their children. However, the optimal tax cannot, in general, fully correct the ignored costs. The reason is that the tax also distorts adult consumption, as well as consumption of children with fully altruistic parents.

These results show that taxing unhealthy food is insufficient to fully address the problem of child obesity. Other measures targeting child consumption should be implemented in conjunction with taxes. Such measures may include subsidies for childhood sports activities, providing information about the negative effects of child obesity, introducing mandatory product information in supermarkets, and using nudges to promote healthy consumption in schools.

The full paper ›Taxes on Unhealthy Food and Externalities in the Parental Choice of Children's Diet‹ is published in *Health Economics*, Volume 29, Issue 8, 2020, pp. 938-944.

Hidden Discrimination: The Importance of Identifying and Addressing all Forms of Discrimination

Labor market discrimination is a critically important policy issue around the world. When one individual receives preferential treatment over another on the basis of gender or ethnicity, this often violates basic ethical principles. Moreover, such discrimination predominantly harms socio-economically weaker groups, thereby reinforcing inequality. For this reason, discrimination has received substantial attention from academics in several disciplines, including economics, psychology and sociology. However, a new wave of research is asking whether the standard taxonomy used for classifying and understanding discrimination within the economics literature is too narrow and, therefore, neglects to identify some forms of discrimination.

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Traditionally, the economics literature distinguishes between discrimination based on taste and discrimination resulting from beliefs that are accurate in a statistical sense. For example, if a male employer preferentially hires men because he intrinsically prefers interacting with men rather than women, this is classified as taste-based discrimination. If the employer instead preferentially hires men because on average men tend to actually be more productive in the job in question than women, then this constitutes statistical discrimination.

Recent work suggests that this taxonomy may miss several important aspects of discrimination. In particular, it omits discrimination emanating from statistically inaccurate beliefs due, for example, to widely held inaccurate stereotypes.

In a new contribution to this discussion, BCCP Fellows Kai Barron and Sebastian Schweighofer-Kodritsch and their co-authors Ruth Ditlmann and Stefan Gehrig study gender discrimination across a range

of experimentally controlled hiring settings that vary in the degree to which employers' decisions reveal discrimination. This is done by presenting employers with choices between job candidates, where the information that employers observe about these job candidates is carefully controlled: employers observe information about the gender and qualifications of the candidates. The authors consider various scenarios, including those in which the two candidates are (i) clearly ranked by qualification, (ii) equally qualified, and (ii) differently qualified (holding different qualifications). The data reveals evidence of both explicit (i.e., ›obvious‹) and implicit (i.e., ›hidden‹) discrimination against women. Neither of these forms of discrimination is justified by true performance differences between male and female job candidates, but they are consistent with prevailing gender stereotypes. The two forms of discrimination differ in how clearly they reveal the employer's bias, with some individuals only discriminating when their discrimination is obscured by the choice setting. In the study, some employers are willing to discriminate even when job candidates are equally qualified (explicit discrimination), while others only discriminate when the candidates are differently qualified and, therefore, are not easily ranked (implicit discrimination). The analysis highlights the central role played by the contextual features of the hiring setting in conjunction with prevailing stereotypes in determining whether and how discrimination will manifest. The authors also provide several suggestions of how these findings may inform policy to effectively combat discrimination. One example is for decision makers (e.g. employers) to commit ex ante to a clear definition of how candidates' relative merits on the relevant criteria will be traded off in the overall assessment before receiving information about the candidates.

The full paper ›Explicit and Implicit Belief-Based Gender Discrimination: A Hiring Experiment‹ is available as *WZB Discussion Paper* No. SP II 2020-306.

Political Corruption in the Execution of Public Contracts

Public procurement - the purchasing of works, goods, and services by governments and other public authorities – accounts for approximately 12% of gross domestic product (GDP) in OECD countries. The volume and financial stake of transactions, combined with the complexity of the process and the close interactions between public officials and companies, make this key government activity particularly prone to corruption. It is estimated that billions of euros are lost globally every year to corruption in public procurement.

Theoretical studies on this topic typically focus on a setting where benevolent politicians delegate the administration of the procurement process to public officials who can be self-interested and abuse their discretion to manipulate the process in exchange for a bribe. For example, they can bias the tender award in favor of one of the bidders or allow the contracting firm to embezzle public funds by increasing expense claims or lowering delivered quality via fraudulent invoices.

While the research above can explain the occurrence of bureaucratic corruption, it rules out the potential role of politicians. However, as the most severe episodes of corruption show, politicians are not only often involved in corrupt deals, they promote them. In fact, politicians have a number of ways to systematically interfere with the procurement process and guarantee their own participation in corrupt arrangements. For example, they can decide on the allocation of funds to projects or drive the employment of complicit procurement officials. Thus, as the involvement of politicians exacerbates the problem, it is important to study in detail such mechanisms of undue influence on the procurement process.

BCCP Fellow Olga Chiappinelli contributes to this objective by proposing a theoretical framework to investigate one possible mechanism: the influence of politicians on the monitoring of the execution of public contracts. The study considers the case that politicians are not benevolent but rather partially selfish and can design the contract auditing policy. It finds that selfish enough politicians choose a lax auditing policy in order to induce embezzlement by the contracting firm and then claim a share of the embezzled funds.

These results are useful for informing the design of policies directed to curbing corruption in public procurement. For example, the monitoring of the execution of public contracts, which in many countries is the responsibility of a public official employed or appointed by the purchasing authority, could be shifted to - or at least supervised by - an external independent authority.

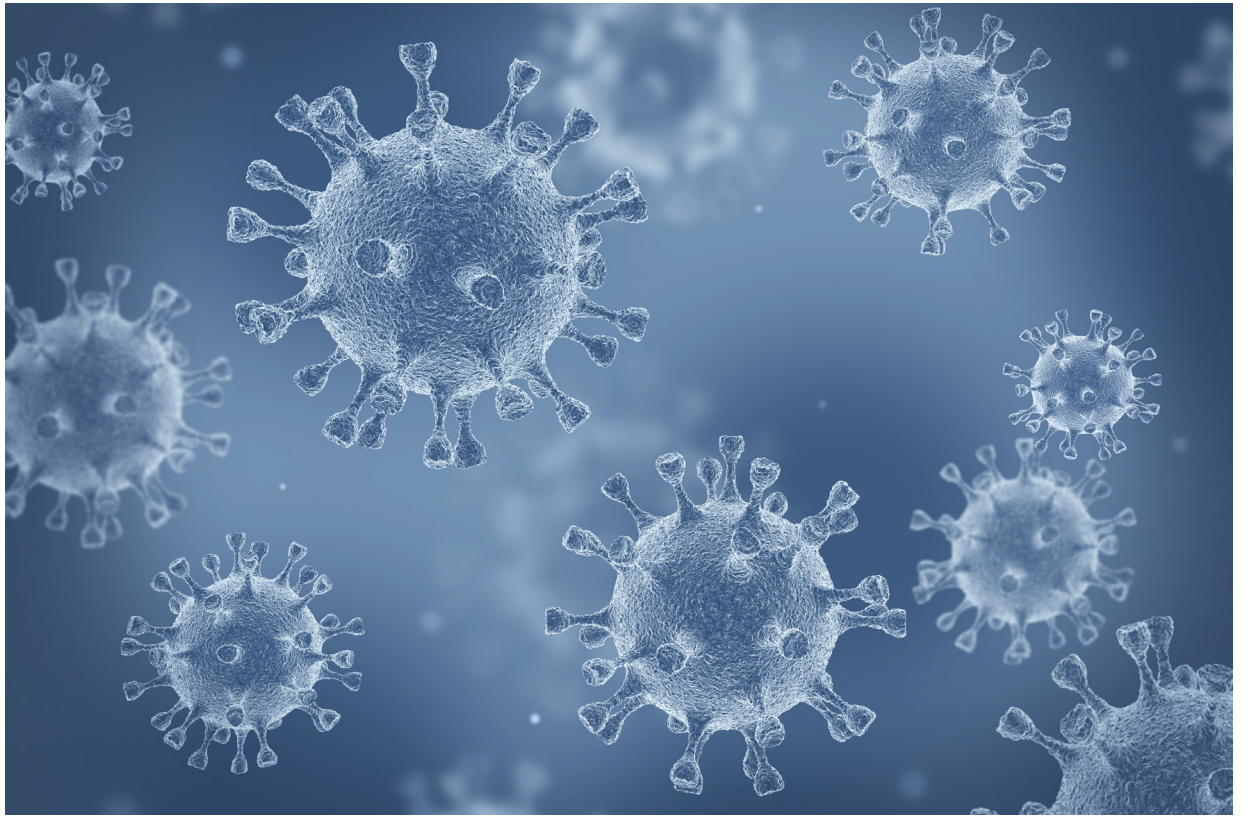
iStock: Bobboz

The article ›Political corruption in the execution of public contracts‹ is published in *Journal of Economic Behavior & Organization*, Volume 179, 2020, pp. 116-140.

BCCP Newsletter 6/2020
SPECIAL FOCUS: BSE INSIGHTS ON THE CORONA CRISIS

BSE Insights on the Corona Crisis

All texts were written as part of the BSE Insights on the Corona Crisis series in which researchers of the Berlin School of Economics provide short texts with scientific content that is relevant for the crisis.



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Did Border Controls Help?

By BCCP Doctoral Student Kalle Kappner and co-authors Matthias Eckardt and Nikolaus Wolf

The Covid-19 pandemic led to a massive return of the nation state. National governments around the world took far-reaching measures to control the spread of the disease, whether just closing shops, restaurants, and schools, or a complete and total lock-down of public life. In Europe, the crisis was, and still is, a fundamental challenge to European Union principles, notably solidarity, policy coordination, and free movement across national borders. In this paper, BCCP Doctoral Student Kalle Kappner and his co-authors Matthias Eckardt and Nikolaus Wolf focus on the temporal reintroduction of national border controls within the Schengen area. While such restrictions clearly involve costs, the benefits are disputed.

Their main finding is that the temporal reintroduction of border controls within the Schengen area helped contain the spread of Covid-19. The authors use a new set of daily data of confirmed Covid-19 cases at the level of 213 European regions, compiled from the respective statistical agencies of 18 Western European countries. Their data runs from calendar week 10 (starting March 2, 2020) to calendar week 17 (ending April 26, 2020). Figure 1 shows developments over time.

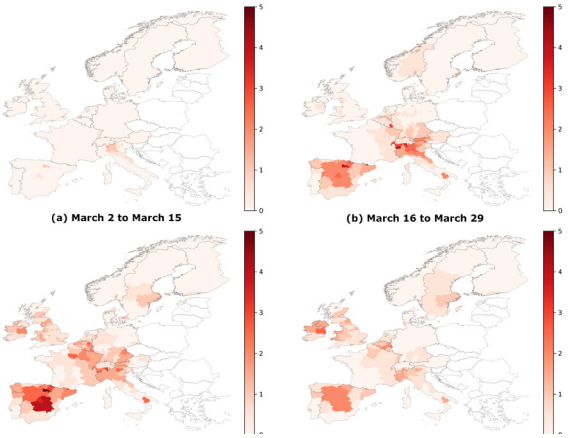


Figure 1: Newly confirmed Covid-19 cases per 1,000 inhabitants in specified calendar weeks.

With this data, the authors test for treatment effects of border controls on new Covid-19 cases. They do this in two steps. Controlling for regional specificities and country-wide variation in containment policies (based on an econometric model with region and country-time fixed effects), they show that border controls are associated with a 25% reduction in daily cases. Importantly, they show that border controls mattered only for regions with a substantial number of cross-border commuters prior to the crisis, which is missed in the existing literature. Figure 2 shows the number of daily new cases in treatment and control regions over time, conditional on day and region fixed effects (panel a) and the estimated excess risk in treated over control regions (panel b). Apparently, the introduction of controls helped to reduce the excess risk.

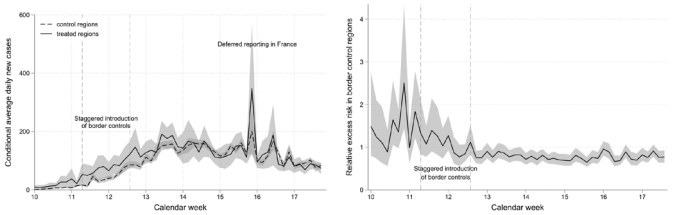
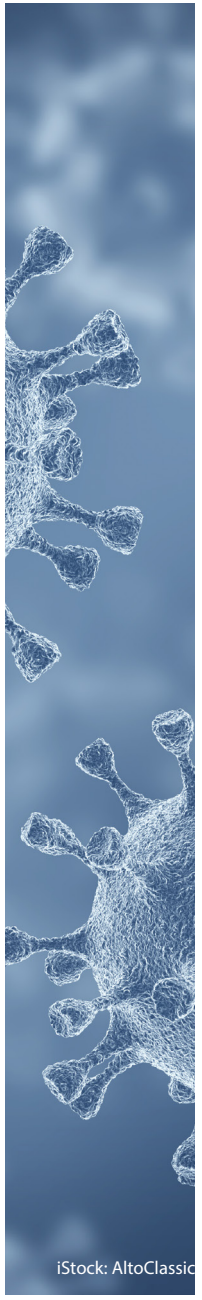


Figure 2: Panel 2a plots average daily new cases in the treatment and control groups, conditional on day and region fixed effects. Panel 2b shows (exponentiated) coefficients of the treatment group dummy for each day, conditional on country-day and region fixed effects. In both panels, gray areas show the 10 % confidence interval for robust standard errors clustered at the region level. Note that the "France spike" seen in panel 3a does not show up in panel 3b, because it is absorbed by the country-day fixed effects.

BCCP Newsletter 6/2020
SPECIAL FOCUS: BSE INSIGHTS ON THE CORONA CRISIS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In a second step, the authors show that it is important to consider unobserved spatio-temporal heterogeneity. This is likely to matter for at least two reasons. First, local containment policies might have differed from nation-wide measures and their information on such local measures is incomplete. Without such data, they might overestimate the effect of border controls. Second, the fixed effect regression approach is likely to miss some of the spatial dynamics in the data, as described by Tobler's First Law of Geography: ›Everything is related to everything else, but near things are more related than distant things‹. To deal with this, the authors use a Bayesian INLA approach. With this they model the idea that Covid-19 cases in one region will be affected by cases in neighboring regions. Moreover, they use this to control for unobserved variation across regions using spatial random effects. With this more flexible approach, they find smaller, but still significant, effects of border controls of about 6 %.

The authors conclude that the temporal introduction of border controls was certainly costly but made a measurable contribution to containing Covid-19. At the same time, it is likely that better policy coordination at the European level could have generated these benefits with lower economic (and political) costs; for example, if based on European economic clusters with a closer monitoring of cross-border commuting flows. Instead of closing national borders, a European agency could coordinate local containment policies in affected regions on both sides of an affected cluster.

The full paper ›Covid-19 across European regions: The role of border controls‹ is available as *CEPR Discussion Paper* 15178 and is published in Covid Economics.

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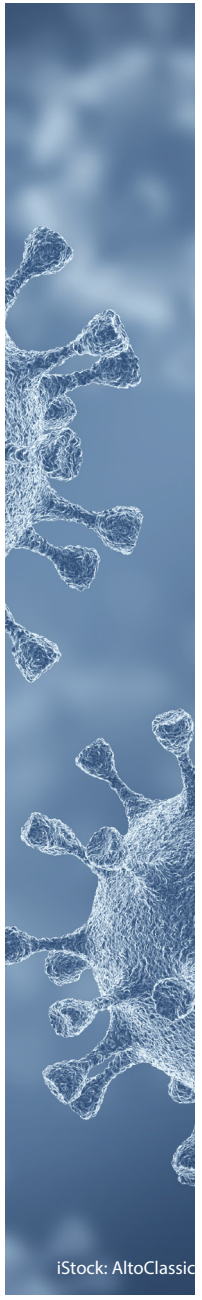
SPECIAL FOCUS: BSE INSIGHTS ON THE CORONA CRISIS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The Face Mask Debate: Do we Need to be Afraid of Risk Compensation?

By BCCP Fellows Anastasia Danilov, Jana Friedrichsen, and Gyula Seres and co-authors Anna Helen Balleyer, Nicola Cerutti, Yiming Liu, and Müge Süer

Over the course of the SARS-CoV-2 outbreak, strict lockdown policies have proved effective in slowing down the spread of the virus. In many countries, including heavily affected regions in Italy, France, and China, the number of newly infected cases per day has decreased substantially since the height of the pandemic in March and April 2020. While countries are slowly opening up to allow for economic and social activity to resume, politicians and citizens wonder which measures to take to prevent a second wave. It appears uncontroversial that the physical distancing recommendation and personal hygiene recommendations are here to stay. In contrast, the universal use of face masks is highly debated.

Several studies suggest that face masks, particularly if adopted universally, can be of high value in preventing further spread of SARS-CoV-2 (Chernozhukov et al., 2020; Eikenberry et al., 2020; Leung et al, 2020). Nonetheless, not all public health authorities endorse the preventive use of face masks in the public. For example, Danish, Norwegian, and Swiss authorities are decidedly not recommending their use by healthy individuals. One main argument against making the use of face masks mandatory in public spaces is based on the idea of risk compensation. If face masks offer some protection against the spread of the virus, they may give individuals a false sense of security and lead them to be less cautious in other dimensions, for example with respect to keeping a safe distance from others and complying with social distancing rules. While this argument features prominently in the public debate (e.g., WHO, 2020), whether people indeed risk compensate in response to masking or not is an empirical question that has not been rigorously tested.

Seres et al. (2020) contribute to this debate with results from a field experiment that was conducted in Berlin in April 2020. Waiting in line outside to enter a business, the experimenter varied whether or not to wear a mask and, in each condition, recorded the distance subjects entering the line behind him or her came to a stand. Contrary to the risk compensation hypothesis, the study finds that subjects stay significantly further away from the experimenter when he or she is wearing a face mask than when he or she is unmasked. Further, additional survey results indicate that people believe someone wearing a face mask would like others to keep a safe distance from him or her, a preference that is responded to with a larger distance.

These findings have important implications for the discussion of face covering. In particular, the study suggests that individuals will not let down their guard when someone else is wearing a mask. To the contrary, masks may foster efforts to comply with the recommendation of physical distancing. While the observed positive effect may decrease under compulsory masking because the signal value of desired distances is weakened, the evidence speaks strongly against a supposed harmful negative effect of masks on physical distancing. Of course, there are other aspects in this debate that are important but to which this study cannot speak, for example, whether or not masking has negative side effects on health or infection risk to the wearer (Greenhalgh, 2020; Greenhalgh et al., 2020; Lazzarino et al., 2020).

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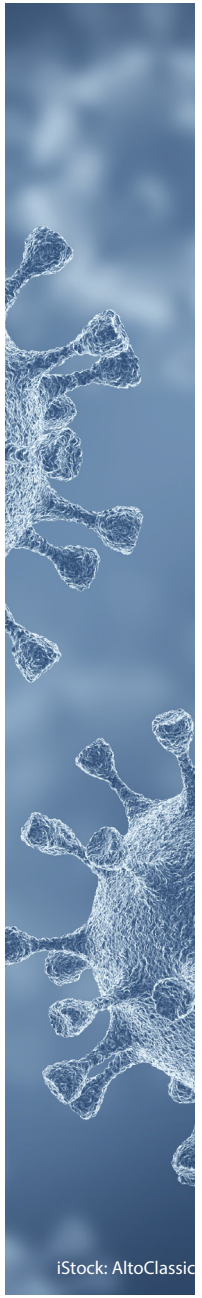
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Financial Resilience and the Covid-19 Pandemic: The Importance of Financial Literacy in Times of Crisis

By BCCP Doctoral Students Jana Hamdan and Melanie Koch

After more than two months of restrictions due to the Covid-19 pandemic, many households are facing severe financial challenges. Job loss, pay cuts, and other adverse effects are straining household finances. Government assistance is being provided in many places, but it is usually insufficient to restore pre-crisis income levels. This leaves households reliant on personal savings (or new loans) to smooth consumption.

Household income (relative to expenses) remains the critical factor explaining whether one can accumulate sufficient savings for emergencies. Still, another important attribute standing out is financial literacy. This term includes the set of skills needed to be able to cope with financial problems.

Financial literacy is linked to many desirable financial behaviors. For instance, US survey data show that financial knowledge is associated with a significantly higher probability of having emergency funds sufficient to finance three months of typical expenditures, controlling for many explanatory variables including income (Babiarz and Robb, 2014). However, low levels of financial literacy are simultaneously found to prevail across countries (Lusardi and Mitchell, 2014).

There is evidence that these considerations are also likely to be valid in Germany. Using data from the SOEP innovation sample (IS) 2018 wave, we can show that household heads with higher financial literacy took significantly more precautionary financial measures for their households. The survey data were collected about one year before the Covid-19 pandemic hit Germany. It seems reasonable to assume that the financial behavior observed then significantly affects how households maneuver through the crisis right now.

The SOEP-IS household survey uses a rather rich measure for financial literacy with six questions assessing the financial knowledge of each respondent. Worryingly, we find – in line with other surveys - that about 35 percent of all respondents cannot save on a regular basis. To inspect the potential relevance of financial literacy for savings behavior, we create a standardized score out of these questions, dividing the sample into having below and above median financial literacy. We then compare the two groups by their propensity to save and the absolute and relative amounts they save for precautionary reasons.

The above median financially literate persons have a 21 percentage points higher likelihood of regularly saving for precautionary reasons. This result is displayed in the below figure as the extensive margin and is statistically significant at the 1 percent level. The amount of money saved is also significantly higher among the more financially literate. Moreover, they are almost twice as likely to save the recommended 5 percent of their monthly income as buffer for times of crisis. Other forms of savings, such as retirement and investment funds, are likely not as flexible and helpful at the moment. However, when including them in an analysis, we find the same results.

All of these differences cannot be explained by differences in income in general, as we control for net household income in additional linear regressions and the results virtually do not change.

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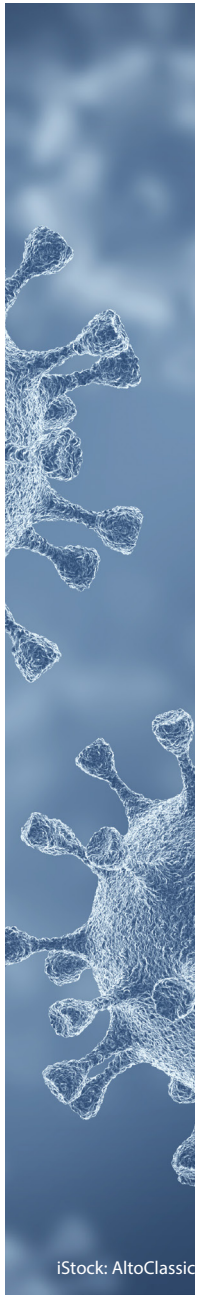
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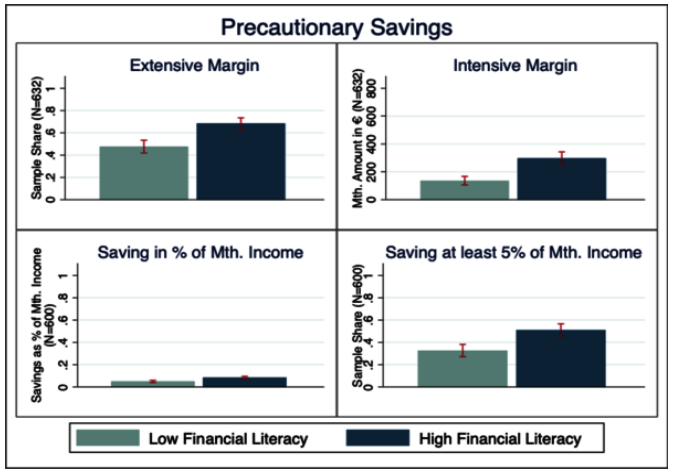

Notes: Precautionary savings are measured as monthly contributions and include any form of savings the household itself defines as precautionary savings. Monthly income refers to the current monthly household net income. All numbers are reported by the household head. Financial literacy groups are defined over the subsample of household heads, where low financial literacy means below and high financial literacy above median or median financial literacy.

It seems that in Germany, individuals with higher financial literacy are financially better prepared for an unexpected income shock, like that caused by the coronavirus crisis. This shows that it is crucial for households to have the skills to prepare for crises. Given that only more financially literate individuals, on average, manage to save the minimum recommended amount for rainy days, policymakers should take more action in financial education. Investing in financial education pays off, as shown in a new meta-analysis. Financial trainings have a positive average treatment effect on financial behavior, especially also on savings behavior, and are, typically, cost-effective (Kaiser et al., 2020). Thus, investing in financial literacy makes societies more resilient for crises like the current Covid-19 pandemic.

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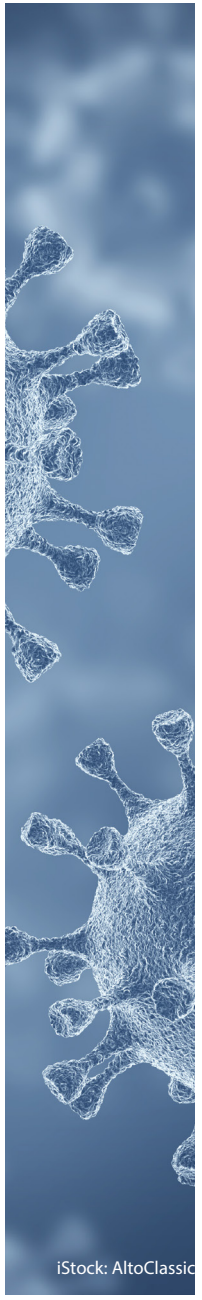
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References

Babiarz, P. and C. A. Robb (2014): ›Financial Literacy and Emergency Saving.‹ Journal of Family and Economic Issues, 35 (1), pp. 40-50.

Chernozhukov, V., Kasaha, H., and P. Schrimpf (2020): ›Causal Impact of Masks, Policies, Behavior on Early Covid-19 Pandemic in the US.‹ Fortcoming in Journal of Econometrics.

Eikenberry, S. E., Mancuso, M., Iboi, E., Phan, T., Eikenberry, K., Kuang, Y., Kostelich, E., and A.B. Gumel (2020): ›To Mask or Not to Mask: Modeling the Potential for Face Mask Use by the General Public to Curtail the COVID-19 Pandemic.‹ Infectious Disease Modelling, 5, pp. 293-308.

Greenhalgh, T. (2020): ›Face Coverings for the Public: Laying Straw Men to Rest.‹ Journal of Evaluation in Clinical Practice, 26(4), pp. 1070-1077.

Greenhalgh, T., Schmid, M. B., Czypionka, T., Bassler, D., and L. Gruer (2020): ›Face Masks for the Public During the Covid-19 Crisis.‹ BMJ, 369:m1435.

Kaiser, T., Lusardi, A., Menkhoff, L., and C. Urban (2020): ›Financial Education Affects Financial Knowledge and Downstream Behaviors.‹ NBER Working Paper No. 27057.

Lazzarino, A. I., Steptoe, A., Hamer, M., and S. Michie, (2020): ›Covid-19: Important Potential Side Effects of Wearing Face Masks that We Should Bear in Mind.‹ BMJ, 369:m2003.

Leung, N. H., Chu, D. K., Shiu, E. Y., Chan, K. H., McDevitt, J. J., Hau, B. J., ... and B. J. Cowling (2020): ›Respiratory Virus Shedding in Exhaled Breath and Efficacy of Face Masks.‹ Nature Medicine, 26(5), pp. 676-680.

Lusardi, A. and O. S. Mitchell (2014): ›The Economic Importance of Financial Literacy: Theory and Evidence.‹ Journal of Economic Literature, 52 (1), pp. 5-44.

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SPECIAL FOCUS: BSE INSIGHTS ON THE CORONA CRISIS

Seres, G., Balleyer, A. H., Cerutti, N., Danilov, A., Friedrichsen, J., Liu, Y., and M Süer (2020): ›Face Masks Increase Compliance with Physical Distancing Recommendations During the COVID-19 Pandemic.‹

WHO (2020): ›Rational Use of Personal Protective Equipment for Coronavirus Disease (COVID-19) and Considerations During Severe Shortages.‹ Interim guidance, WHO Reference Number: WHO/2019-nCov/IPC_PPE_use/2020.3.

Google/Fitbit Merger Will Monetise Health Data and Harm Consumers

By BCCP Spokesperson Tomaso Duso and co-authors Marc Bourreau, Cristina Caffarra, Zhijun Chen, Chongwoo Choe, Gregory S. Crawford, Christos Genakos, Paul Heidhues, Martin Peitz, Thomas Rønde, Monika Schnitzer, Nicolas Schutz, Michelle Sovinsky, Giancarlo Spagnolo, Otto Toivanen, Tommaso Valletti, and Thibaud Vergé

The European Commission must act now to mitigate risks to competition and long-run consumer harm.

The looming Google/Fitbit merger is causing widespread consternation that allowing for Fitbit's data gathering capabilities to be put in Google's hands creates major risks of ›platform envelopment‹ extension of monopoly power, and consumer exploitation. Furthermore, the combination of Fitbit's health data with Google's existing data could create unique opportunities for discrimination and exploitation of consumers in healthcare, health insurance and other sensitive areas, and also has major implications for data privacy.

A new CEPR Policy Insight by BCCP Spokesperson Tomaso Duso and 16 other competition economists suggests that the European Commission and other authorities should be very skeptical of this deal, and realistic about their limited ability to design, impose and monitor appropriate remedies. The unchecked expansion by Google into the Health Tech Sector will likely cause future complications which will be difficult to reverse. Google's modus operandi is by now well understood. Its history of systematic acquisitions across a vast array of disparate activities, bolted onto its original Search engine, are unified by a common aim: to enhance and protect its unique data empire, and enable its monetisation in ever-expanding applications. What is concerning is the prospect of Google becoming dominant in 'health tech', uniquely combining its existing data with that gathered from Fitbit and undermining the ability of others to compete.

This Policy Insight highlights why the acquisition of FitBit by Google raises such unease for the future of the Health Tech sector. It considers remedies for regulatory intervention, and calls on the European Commission to remain a driving force in the enforcement and creation of merger policy in the digital era.

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This deal enables Google to strengthen its ability to gather and exploit health data, and undermines the ability of rivals to do so, in order to leverage its power into health and insurance markets.

Google's dominance does not generate ordinary market power: its essence is that of a discriminating monopolistic presence across multiple markets, capable of harming consumers through personalisation of advertising and by enabling targeted product offerings,

accompanied by a record of leveraging its power both into adjacent markets and to protect its existing dominance. This discriminatory power, supported by Google's unmatched data, is the dimension of the proposed acquisition of Fitbit that creates the greatest concern.

Google's interest in this deal is not in Fitbit's wearable itself, but in the wearable as a source of valuable complementary health metrics, which Google can correlate with an enormous wealth of other data. Gathering health data that can be spliced with its existing data assets adds a whole new level of concern around using a massive informational advantage to profitably exploit consumers and put employees at risk. In particular, combining health and other data allows for personalisation of offers in fields such as insurance, health, and even employment, that is incomparable and, as the authors stress, ›absolutely not benign or efficient‹.

The merger also further cements Google's already dominant position in online advertising markets. Correlating health data could well be valuable to pharmaceutical or health product suppliers interested in targeted advertising, and would enable Google to extract further value from them in search advertising. Google's promise to ›not to use Fitbit data for advertising‹ is also hardly reassuring given their track record and the difficulties involved in monitoring such an assurance.

Fitbit is one more essential piece in this puzzle: it provides the capability of harvesting health data directly, and at the same time undermining rivals' progress. There can be little doubt that the opportunity available in health tech dwarfs the size of the wearables market.

While there are some remedies that can mitigate the risks to competition and long-run consumer harm, they are complex, at risk of circumvention in multiple dimensions, and will continue to require constant monitoring. The consequences of failing to prevent a harmful combination in digital markets have been documented time and time again, the only appropriate approach to merger control in this space is to prevent harmful mergers from happening. Putting a break on Google's ambitions in this space is, in the view of the authors, the price one should be willing to pay for the prospect of more innovation over time from others, as well as less consumer exploitation. A bad merger with bad remedies remains a bad merger for society.

The full document ›Google/Fitbit will monetise health data and harm consumers‹ is published as a CEPR Policy Insight.

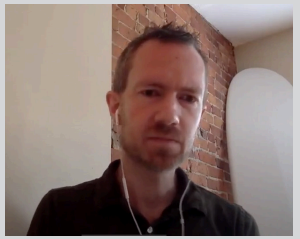
BCCP Newsletter 6/2020
BCCP OPINIONS

Review: BCCP Virtual Mini-Conference 2020

Focusing on regulatory challenges in digital markets, in particular the future of artificial intelligence (AI) for policy making, the fifth annual Conference and Policy Forum of the Berlin Centre for Consumer Policies (BCCP) was held on June 26th, 2020. This year, the conference took place as a virtual mini-conference.

Touching upon an issue at the forefront of current European and US policy debates, around 100 participants, including academics from law and economics, policy makers, professionals, BCCP Fellows, and the interested public joined the webinar.

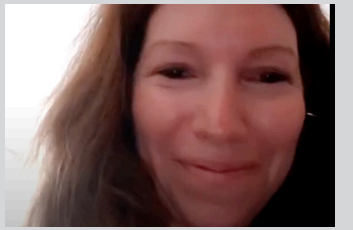
During the two-hour conference, Daniel Björkegren (Brown University), Joanna Bryson (Hertie School of Governance), Anna Christmann (Member of the German Bundestag and the German Parliamentary Study Commission on Artificial Intelligence, Bündnis 90/Die Grünen), and Cass Sunstein (Harvard University) discussed various issues ranging from the regulation of AI to fostering



Panelislists: Daniel Björkegren (Brown University), Joanna Bryson (Hertie School of Governance), and Cass Sunstein (Harvard University)

AI in Europe to the potential benefits and dangers of using AI in the public domain. Anna Christmann called for European politics to fund science in order to enable AI made in Europe. Further, she discussed the need for legal rules to reap the benefits of AI while avoiding its risks. Daniel Björkegren added that we are only seeing the early days of AI. He explained how AI would come in three phases: first, automating tasks that humans are currently doing, second, making decisions in areas where it was not cost-efficient to have humans decide (for example, content moderation online),

and third, detecting nuanced behavioural patterns and encouraging those that are desired. Joanna Bryson argued that AI should be treated as any other human-made product. In particular, corporations ought to be held accountable if anything goes wrong




Panelists: Anna Christmann (Member of the German Bundestag and the German Parliamentary Study Commission on Artificial Intelligence, Bündnis 90/Die Grünen) and moderator Hannes Ullrich (DIW Berlin and University of Copenhagen)

with their technology. Further, the economic and social impact of AI needs to be acknowledged and considered in policy making. Cass Sunstein finished the round of opening remarks with a positive outlook: he suggested that properly regulated and designed, AI can be a powerful instrument to protect human rights by reducing bias and, more importantly, noise in human decision-making. Finally, he called for a bill of rights for the use of AI. In the subsequent discussion, moderated by Hannes Ullrich (DIW Berlin and University of Copenhagen), the panellists stressed the need to be specific when discussing regulation of AI. Potential use cases are broad and heterogenous, requiring continued discussions on how to design effective regulation. Spurred by questions from the audience, the discussion also covered ideas to improve humans' trust in AI, the role of Europe in AI development and governance, and the question of accountability for AI errors.

A full recording of the panel is available on YouTube.

BCCP newsletters aim at presenting and discussing in accessible terms the main findings of scientific papers recently published by BCCP Fellows. Most of the news published in this issue can also be found on the BCCP website (http://www.bccp-berlin.de/news).

About BCCP

The Berlin Centre for Consumer Policies (BCCP) is a Leibniz ScienceCampus, established September 2015, and co-funded by the German Leibniz Association and its member institutions. Leibniz ScienceCampuses promote cooperation between Leibniz institutions and universities via regional, thematic research and policy partnerships.

The Centre builds on the cooperation between two Leibniz institutes – the German Institute for Economic Research (DIW Berlin) and the Berlin Social Science Center (WZB) – and faculties of the Humboldt-Universität zu Berlin, Technische Universität Berlin, the European School of Management and Technology (ESMT Berlin), the Hertie School, and the Alexander von Humboldt Institute for Internet and Society (HIIG).

A strong focus on Behavioral Economics, Industrial Organization, as well as Consumer and Competition Law – all combined with established policy expertise – makes Berlin an ideal location for a ScienceCampus focusing on consumer policies.

BCCP reinforces and institutionalizes this exceptional environment to create an enduring international platform in the broad area of competition and consumer policies. This platform strengthens the academic environment, encourages interdisciplinary research, and increases the visibility of Berlin as a center of excellent academic research and evidence-informed policy advice.

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