Far-right protests and migration.

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Abstract

We study how far-right rallies affect migration flows. To address this question, we use administrative and survey data from Germany and exploit that the city of Dresden unexpectedly experienced large-scale right-wing demonstrations. Results from dyadic fixed effect regressions and Synthetic Control analyses suggest that these rallies significantly reduced in-migration, especially of young Germans and foreigners. We also observe that many of these people are highly skilled. For out-migration, we find only small effects. Finally, we use results from a representative survey to illustrate that the far-right protests decreased Dresden's reputation and that people perceived this city as less secure afterwards.

Keywords: Demonstrations, far-right, location choices, migration, right-wing populism, protests, reputation, university students

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1 Introduction

During the last decade, virtually all advanced democracies experienced far-right demonstrations with several thousand participants (Mudde, 2019).[1] In economics and political sciences, the question of why people support the far-right thus received great attention in the last years (see e.g. Dustmann et al., 2019, Fetzer, 2019, Steinmayr, 2020). By contrast, the consequences of the growing popularity of right-wing movements have so far hardly been studied. The purpose of this project is to fill this gap. More specifically, we study whether far-right protests shape migration flows. Addressing this question is relevant because the influx of people (and especially of young and high-skilled people) positively affects local development (Moretti, 2004, 2012). In addition, without incomers from other regions, far-right attitudes are more likely to persist over time (Cantoni et al., 2019, Voigtländer and Voth, 2012).

The existing political economy literature suggests that people use public protests to signal their political preferences and thereby to influence policy and voting decisions (Battaglini, 2017, Lohmann, 1993, 1994, Madestam et al., 2013). We extend this argument to develop a hypothesis about how far-right rallies affect people's location decisions. In particular, we argue that people update their beliefs about a place if they recognize that this place serves as the venue of large-scale far-right protests. A consequence of this updating is that people perceive such a location as less liveable and thus avoid it when making residential choices.

To empirically test whether far-right rallies adversely affect migration, we consider Germany and exploit that the city of Dresden (Saxony) suddenly experienced a series of large-scale right-wing demonstrations from late 2014 onward. We focus on this case for three reasons. First, in Germany, the far-right received only little support and public attention until 2014. It is therefore rather unlikely that people knew prior to 2014 how widespread rightist thinking was in a particular German city. Second, the movement that organized most of the rallies in Dresden did not exist until 2014 and none of the leaders had any earlier exposure to professional politics. The

[1] For instance, in June 2018, about 15,000 people participated in London in a rally to express solidarity with the far-right activist Tommy Robinson. In Rome, thousands of people joined an anti-immigration protest in February 2015. In November 2017, Warsaw experienced a rally with about 60,000 participants that touted a white supremacist and Islamophobic messages. In the US, large-scale far-right protests were (e.g.) hold in Michigan in April 2020 and in Washington in January 2021.

a-priori probability that this right-wing movement (known as Pegida)[2] will be successful in organizing multiple protests with thousands of participants was thus almost zero (Dostal, 2015). Finally, the media attention that the protest events in Dresden received was relatively large. We can therefore expect that people from other regions and countries recognized these right-win rallies.

In our empirical analysis, we use two comprehensive administrative data sets. The first is based on Germany's Population Register and reports for each county-pair the total number of Germans that moved in a particular year in either direction. When exploiting our first data set, we can thus differentiate between in- and out-migration. A second remarkable feature of this data set is that it allows us to distinguish four different age cohorts. From a development perspective, the key weak spot of our first data set is that it does not differentiate between high- and low-skilled migrants. In addition, we need to focus on German internal migrants when using this data set. To address these issues, we exploit the German Student Register (GSR) which includes information on the universe of tertiary students in Germany. For our purpose, the GSR is well suited because it does not only indicate where a student studies and when he/she enrolled but also the country in which he/she graduated from high school. For the German students, this data set even includes the county of high school graduation. Paying particular attention to university students is interesting since many students stay in the city/region in which they graduated from university (Winters, 2020).[3] Furthermore, young high-skilled workers are likely to be attracted by similar factors as tertiary students when choosing a place of living (Beine et al., 2014).

We apply two different empirical methods to show how far-right protests affect migration. The first is a dyadic fixed effect approach. In a recent study, Besley et al. (2020) use the same approach to show how individuals react to terror attacks when choosing their holiday locations. To establish causality, we complement our first analysis with an analysis in which we apply Abadie's Synthetic Control (SC) method (see Abadie and Gardeazabal, 2003, Abadie et al., 2010, 2015, Abadie, 2020). The basic idea behind this popular tool is to compare a treated unit (here the city of Dresden or a

[2]Pegida is an abbreviation that stands for *Patriotische Europäer Gegen die Islamisierung des Abendlandes* ('Patriotic Europeans against Islamisation of the Occident').

[3]Haussen and Uebelmesser (2018a,b) present survey results, suggesting that 65 percent of all university students in Germany find their first post-graduation job in the state in which their university is located.

higher education institution in Dresden) with a synthetic control unit that is created out of a set of comparable untreated units and behaved in a similar way as the treated unit before the treatment took place.

The results of our dyadic fixed effect and our SC analyses suggest that right-wing demonstrations reduce in-migration in a notable manner. More specifically, we observe that the right-wing protests in Dresden significantly decreased the total number of Germans who moved to this city. We also find that this decrease is almost completely driven by young people from other states. Our student data analysis implies that many of these young people are highly skilled. The results of this analysis also suggest that far-right protests negatively affect the influx of (high-skilled) foreigners.

Compared to the relatively strong consequences for in-migration, we find only rather little evidence for the hypothesis that right-wing rallies affect out-migration. For several reasons, we find it plausible that out-migration changes to lesser extent than in-migration. For instance, for people who decided to leave their current place of living, changing their preference ranking of potential destinations is relatively easy when receiving new information on one of these locations. By contrast, far-right rallies cause out-migration only if the utility gains from moving exceed the (relatively high) fixed costs of migration.

The mechanism from which we think that it explains the negative effect of far-right demonstrations on migration is that these rallies receive public attention and thus change people's views on the place where the protest events take place. To show that this logic indeed applies, we proceed in three steps. First, we exploit the online database *GBI-Genios wiso*[4] to illustrate that Dresden received much more media attention from late 2014 onward. Second, we show that right-wing protests are the main driver of this increased public attention. Third, we use a representative survey on the attractiveness of large German cities (*Brandmeyer Stadtmarken-Monitor*) to illustrate how Dresden's reputation changed over time.[5] Consistent with our hypothesis, this survey suggests that the right-wing rallies in Dresden caused a notable loss of reputation. We also observe that the reputation of the city of Dresden declined much more among young people than among middle-aged and old people. The main reasons for this decrease are that young people perceive the city of Dresden as less secure and the overall

[4] *GBI-Genios wiso* is an online database that includes digitized articles of about 100 German newspapers.

[5] The *Brandmeyer Stadtmarken-Monitor* is conducted by a professional marketing and will be published every five years since 2010.

atmosphere as less pleasant.

Our paper contributes to the rapidly growing empirical literature on far-right movements. Most studies in this research field study the reasons for why people support the far-right. Established drivers are exposure to immigration (Barone et al., 2016, Dinas et al., 2019, Dustmann et al., 2019, Edo et al., 2019, Halla et al., 2017, Steinmayr, 2020), international trade (Autor et al., 2020, Colantone and Stanig, 2018, Dippel et al., 2017), austerity (Fetzer, 2019, Galofré-Vilà et al., 2017), economic crises (Funke et al., 2016, Margalit, 2019), and historical events (Cantoni et al., 2019, Ochsner and Roesel, 2019, 2020, Voigtländer and Voth, 2012). By contrast, we know only little about the economic costs that arise if right-wing movements gain popularity. At the macro level, Funke et al. (2020) find that the economic performance of a state notably declines if the head of government is a far-right politician. At the micro-level, Bracco et al. (2018) use data from Italy to show that immigrants avoid places where a right-wing party has governmental power. Doerr et al. (2020b) confirm this result, using local-level data from Austria. Doerr et al. (2020b) also study whether far-right mayors implement other economic policies, but do not find notable effects. Our paper differs from the studies by Bracco et al. (2018) and Doerr et al. (2020b) since we show how far-right movements can affect economic outcomes without having any government responsibility. Furthermore, while Bracco et al. (2018) and Doerr et al. (2020b) illustrate how immigrants change their location decisions, we pay particular attention to natives, and especially to the young high-skilled ones.

We also complement the political economy literature on the consequences of political protests. Several studies in this field show how rallies affect institutional change (see Aidt and Franck, 2015, Aidt and Leon, 2016, Dower et al., 2018). Extensive research also exists on how demonstrations shape policy choices in democracies. Broadly speaking, existing studies find two mechanisms (see Aidt and Franck, 2019, Battaglini, 2017, Lagios et al., 2020, Lohmann, 1993, 1994, Madestam et al., 2013, Mazumder, 2018): first, exposure to protest events shapes people's attitudes and thus their voting behavior, and second, incumbents change their policy choices to win the support of the protesters and thereby try to increase their chance of reelection. We bring a novel perspective to this literature by showing that protests can change the reputation of the venue and thus affect migration decisions.

Furthermore, we contribute to the literature on voluntary internal and international migration. Most studies that investigate the causes of these

types of migration focus on economic factors such as wages, taxes, labor shocks, public goods, welfare payments, and housing prices (see e.g. Akcigit et al., 2016, Bartolucci et al., 2018, Diamond, 2016, Kennan and Walker, 2010, 2011, Kleven et al., 2020, 2013, 2014, Monras, 2018, Moretti and Wilson, 2017, Notowidigdo, 2020). Other well-established determinants of people's location choices are crime (see e.g. Bayer et al., 2016, Bishop and Murphy, 2011) and environmental issues (see e.g. Banzhaf and Walsh, 2008, Boustan et al., 2020, Cattaneo and Peri, 2016). By contrast, rather little is known about which political economy factors affect voluntary migration. Ortega and Peri (2013) find that migration policies play an important role. Using data from the US, Liu and Ngo (2020) show that political competition positively correlates with internal migration. Revelli (2019) observes that the timing of elections has an impact on migration. Bertocchi and Strozzi (2008) argue that international migrants prefer democratic countries as destination. To the best of our knowledge, the related literature includes no study that shows how far-right protests affect migration flows.

Finally, our paper is related to the studies in education economics that analyze which factors determine how young people choose their place of study. So far, the literature mainly identified economic and social factors, such as the distance to the family, living costs, tuition fees, the quality of the university, and the strength of the local labor market (see Alm and Winters, 2009, Beine et al., 2014, Koenings et al., 2020, Long, 2004, Winters, 2012). We show results, implying that the reputation of a city is another important aspect. More specifically, we find that far-right protests reduces the reputation of a city and that national and international students thus avoid such a city when choosing their place of study.

This paper is structured as follows. Section 2 presents the reasons for why we expect that far-right protests affect migration flows. In Section 3, we provide details on the far-right rallies in Dresden. Section 4 introduces our data sets and empirical methods. Section 5 shows our main results and provides evidence on the mechanism at work. In Section 6, we present additional results. Section 7 concludes.

2 Theoretical background

In the existing theoretical political economy literature, protest is typically considered as a measure via which interest groups try to influence policy choices and, as a consequence, economic outcomes (Opp, 2009, 2019). The

key rationale behind this view is that participating in a rally is a costly action and therefore credibly signals private policy preferences to politicians and other voters, who then in turn might change their policy or voting decisions (see Battaglini, 2017, Lohmann, 1993, 1994, Madestam et al., 2013). The primary objective of this paper is to establish an alternative channel through which protests can shape the economy. More specifically, we study how rallies of the far-right affect internal and international migration. Our basic hypothesis is that the reputation of a place suffers if it (repeatedly) serves as the venue of far-right protests. Put differently, we believe that people (and especially the young and high-skilled ones) perceive locations where the likelihood of being exposed to far-right rallies is presumed to be high as relatively unattractive and thus avoid such places when making residential choices.

In theory, a number of reasons exist for why individuals might dislike places where the far-right holds protest events. For instance, people might associate far-right rallies with violence and might therefore be concerned about their personal security. Furthermore, people might think that right-wing attitudes are relatively widespread among local residents if a place repeatedly serves as venue for right-wing rallies. As a consequence, people might believe that they will have neighbors and colleagues with right-wing attitudes when moving to this place. For people who do not share the views of the far-right, this belief might have a repulsive effect. Finally, people might be concerned about their career and income prospects since investors and start-up entrepreneurs might consider a location where right-wing movements are successful in mobilizing people as unattractive.

The effects that protest events of the far-right are expected to have on migration might differ across different social groups. For example, security concerns might be particularly strong among foreigners, people with an immigration background, and members of religious minorities. Different effects might also exist for high- and low-skilled people since educated people are less likely to share the views of far-right movements (see e.g. Card et al., 2012). Lastly, for young people, it might be of greater importance to live in a place with a liberal and pleasant atmosphere.

In our empirical analysis, we separately study in- and out-migration (see Sections 5 and 6). We make this distinction since there exist at least three reasons for why the consequences of right-wing rallies differ for these two types of migration. First, the findings of several survey experiments suggest people's reactions to new information depend on their prior beliefs

and their confidence in these beliefs (see e.g. Lergetporer et al., 2018, Roth and Wohlfart, 2020). "Locals" (i.e. people that live in the place where a particular far-right rally takes place) might thus update their beliefs in a different way than "externals". Second, some of the reasons for why far-right protests might decrease the attractiveness of a location are of more relevance for potential incomers than for established residents. For example, people who move to a new place often need to find new friends. Among those potential incomers that oppose the views of the far-right, far-right rallies might increase the uncertainty about whether they will meet people with similar views and interests. For the locals, this issue might be of less relevance because they already have their circle of friends. Finally, for people who plan to leave their current place of living, it is relatively easy to adjust their preference ranking of potential destinations when getting information about right-wing rallies in one of these places. By contrast, if the locals update their beliefs about their current place of living, this only causes out-migration if moving to another place creates utility gains that exceed the (relatively high) fixed costs of migration.

3 Institutional background

We consider Germany to analyze whether right-wing protests indeed affect migration flows. In particular, in our analysis, we exploit that the city of Dresden unexpectedly experienced multiple far-right rallies. In this section, we provide background information on these protest events.

Contemporary historical background

In Germany, it has become a tradition that the head of the government (chancellor) delivers a New Year's Speech. Besides sending best wishes for the new year, the German chancellor typically uses this speech to briefly review the previous year and to give an outlook for the upcoming year. Following this tradition, Chancellor Angela Merkel gave a speech on New Year's Eve 2013 in which she praised the tremendous solidarity after the extreme flooding in May/June 2013 and Germany's good economic situation. At the end of her speech, Chancellor Merkel also reminded the people in Germany of three important anniversaries (25th anniversary of the fall of the Berlin Wall, 75th anniversary of the beginning of the Second World War, 100th anniversary of the beginning of First World War) and the fact

that Europe has become a "place of peace" over the last decades (Merkel, 2013). One year later, the tone of Merkel's New Year's Speech was very different. Against her expectations, war came back to Europe due to the Russian invasion of Ukraine. Chancellor Merkel also had to commemorate the thousands of victims of the Ebola virus epidemic in Africa and the massive killing by the militant Islamist group "Islamic State" (IS) in Syria and North Iraq (Merkel, 2014). Put differently, to the great surprise of many, the year 2014 became, according to the German President Joachim Gauck, a year of violence and war (Gauck, 2014).

Although Germany was neither directly involved in the Russo-Ukrainian War nor the Syrian Civil War, both of these armed conflicts had notable influence on the moods and discussions in Germany. Three aspects are particular remarkable in this regard. First of all, as a consequence of the war in Eastern Ukraine, Germany and its European partners imposed business sanctions against Russia (see Engerer, 2015). These sanctions were controversially discussed and often criticized, especially by people in East German. Second, the number of Syrian and Iraqi asylum seekers tripled from 17,059 in 2013 to 50,609 in 2014 (BMI, 2015). The debate about how to deal with refugees (especially with those from Muslim countries) therefore intensified notably.[6] Finally, caused by the war in Syria/Iraq, the number of violent clashes between Kurdish and Muslim people in Germany grew significantly (Hentges, 2017).

Rallies of the Pegida movement

On 10 October 2014, a few hundred of people participated in a rally in the city of Dresden that was organized to express solidarity with the Kurdish resistance against the attacks of the terror organization IS in Syria and Northern Iraq. Compared to other pro-Kurdish rallies that took place in Germany in fall 2014, the rally in Dresden went on peacefully. Lutz Bachmann, who ran a small public relations agency at that time and coincidentally witnessed the rally as he walked through the inner-city of Dresden, nevertheless published a one-minute video on youtube that shows the rally and wrote caption in which he complained about it. One day later, Bachmann opened a non-public Facebook group entitled *Patriotische Europäer Gegen die Islamisierung des Abendlandes* ('Patriotic Europeans

[6] In 2015 and 2016, the number of asylum seekers from Syria and Iraq grew further to 193,889 and 366,028, respectively. In these years, the number of refugees from Afghanistan and Iran also increased considerably (BMI, 2017).

against Islamisation of the Occident') and invited a few kindred spirits to join this group. One of the founding members was Siegfried Däbritz, a former city council candidate of the largest liberal party in Germany. The membership of Siegfried Däbritz is remarkable for two reasons. First, at that time, he was an active member of an Islamophobic movement known as *Hooligans gegen Salafismus* ('Hooligans against Salafism') and called for hostility against refugees and Muslims on the internet.[7] Second, Däbritz was the driving force behind the idea of organizing protests against migration from the Arabic and Muslim world. Lutz Bachmann and the other ten founding members of Pegida agreed to this proposal. The early members also agreed that their protest movement could only be successful if it is non-violent and seems like an outcry of the middle class. The first public protest action was thus labeled as an evening stroll of concerned citizens through the city center of Dresden. This protest walk took place on 20 October 2014. About 300 to 350 people participated in this first Pegida event.

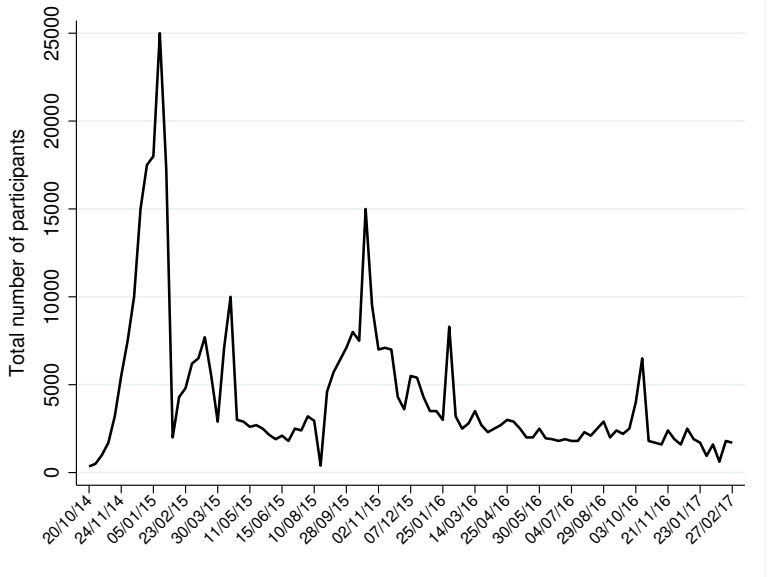
Surprisingly for many, the support for Pegida grew significantly in mid-November 2014. While only roughly 1,000 people participated in the walk on 03 November 2014, the number of participants was almost six times larger on 24 November 2014. According to Geiges et al. (2015), the primary reason for this first increase was the release of a novel concept for the distribution of refugees published by the city authorities in late October. In some districts of Dresden, residents criticized this concept and organized small rallies against it. The core supporters of Pegida strategically visited these events and promoted their evening strolls. Apparently, this promotion was quite successful.

As illustrated in Figure 1, the number of people that joined the Pegida rallies increased further in December 2014 and January 2015.[8] Triggered by the Charlie Hebdo shooting in Paris, the record high was reached on 12 January 2015 as the number of protesters was roughly 25,000. At the turn of the year, the Pegida supporters became more violent and the tone of the delivered speeches was increasingly nationalistic. For example, the media was permanently insulted as *Lügenpresse* ('lying press') and politicians as

[7]Another founding member of Pegida who frequently posted xenophobic statements was Thomas Tallacker. Earlier in his life, Tallacker was a member of the CDU and councilor in the city of Meissen.

[8]To oppose the impression that all people in Dresden support the Pegida movements, several peaceful counterdemonstration were organized at that time in Dresden. Many of these anti-Pegida rallies had several thousand participants.

Figure 1 Participation in Pegida demonstrations



Notes: The figure illustrates the number of participants in the Pegida rallies in Dresden. The data comes from Berger et al. (2016).

Volksverräter ('traitor of the people'). Both of these words belonged to the standard vocabulary of Hitler's Nazi Party. On 10 December 2014, the Pegida organizers also published a program. The central demand of this program is a substantial reform of the immigration laws. Other demands include a turn towards a pro-Russian foreign policy and the implementation of measures that protect the Christian-Jewish tradition in Europe (Geiges et al., 2015, Patzelt and Klose, 2016, Vorländer et al., 2015, 2018).[9]

From late November 2014 onward, the Pegida movement received huge public attention (Bey et al., 2016, Geiges et al., 2015). In leading nationwide newspapers such as *Frankfurter Allgemeine Zeitung* and *Süddeutsche Zeitung*, there was hardly a day without an article about Pegida in December 2014 and January 2015. The international media attention was also large at that time. For instance, the *New York Times* (NYT) printed more than ten articles in these two months that describe the rallies in Dresden. Typically, the NYT referred to Pegida as an "anti-immigration" or an "anti-Muslim" movement.[10] In Germany, the public debate was also fueled by statements

[9]Pegida rallies also took place in other cities both in Germany and in other countries. However, in none of them, the number of participants was as large as in Dresden. Furthermore, in virtually all other cities, the Pegida movement disappeared after a few rallies. Pegida is therefore primarily associated with the city of Dresden.

[10]Other newspapers used even more drastic words. For example, *The Guardian* published an article entitled "Estimated 15,000 people join 'pinstriped Nazis' on march in Dresden" in December 2014. In this article, Pegida is referred to as an "anti-foreigner campaign group" and their founders as "rightwing extremists" (see `https://www.theguardian.com/`

of leading politicians. For example, President Gauck and Chancellor Merkel warned implicitly but unmistakably against Pegida in their TV speeches on Christmas and New Year's Eve (Gauck, 2014, Merkel, 2014). Other German politicians labeled the organizers of Pegida as "Neonazis in Nadelstreifen" ('Neo-Nazis in pinstripes') and "Rattenfänger" ('Pied Piper') (see Geiges et al., 2015).

On 21 January 2015, a self-portrait of the Pegida leader Lutz Bachmann became public in which he posed as Adolf Hitler. At the same day, it came out that the Public Prosecutors Office in Dresden investigated against him because of Facebook posts in which he insulted asylum seekers as "Viezeug" ('cattle'), "Gelumpe" ('trash'), and "Dreckspack" ('filthy rabble') (Vorländer et al., 2018).[11] As a consequence, Bachmann stepped down. However, he still wanted to remain the unofficial leader of Pegida such that he could pull the stings in the background. Dissatisfied with this idea, six of the twelve members of Pegida's organization team withdrew at the end of January. Since all of them belonged to the more moderate wing of the movement, these withdrawals were interpreted as a further shift to the right (Geiges et al., 2015, Vorländer et al., 2018). Another immediate consequence of these releases was that the number of participants in the Pegida rallies dropped remarkably. For instance, only 2,000 people participated in the rally on 9 February 2015. Besides specific events such as the speech of the popular Dutch far-right populist Geert Wilders in mid-April 2015, the participation figures remained at this level until the end of the summer 2015.

Caused by the Europe migrant crisis, a second wave of Pegida rallies emerged in fall 2015. However, compared to the first, participation was slightly lower. The largest event of the second wave was the anniversary event with more than 15,000 protesters in mid-October 2015. According to Vorländer et al. (2018), Pegida was a clear anti-migration movement at this time. From December 2015 onward, the support for Pegida decreased slowly but continuously (see Figure 1). The last time that Pegida received enormous public attention was in October 2016 as the city of Dresden hosted the celebrations honoring the Day of German Unity. Together with other far-right movements, Pegida and its supporters strongly disturbed this festive event.[12]

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world/2014/dec/15/dresden-police-pegida-germany-far-right).

[11] Because of these insults, Lutz Bachmann was convicted of inciting racial hatred in May 2016.

[12] Pegida still exists and organizes rallies. However, the number of supporters is very low nowadays.

Other far-right rallies in Dresden and its close surroundings

With almost 100 events between October 2014 and December 2016, Pegida was probably the main reason for why the city of Dresden acquired the reputation as a stronghold of the far-right. However, we would go too far by claiming that the protest events of other right-wing movements did not play any role in the process due to which the city of Dresden was suddenly perceived as a place where rightist thinking is widespread among the residents. Below, we briefly describe those three other protest events that received the greatest public attention.

On 24 July 2015, the right-wing National Democratic Party of Germany (NPD) held a rally in Dresden. The reason for this protest event was the opening of a refugee camp in the inner-city of Dresden and the arrival of 500 Syrian refugees. The total number of protesters was 200 and thus relatively small compared to other rallies against refugee camps that took place all over Germany in mid-2015. Nevertheless, the NPD protest in Dresden received national attention for two main reasons. First, the NPD supporters physically attacked a group of about 350 counter-demonstrators. Second, several people who (voluntarily) supported the construction of the refugee camp reported that supporters of the NPD considerably hindered their work in the past days. The chairman of the German Red Cross in Saxony, Rüdiger Unger, stated that he had never heard about such actions before.[13]

In Summer 2015, it repeatedly happened in Germany that supporters of the far-right met in front of a refugee center and welcomed the arriving refugees with severe insults and threats. Among the places in which such events took place, the city of Freital became particularly well known (see Vorländer et al., 2018). A key reason was that such events took place over several weeks and on a daily basis from 22 June 2015 onward. We think that this series of far-right protests did not only affect the reputation of Freital but also influenced people's views on Dresden because Freital was typically referred to as a small neighboring town of Dresden. In addition, newspaper articles indicated that the local protesters were supported by people from Dresden.[14]

The second small town that is bordering Dresden and became widely

[13]For a related newspaper report, see https://www.independent.co.uk/news/world/europe/german-far-right-extremists-clash-police-protest-outside-dresden-refugee-camp-10415880.html.

[14]For a related newspaper article, see https://www.dw.com/en/refugee-protests-solidarity-in-freital/a-18538424.

known in 2015 due to far-right protests is Heidenau (see Vorländer et al., 2018). In particular, on 21 August 2015, the NPD held a rally to signal its opposition against a new refugee center. Over the course of the event, the protesters threw stones, bottles, and fireworks at the police. At the end of the day, 31 policemen were injured. Only one day later, supporters of the NPD launched an attack on the policemen who guarded a rally that was organized to express solidarity with the refugees. The media reported extensively about both events. For example, Germany's best-selling daily newspaper (*Bild-Zeitung*) referred to them as "Die Schande von Heidenau" ('the shame of Heidenau'). Chancellor Angela Merkel visited Heidenau a few days later and described the protests as "abhorrent" and "shameful." During her visit, she was severely insulted by local protesters. As for the rallies in Freital, we think that the far-right protests in Heidenau affected the reputation of Dresden since Heidenau was often described as a town near Dresden.[15]

4 Empirical framework

We believe that the far-right rallies in Dresden and its close surroundings influenced people's views on the city of Dresden and thus their location decisions. To substantiate this hypothesis, we will use two comprehensive administrative data sets and two state-of-art empirical methods.

4.1 Data

4.1.1 Register-based internal migration data

Our first data set captures all cross-county moves that took place in Germany between 2004 and 2017.[16] The raw data comes from Germany's population register and was prepared by the Federal Statistical Office and journalists of the German newspaper *Die Zeit*.[17] The final data set shows for each county-pair and each year the total number of German citizens that moved in either direction. We can therefore differentiate between in-

[15] For a related international media report, see https://www.bbc.com/news/world-europe-34038557.

[16] In total, Germany is sub-divided into 401 counties. There are two types of counties: county boroughs (*Stadtkreise*) and rural counties (*Landkreise*). The city of Dresden is (as all other large cities in Germany) a county borough.

[17] The journalists prepared the data for an article that illustrate the migration flows after the German reunification (see https://www.zeit.de/politik/deutschland/2019-05/east-west-exodus-migration-east-germany-demography). We received the data upon request.

and out-migration. The data set also allows to distinguish by gender and age cohort (18 – 25, 25 – 30, 30 – 50, 50 – 65, 65+). A more detailed differentiation (e.g. by level of education , income, or family background) is not possible with our first data set.[18]

4.1.2 German Student Register

As a second data set, we use the German Student Register (*Studenten-statistik*). The German Student Register (GSR) is provided by the Federal Statistical Office and includes information on the universe of university students enrolled in Germany.[19] We have access to this non-public data set for the period from 2009 to 2017. The GSR reports for each student his/her gender, date of birth, and nationality. The data also includes the county in which a student graduated from high school. For students who received their high school degree in another country, we know the country of graduation. The GSR also indicates the field of study, the institution, the semester of study, and the year of first-time enrollment. Due to the German data protection rules, students cannot be tracked over time.

We believe for three reasons that the GSR nicely complements our first data set. First, the GSR allows us to pay specific attention to a social group that is relatively mobile and that policy makers aim to attract (Winters, 2020). Second, when using the GSR, we cannot only examine the consequences of far-right protests for internal migration but also for international migration. Third, we can study effect heterogeneities in great detail. For instance, we can distinguish between different types of foreign states and different fields of study. The latter feature might be interesting because students' political attitudes in Germany vary across subjects (see Fischer et al., 2017).

[18] In Germany, people are legally obligated to report every move of residence to the registry office. Deregistrations happen automatically if people migrate within Germany. Systematic biases in our regression results due to non-classical measurement error are thus unlikely to exist.

[19] Besides the fact that accessing the data is costly, working with the GSR is difficult because the data can only be accessed at specific research data centers of the Federal Statistical Office and the Statistical Offices of the German States. According to Marcus and Zambre (2019), the strict access rules and the cumbersome access process explain why the GSR has so far hardly been used in research projects.

4.2 Identification strategies

4.2.1 Dyadic fixed effect model

We will begin our empirical analysis with a variant of the dyadic fixed effect model that Besley et al. (2020) used to examine how tourists' location choices change due to terrorist attacks.[20] When we exploit this method to illustrate the consequences of far-right rallies for in-migration, we estimate the regression model:

$$Y_{i,j,t} = \mu_{i,j} + \beta^{in} \cdot (DD^d \times \mathbb{1}_{t>2014}) + \alpha \cdot X_{j,t} + \xi_{i,t} + \nu_{r_j,t} + \varepsilon_{i,j,t}. \quad (1)$$

where i denotes a place of origin, j a place of destination, and t a year. The dependent variable (Y) reflects a migration flow. For example, in our baseline analysis (see Section 5.1.1), Y will denote the total number of Germans that moved in year t from a particular county of origin to a particular county of destination. In other analyses, Y will be the total number of students that graduated from high school in county or world region i and began to study at university j in year t. The explanatory variable DD^d is a dummy variable that is equal to 1 if j is the city of Dresden or a higher education institution in Dresden. The time-varying dummy variable $\mathbb{1}_{t>2014}$ is equal to 1 from 2015 onward.[21] If right-wing rallies worsen the reputation of a place and thus affect in-migration, we should find negative estimates of β^{in}.

In Equation (1), the dyadic fixed effect (μ) captures the geographical distance and all other time-invariant factors that affect internal migration between two places.[22] Our model also includes fixed effects (ξ, ν) that control at the place-of-origin-level and the region-of-destination-level for all year-specific factors that affect migration. Finally, we add a set of time-varying control variables to our regression model in order to take into account place-of-destination-specific characteristics that might correlate with both our dependent variable (Y) and our key explanatory variable ($DD^d \times$

[20] Dyadic fixed effect models have also been used to study the determinants of bilateral aid (see Rommel and Schaudt, 2020), trade (see Allen, 2014), and migration (see Ortega and Peri, 2013).

[21] We choose 2015 rather than 2014 because the far-right rallies from which we expect them to influence people's views on Dresden started at the very end of 2014 (see Section 3). Since there is usually a time lag of (at least) a few weeks between the date at which people decide to move and the actual moving date, we think that the rallies hold by Pegida and other right-wing movements could not have an impact on people's location decisions in 2014.

[22] The economic literature includes various studies, suggesting that geographical distance strongly influences migration flows between two locations (see e.g. Schwartz, 1973).

$\mathbb{1}_{t>2014}$).

We slightly adjust Equation (1) when studying the relationship between far-right rallies and out-migration. In these analyses, we use the regression model:

$$Y_{i,j,t} = \mu_{i,j} + \beta^{out} \cdot (DD^o \times \mathbb{1}_{t>2014}) + \alpha \cdot X_{i,t} + \xi_{r_i,t} + \nu_{j,t} + \varepsilon_{i,j,t}. \quad (2)$$

The most notable difference between the two dyadic regression models is that we replace the dummy variable DD^d with the dummy variable DD^o. DD^o is equal to 1 if the city of Dresden is the place of origin or the place where a student graduated from high school. The estimates of β^{out} are positive if rallies of the far-right cause out-migration.

When using a dyadic model, we obtain unbiased estimates for β^{in} and β^{out} if the error terms (ε) and our variables of interest ($DD^d \times \mathbb{1}_{t>2014}$, $DD^o \times \mathbb{1}_{t>2014}$) do not correlate with each other. This condition might be violated since there might exist unobserved time-variant factors that affect the rise of right-wing rallies and migration. In addition, there might be earlier events that influenced people's views on Dresden and thus their location choices. We try to alleviate these concerns by showing that our dyadic fixed effect estimates can be confirmed with results from Synthetic Control (SC) analyses.

4.2.2 Synthetic control approach

According to Abadie (2020), the SC approach is an empirical method that facilitates the analysis of cases in which an aggregate unit (here: a city or university) experiences a treatment/shock at a particular point in time, whereas the other units do not.[23] To test whether this treatment (here: a series of far-right rallies) affects the outcome of interest (here: migration), the SC procedure first creates a synthetic control unit out of the untreated units and then compares the treated unit with the synthetic control unit (Abadie, 2020).

To formally describe the SC method, we assume that a city or higher education institution (l_0) receives a treatment in period t_0, while all other cities or higher education institutions ($l_1, \ldots, l_m$) are untreated. As it is common, we refer to $\mathcal{D} = \{l_1, \ldots, l_m\}$ as the *donor pool*. Our objective

[23] During the last years, the SC method has been extensively used in applied economics (see e.g. Abadie and Gardeazabal, 2003, Billmeier and Nannicini, 2013, Bohn et al., 2014, Cunningham and Shah, 2018, Peri and Yasenov, 2019, Pinotti, 2015, Potrafke and Wuthrich, 2020, Roesel, 2017).

is to study how the treatment affected an observable outcome $Y_{l_0,t}$. Put differently, we want to estimate

$$\beta_\tau \;=\; Y^I_{l_0,\tau} \;-\; Y^N_{l_0,\tau} \qquad \forall\, \tau \;\geq\; t_0$$

where $Y^I_{l_0,\tau}$ denotes the outcome if the treatment takes place and $Y^N_{l_0,\tau}$ the outcome if the treatment does not take place (Abadie, 2020, Abadie et al., 2010, 2015).

The main challenge when estimating β_τ is that $Y^N_{l_0,\tau}$ is not observable. The SC method addresses this issue by producing the proxy

$$\hat{Y}^N_{l_0,\tau} \;=\; \sum_{j\,\in\,\mathcal{D}} \omega_j \cdot Y_{j,\tau}$$

where $\omega = (\omega_{l_1}, \ldots, \omega_{l_m})$ denotes a vector of non-negative weights which sum up to 1 and $Y_{\mathcal{D},\tau} = (Y_{1,\tau}, \ldots, Y_{m,\tau})$ the observed outcomes of the cities/institutions in the donor pool. To specify the weighting scheme, we solve the optimization problem

$$\arg\min_{\omega} \quad \Big[(X_{l_o} \;-\; X_{\mathcal{D}}\,\omega)'\,V\,(X_{l_o} \;-\; X_{\mathcal{D}}\,\omega)\Big]^{0.5} \quad \text{s.t.} \quad \sum_{j\,\in\,\mathcal{D}} \omega_j \;=\; 1 \quad \& \quad \omega_j \;\geq\; 0$$

where X_{l_o} and $X_{\mathcal{D}} \equiv [X_{l_1}, \ldots, X_{l_n}]$ include pre-treatment characteristics of the treated and untreated units and V is a diagonal matrix reflecting the importance of the different characteristics (Abadie, 2020, Abadie et al., 2010, 2015). In line with several other studies that apply the SC procedure, we exploit all pre-treatment outcomes and no covariates as predictors in our main analysis (for a detailed discussion on the selection of the predictors, see Botosaru and Ferman, 2019, Ferman et al., 2020, Kaul et al., 2018).

The SC approach produces unbiased estimates of β_τ if three conditions hold. First, the pre-treatment match in the outcome variable is sufficiently close between the treated and synthetic unit. In the next section, we will provide graphical evidence, suggesting that we meet this condition. Second, no other events occurred that influenced the treated and untreated units differently during the treatment period (for a discussion, see e.g. Section 5.2.1). Finally, all units in the donor pool must be unaffected by the treatment. A concerns in this regard might be that people do not only update their beliefs about the city of Dresden but also about Chemnitz, Leipzig, and other near-by places. Throughout the next sections, we will address this and other concerns in great detail.

5 Main results

5.1 The effect of far-right protests on in-migration

In our first analysis, we use data from Germany's population register to examine whether people are less willing to move to a place at which the far-right holds large-scale demonstrations. Our focus is thereby on Germans that move within Germany. As outlined in Section 2, our basic hypothesis is that right-wing rallies negatively affect in-migration.

5.1.1 Dyadic fixed effect results

Panel A of Table 1 presents the baseline results of our dyadic fixed effect analysis. In Column 1, we estimate a model that includes dyadic fixed effects, year-by-region-of-origin fixed effects, and year-by-region-of-destination fixed effects.[24] The outcome variable is the total number of Germans that moved in a given year from one county to another. Our baseline sample covers the period from 2004 to 2017 and includes 2,234,400 observations.[25] Our standard errors are clustered at the panel dimension as well as the time dimension as recommended by Cameron et al. (2012) and Cameron and Miller (2015).

The results presented in Column 1 of Panel A suggests that in-migration declines as a consequence of far-right rallies. The point estimate is -6.35 and statistically significant at the five percent level. More specifically, our estimate of β^{in} implies that the total number of Germans that moved (on average) from a particular county of origin to the city of Dresden dropped by 6.35 people when comparing the 2004–2014 period with the 2015–2017 period. Economically, this decrease is notable because the average number of Germans that moved per year from a particular county to the city of Dresden was 51.7 in the 2004–2014 period.

Columns 2 – 4 of Panel A present the results of different robustness checks. In Column 2, we replace the year-by-region-of-origin fixed effects by year-specific county-of-origin fixed effects to control for all the time-varying county characteristics that influence people's decision to leave a particular county. We observe that the estimate of our parameter of interest hardly

[24] Following Dauth et al. (2014), we divide Germany into four regions: North, East, South, West.

[25] We drop all county-pairs in which the cities of Berlin or Hamburg are the places of destination from our sample because they are not only county boroughs but also a federal state.

Table 1 Dyadic fixed effect estimates for in-migration (total population)

	(1)	(2)	(3)	(4)
	Panel A: All cross-county moves			
$DD^d \times \mathbb{1}_{t>2014}$	-6.345**	-6.330**	-6.324***	-6.370***
	(2.1736)	(2.1649)	(2.0795)	(1.9931)
Observations	2,234,400	2,234,400	610,400	610,400
$\bar{Y}_{\text{i, Dresden, t}<2015}$	51.7	51.7	51.7	51.7
	Panel B: All cross-county moves within states			
$DD^d \times \mathbb{1}_{t>2014}$	-132.513**	-142.871***	-110.867**	-110.793**
	(49.924)	(46.9094)	(47.4386)	(47.1805)
Observations	267,484	267,484	74,004	74,004
$\bar{Y}_{\text{i, Dresden, t}<2015}$	935,6	935,6	935,6	935,6
	Panel C: All cross-county moves across states			
$DD^d \times \mathbb{1}_{t>2013}$	-2.473***	-2.499***	-3.205***	-3.174***
	(0.7672)	(0.7657)	(0.6769)	(0.6259)
Observations	1,966,916	1,966,916	536,270	536,270
$\bar{Y}_{\text{i, Dresden, t}<2015}$	24.3	24.3	24.3	24.3
Units of origin	All counties	All counties	All counties	All counties
Units of destination	All counties	All counties	County boroughs	County boroughs
Dyadic FE	Yes	Yes	Yes	Yes
Region-of-origin × Year FE	Yes	No	No	No
Region-of-destination × Year FE	Yes	Yes	Yes	Yes
County-of-origin × Year FE	No	Yes	Yes	Yes
County-level controls	No	No	No	Yes

Notes: This table shows OLS estimates. The dependent variable is the total number of Germans that moved in a particular year from one county to another. We present two-way clustered standard errors in parentheses and apply the following notation to highlight point estimates that are significantly different from zero: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

changes due to this model extension. In Column 3, we exclude all those county-pairs from the sample in which the county of destination is not a county borough. Thereby, we considerably increase the comparability of the destinations. The consequence of this sample restriction is a very minor decrease in the size of the estimate. In Column 4, we add a number of time-varying county characteristics to our regression model. To take into account the economic attractiveness of a county of destination, we control for unemployment and average income. We also control for whether a tax for secondary residences exist and include a dummy variable that shows whether a county of destination was hit by the flood in 2013.[26] Adding these controls hardly changes our estimates.

In Panel B and C of Table 1, we distinguish cross-county migrants that move within a state from migrants that move to another state. For both types of people, we find that they moved less frequently to the city of Dresden in the 2015–2017 period than in the 2004–2014 period. However, we also find that the people from Saxony reacted less to the far-right demonstrations in Dresden than people from other states. We think that this finding is plausible because several experimental studies suggest that

[26]This dummy is equal to 1 if a county called a state of emergence in 2013 due to the flood.

Table 2 Dyadic fixed effect estimates for in-migration (by age group)

	18 – 30		30 – 50		50 – 65	
	(1)	(2)	(3)	(4)	(5)	(6)
$DD^d \times \mathbb{1}_{t>2014}$	-108.91**	-2.578***	-4.296	-0.293*	1.931	-0.024
	(44.4591)	(0.7414)	(5.5709)	(0.1495)	(2.7036)	(0.0410)
$\bar{Y}_{\text{i, Dresden, t} < 2015}$	585.2	15.1	187.8	5.0	44.0	1.2
Observations	74,004	536,270	74,004	536,270	74,004	536,270
Moves within states	Yes	No	Yes	No	Yes	No
Moves across states	No	Yes	No	Yes	No	Yes

Notes: This table shows OLS estimates. The dependent variable is (by age cohort) the total number of Germans that moved in a particular year from one county to another. We use the same sample and the same dyadic fixed effect model as in Column 4 of Table 1. We present two-way clustered standard errors in parentheses and apply the following notation to highlight point estimates that are significantly different from zero: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

people's reactions to novel information depends on their prior beliefs and their confidence in these beliefs (see e.g. Lergetporer et al., 2018, 2020, Roth and Wohlfart, 2020). Put differently, people from Saxony have (on average) more knowledge about the city of Dresden and closer ties to the local residents. Their views on the city of Dresden are thus unlikely to be as volatile as the views of other Germans.[27]

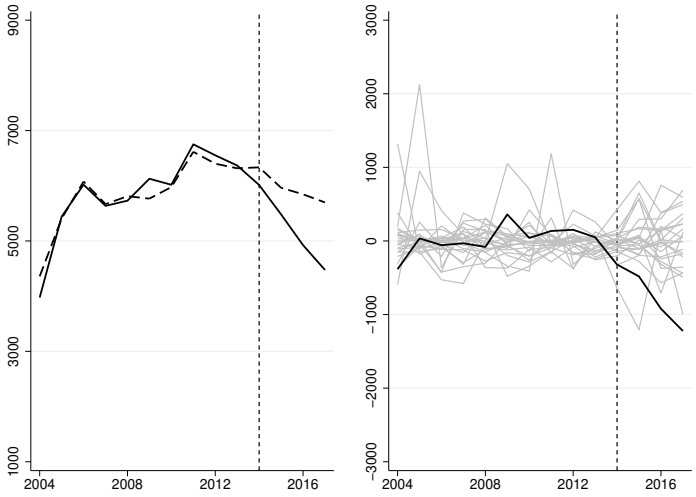
Table 2 separately considers three age cohorts (18 – 30, 30 – 50, 50 – 65) to further deepen our knowledge about how far-right rallies shape in-migration. The results suggest that the estimates reported in Table 1 are almost fully driven by young people. From an economic perspective, this finding is remarkable since the influx of young (and especially of young high-skilled) people is of particular importance for local development (see Moretti, 2004, 2012). In Section 5.2.2, we provide evidence, suggesting that the cohort-specific effects exist since young people changed their views on the city of Dresden to a much greater extent than middle-aged and old people. Section 6.1 shows that many of the young people who changed their location decisions due to the far-right protests in Dresden are high- skilled.

5.1.2 Synthetic Control results

The main result from the dyadic fixed effect regressions presented in the previous section is that young people (and in particular those from other regions) are less likely to move to a particular place if the far-right holds

[27] A second aspect that might contribute to the differences observed in Panel B and C of Table 1 is that right-wing attitudes are more widespread in Saxony than in other German states. However, if this aspect plays an important role, we would expect to observe that people from other East German states reacted differently to the far-right protests in Dresden than the people from North, West, and South Germany because right-wing voting in the East is much more pronounced than in the other regions. Table A.2 shows that such region-specific reactions do not exist.

Figure 2 SC results for in-migration (Germans from other state, 18 – 30).



Notes: This figure shows the results of an SC analysis. The outcome variable is the total number of German incomers (aged 18 – 30) who previously lived in another state. In the left panel, we compare the city of Dresden (solid line) with synthetic Dresden (dashed line). Information on the composition of synthetic Dresden can be found in Appendix Table A.4. The right panel shows the placebo graph. The permutation p-value is 0.083. The respective ratio graph as well as the leave-one-out analysis are presented in Figure 3. Appendix Table A.3 shows the results of the corresponding weighted regression.

large-scale rallies at this place. We now verify this finding, using the SC method. Compared with the dyadic fixed effect approach, the SC method has the advantage that the estimation results are less likely to be biased due to events that influenced people's location choices and occurred before the city of Dresden became the venue of large-scale right-wing rallies.

When applying the SC method, a crucial step is to choose the donor pool. According to Abadie (2020), the donor pool should only consist of units that are comparable with the treated unit. To achieve this goal, we restrict the list of German counties in the following way. First, because of the great structural differences between rural counties (*Landkreise*) and county boroughs (*Stadtkreise*), we exclude all rural counties. Moveover, we drop all county boroughs with less then 200,000 citizens because they are too small to be comparable with the city of Dresden. We also drop the cities of Berlin and Hamburg since both of them are not only a county borough but also a federal state.[28] Finally, we exclude all those county boroughs whose pre-treatment mean in the respective outcome variable is smaller than one-third of Dresden's pre-treatment mean.

In Figure 2, we show the result of our first SC analysis. The outcome

[28]For the state of Bremen, this issue does not apply because it consists of two county boroughs.

variable in this analysis is the total number of young German incomers whose previous place of living is located in another German state. In the left panel, we show how this number developed in Dresden and synthetic Dresden from 2004 onward. The weights that the SC method estimates to create the synthetic Dresden are reported in Column 4 of Appendix Table A.4. When comparing Dresden and synthetic Dresden, we find that the total number of young incomers from other states diverges notably in the post-treatment period.

The SC literature proposes different methods to draw causal inferences from a comparison such as that presented in the left panel of Figure 2. The most common method is the permutation approach by Abadie et al. (2010). The basic idea behind this approach is to iteratively reassign the treatment to each unit in the donor pool and then to estimate a placebo effect in each iteration. The decline that we find for the city of Dresden can be interpreted as a significant decline if it is extreme relative to the placebo estimates (Abadie, 2020). The right panel of Figure 2 shows that the city of Dresden indeed experienced a more pronounced decrease than any other city in the donor pool.

As second approach for drawing inferences from an SC analysis, Abadie et al. (2015) recommend to calculate the ratio between the post-treatment root mean squared prediction error (RMSPE) and the RMSPE in the pre-treatment period:

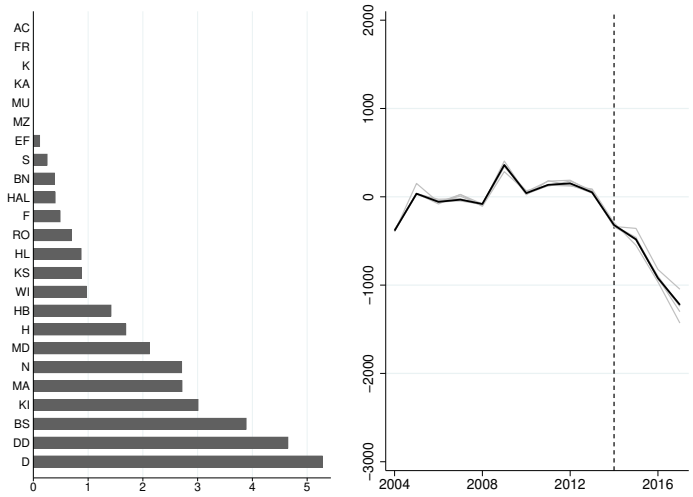
$$r_{l_j} = \frac{RMSPE_{l_j}(\tau, T)}{RMSPE_{l_j}(1, \tau - 1)} \tag{3}$$

where τ denotes the first post–treatment period and

$$RMSPE_{l_j}(t_1, t_2) = \frac{1}{t_2 - t_1 + 1} \Big(\sum_{t=t_1}^{t_2} (Y_{l_j,t} - \hat{Y}^N_{l_j,t})^2 \Big)^{0.5}. \tag{4}$$

A relatively large ratio between post- and pre-treatment RMSPE suggests that the treatment has a strong effect. The conventional way for testing whether this applies is to compare the ratio of the treated unit with the ratios of the units that belong to the donor pool. A practical problem in this regard is that we cannot distinguish between positive and negative changes in the outcome variable when computing Equations (3) and (4). Put differently, even if the treated unit experienced a large negative shock, the rank of its ratio can be relatively low because there might be control units that experienced a pronounced increase in the outcome variable and whose ratios might thus be even larger. In our case, this problem might

Figure 3 SC results for in-migration (Germans from other state, 18 – 30).



Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure 2 shows the respective treatment and placebo graph. A list of abbreviations can be found in Appendix Table A.1. The city of interest is Dresden (DD).

exist because the placebo graph shows strong positive effects for some of the control units (see Figure 2).[29] To address this problem, we follow the guidelines by Abadie (2020) and apply the one-sided version of the aforementioned test. The difference between the basic and the one-sided version is that only the negative parts of $Y - \hat{Y}^N$ are taken into account when computing $RMSPE(\tau, T)$. For units where this difference is positive in all post-treatment periods, the ratio of post- and pre-treatment RMSPE is then equal to 0.

The left panel of Figure 3 presents the ratio graph that corresponds to the results shown in Figure 2. We find that Dresden's ratio is the second largest ratio. Based on this rank, we can also compute the permutation p-value by dividing Dresden's rank by the total number of units in the placebo graph (Abadie, 2020). The p-value in our first SC analysis is thus 0.083. The negative effect that the rallies in Dresden had on the location choices of young Germans from other states can thus be considered as statistically significant.

To further increase the credibility of our first SC analysis, we use two additional tests. First, we run a leave-one-out sensitivity check to analyze whether our result is driven by a particular control unit. The right panel

[29] Another problem in this regard is that permutations in which the treated unit contributes to placebo synthetic control also often show large positive effects (Abadie, 2020).

of Figure 3 illustrates that this is not the case. Second, following Doerr et al. (2020a), we present parametric estimates from a difference-in-difference analysis in which we exploit the weights produced by the SC approach as sample weights. Column 4 of Appendix Table A.3 presents the results of this weighted regression and confirms that the treatment effect is negative and statistically significant. When comparing the results of our weighted regression with the results of our dyadic fixed effect regression (see Table 2), we find that the former produce slightly smaller estimates.[30]

Appendix Section B.1 presents the findings of SC analyses in which we study the other age cohorts and within-state migrants. For young people who move within a state, we find a non-negligible difference in the post-treatment period between the city of Dresden and its synthetic counterpart (see Appendix Figure B.5). However, we also see that the pre-treatment RMSPE is rather large. We are therefore very cautious when interpreting the results of this SC analysis. For middle-aged and old Germans, our SC analyses confirm the results of our dyadic fixed effect regressions.

5.2 Mechanism

The mechanism from which we believe that it explains why the far-right rallies in Dresden shaped in-migration is that these demonstrations received great public attention and that people thus updated their beliefs on how attractive this city is as a place of living. This section shows results that substantiate this hypothesis.

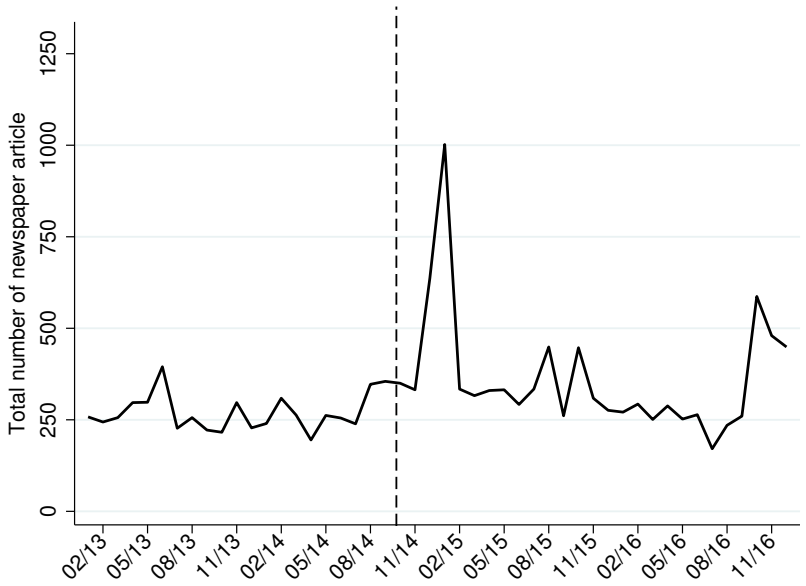
5.2.1 Public attention

We exploit the online database *GBI-Genios wiso* to examine whether the city of Dresden got more attention from late 2014 onward because of the protests held by Pegida and other movements. *GBI-Genios wiso* is ideal for our purpose since it includes digitized articles from about 100 German newspapers. In the following analysis, we only take those newspaper into account that are classified as super-regional newspapers (for a full list, see Appendix Table A.5).

Figure 4 presents for the period from January 2013 to December 2016 the monthly number of newspaper articles that include the word *Dresden*.

[30] To make the estimates reported in Table 2 and Column 4 of Appendix Table A.3 comparable, the latter must be divided by the number of counties of origin that are not located in Saxony. In total, these are 388 counties of origin.

Figure 4 Dresden's media attention (total)



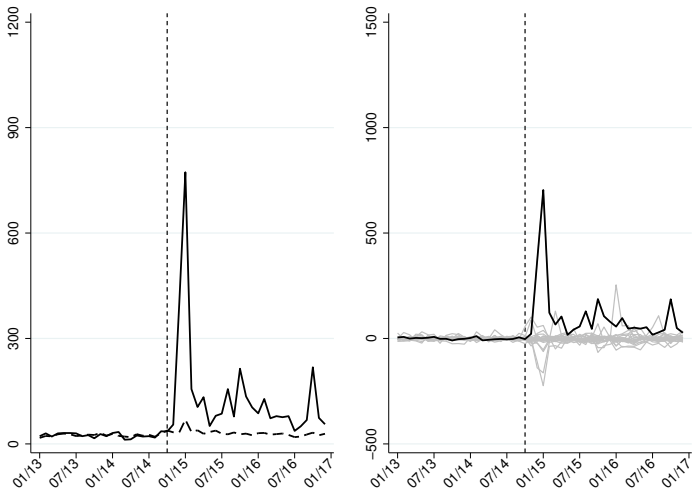
Notes: This figure shows on a monthly basis the total number of articles in sample of supra-regional newspapers that include the word "Dresden."

We observe a sudden increase in media attention in December 2014 and January 2015 and thus exactly in those months in which Pegida organized several protest events with more than 10,000 participants. Public attention also notably increased in August 2015, October 2015, and October 2016. We argue that the increases in 2015 are caused by the far-right protests in Dresden's neighboring city Heidenau and Pegida rallies. In October 2016, right-wing rallies disturbed the festive event honoring the Day of German Unity.

An objection against our interpretation of Figure 4 might be that the increases in public attention are driven by other factors. For instance, the largest soccer club (Dynamo Dresden) moved up to the second division of the German league in May 2016. Since the second division receives much more attention in super-regional newspapers than the third division, it is likely that the increase in October 2016 is not completely caused by far-right protest. To address this legitimate concern, we use the search tool implemented in *GBI-Genios wiso* and identified for each month the total number of newspaper articles that include the word *Dresden* and at least one of the subsequent key words:[31] *Demonstration* ('demonstration'), *Demo* ('demo'), *Protest* ('protest'), *Kundgebung* ('rally'), *Pegida*, *demonstrieren* ('to

[31]For all nouns, we searched for the singular and plural form. For the verbs, we used the present and past form. For the full list of key words, see Appendix Table A.6.

Figure 5 SC results for media attention (protest-related articles).



Notes: This figure shows the results of an SC analysis. The outcome variable is the total number of protest-related newspaper articles. In the left panel, we compare the city of Dresden (solid line) with synthetic Dresden (dashed line). Information on the composition of synthetic Dresden can be found in Appendix Table A.4. The right panel shows the placebo graph. The permutation p-value is 0.047. The respective ratio graph as well as the leave-one-out analysis are presented in Figure B.16. Appendix Table A.3 shows the results of the corresponding weighted regression.

demonstrate'), and *protestieren* ('to protest'). In Appendix Figure B.15, the dashed line shows how this number developed over time. The solid line indicates the total number of newspapers articles that include the word *Dresden* but none of the other key words. As expected, we observe that the city of Dresden received more attention between December 2014 and September 2016 mainly because of the far-right protests. The increase in October 2016 is at least partly driven by protest-related articles. Another interesting aspect in Appendix Figure B.15 is that only few press articles about protests in Dresden were published in the two years before Pegida emerged. Appendix Figure B.15 therefore also alleviates concerns regarding anticipation effects.

To investigate the protest-induced changes in public attention not only descriptively but also empirically, we conduct the aforementioned key-word searches for all cities with more than 200,000 inhabitants and estimate the regression model:[32]

$$\ln(Articles_{i,t}) \;=\; \beta \cdot (\mathbb{1}_{i=Dresden} \times \mathbb{1}_{t>09/14}) \;+\; \xi_i \;+\; \theta_t \;+\; \varepsilon_{i,t} \qquad (5)$$

where i denotes a city and t a month in a particular year. The results

[32]We must exclude the city of Essen since the number of search hits is heavily biased since *Essen* is not only a name of a city but also the German word for *food*.

from estimating Eq. (5) are presented in Appendix Table A.7. Column 1 shows that the city of Dresden received more media attention from late 2014 onward. In Column 2 and 3, we highlight that this increase is fully driven by the protest-related newspaper articles. To verify this result, we perform SC analyses. For protest-related newspaper articles, the treatment graph indicates large differences between Dresden and synthetic Dresden in the post-treatment (see left panel of Figure 5). The placebo graph shown in the right panel of Figure 5 suggests that no other city in Germany experienced a similar increase. The ratio between post- and pre-treatment RMSPE is greater than 30 and by far the largest among all cities (see Appendix Figure B.16). By contrast, for articles that are not related to protest events, we find no effect when applying the SC approach (see Appendix Figure B.18). Our SC analyses thus provide clear evidence for the hypothesis that the city of Dresden received considerably more public attention only because of the protests held by Pegida and other far-right movements.

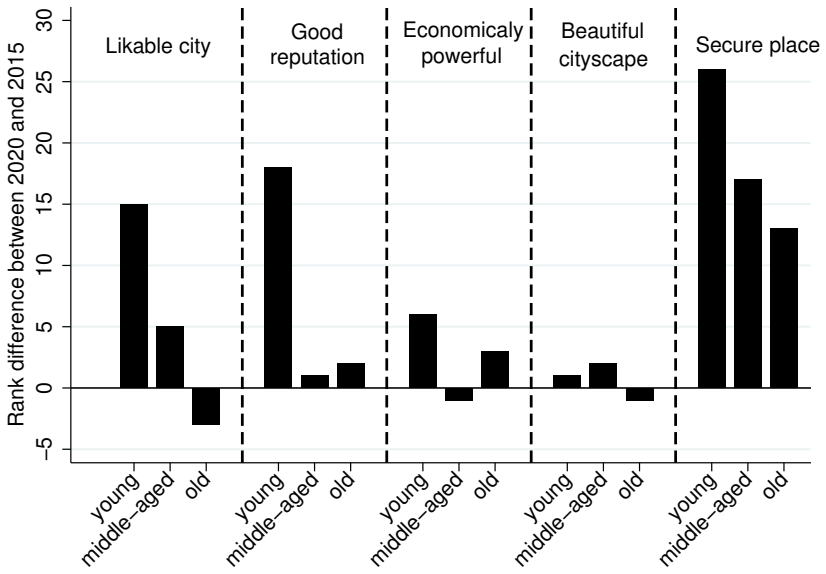
5.2.2 Change in perception

In the second part of our mechanism analysis, we illustrate that people's beliefs about how attractive the city of Dresden are changed because of the protests of the far-right. To this end, we exploit results from two representative surveys that were conducted by a German marketing firm (*Brandmeyer Markenberatung*) in 2015 and 2020 and in which participants were asked to evaluate the attractiveness of German cities. The findings of the surveys are published in reports entitled *Brandmeyer Stadtmarken-Monitor*.[33] For our purpose, these surveys are an almost ideal source of information for three key reasons. First, they cover 50 German cities and in particular those 40 cities with more than 200,000 inhabitants.[34] Second, the questionnaire is rather detailed. We can therefore differentiate between various aspects of attractiveness. Third, the summary reports present the survey results separately for three different age groups (18 – 30, 30 – 50, 50+). We can consequently examine why young people changed their location choices due to the far-right protests in Dresden, whereas middle-aged and old people did not. Unfortunately, there are also two notable

[33]This marketing company conducted a similar survey 2010. However, because of severe methodological changes, we cannot use this earlier survey in our analysis.

[34]All cities with more than 200,000 inhabitants are listed in Appendix Table A.1. The other ten cities covered by the survey are Hagen, Saarbrücken, Potsdam, Mülheim, Hamm, Ludwigshafen, Oldenburg, Osnabrück, Leverkusen, and Schwerin.

Figure 6 Changes in beliefs about the city of Dresden.



Notes: This figure shows for five different aspects and three different age groups how Dresden's rank in the Brandmeyer Stadtmarken-Monitor changed between 2015 and 2020. A positive change indicates that the performance of a city became worse over time.

weak spots. The first is that the 2015 survey took place already a few months after the rise of the Pegida movement. A concern might thus be that people's beliefs were already updated. We believe that this is indeed likely but also think that the updating process was not completed at the time when the survey was conducted (June 2015) since many of the far-right rallies that received great public attention were held afterwards (see Sections 3 and 5.2.1). If our hypothesis about the mechanism at work is correct, we should thus nonetheless see changes in the way of how people evaluate Dresden's attractiveness when comparing the findings of the 2015 survey with the findings from 2020. The other notable weak spot is that the wording of the question that deals with the level of security changed over time (for details, see Appendix Table A.8). We therefore need to interpret the respective analyses with some cautious.

In Figure 6, we descriptively analyze how people's view on the city of Dresden changed between 2015 and 2020. We thereby pay attention to five different factors that influence people's location choices and illustrate how Dresden's rank in the respective dimension changed over time. These five aspects are: (i) whether people perceive a city as likable, (ii) whether the city has a good reputation, (iii) whether the city is economically strong, (iv) whether a city has a beautiful townscape, and (v) whether a city is a

secure place (for the exact survey questions, see Appendix Table A.8). A low rank implies that a city performs well in a particular dimension and positive changes therefore suggest that the performance of a city became worse over time. The most notable result of Figure 6 is that especially young people updated their views about the city of Dresden due to the protests held by Pegida and other right-wing movements. Because of this pattern, we argue that it is plausible that the young but not the middle-aged and old Germans changed their location decisions due to the right-wing protests in Dresden. The second interesting result is that right-wing protests mainly affect people' beliefs regarding atmospherical factors and increase their security concerns.

6 Additional results

6.1 Results from German Student Register

From a development perspective, the protest-induced decrease in the total number of young German incomers is especially worrying if many of the people that changed their location choices because of the far-right rallies in Dresden are highly skilled. To examine whether this is indeed the case, we now use the German Student Register (GSR). The second interesting question that we can address when using the GSR is how foreign people react to right-wing demonstrations.

6.1.1 Dyadic fixed effect results

Columns 1 – 3 of Table 3 report results from three dyadic fixed effect regressions. In these regressions, the place of origin (i) is defined as the county in which a tertiary student graduated from high school. The place of destination (j) is one of Germany's public universities (for a list, see Appendix Table A.9). The outcome variable is the total number of first-semester students at university j who started their tertiary education in year t and received their high school degree in county i. As in Section 5, we apply a two-way clustering procedure in all our dyadic fixed effect regressions. Our dyadic models always include a full set of dyadic fixed effects, year-by-region-of-destination fixed effects, and year-specific county-of-origin fixed effects. Among others, the latter fixed effects capture that the total number of high school graduates changed notably in various counties at particular points in time due to state-level school reforms. In addition,

Table 3 Dyadic fixed effect estimates for in-migration (first-year students)

	(1)	(2)	(3)	(4)
$DD^d \times \mathbb{1}_{t>2014}$	-1.729***	-12.55*	-1.435***	-105.157**
	(0.379)	(6.166)	(0.330)	(36.499)
Regression model	Dyadic Panel	Dyadic Panel	Dyadic Panel	Panel
Observations	270,000	25,983	243,027	675
$\bar{Y}_{i,\ \text{Dresden},\ t<2015}$	9.8	129.4	5.5	1232.9
Domestic students (same state)	Yes	Yes	No	No
Domestic students (other state)	Yes	No	Yes	No
Foreign students	No	No	No	Yes

Notes: This table shows OLS estimates. In Column 1 – 3, the dependent variable is the total number of first-year students that earned their high school degree in a particular county and started to study at a particular university in a given year. In Column 4, dependent variable is the total number of foreign first-year students. We present two-way clustered standard errors in parentheses and apply the following notation to highlight point estimates that are significantly different from zero: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

we add two variables to our model that change over time and vary across universities. The first is a dummy variable that is equal to 1 only if students have to pay tuition fees. The second control variable is also a dummy and indicates whether a particular university is an "University of Excellence".[35]

The estimates presented in Column 1 of Table 3 imply that the total number of domestic[36] first-semester students at the University of Dresden decreased due to the right-wing protests. In Columns 2 and 3, we show that this decline is more pronounced for students who earned their high school degree outside from Saxony. The results shown in Columns 1 – 3 of Table 3 thus do not only confirm the findings of Section 5.1 but also suggest that there were a lot of high-skilled individuals among the young people who changed their location decisions due to the far-right rallies in Dresden.

In Columns 1 and 2 of Appendix Table A.10, we distinguish two different fields of study: (i) natural and engineering sciences and (ii) social sciences and humanities. This differentiation might be of interest because student's political attitudes as well as their interest in politics vary across fields (Fischer et al., 2017). However, since we find similar declines for both types of students, we doubt that these differences matter for how students react to far-right demonstrations when choosing their place of study. In Column 3 of Appendix Table A.10, we show that the negative effect of far-right demonstrations on in-migration vanishes if we focus on medicine students. For two reasons, we think that this result is plausible. First, the total

[35] In Germany, universities can apply for this status. The decision whether a university receives this statuts is made by the German Council of Science and Humanities and the German Research Foundation (for details, see e.g. DFG, 2013).

[36] We use the term "domestic" to refer to students that earned their high school degree in Germany.

number of study places for medicine is very limited and much lower than the total number of high school graduates that want to study medicine. In contrast to most other subjects, it is thus unlikely that study places for medicine remain unfilled. Second, a person who applies for studying medicine can receive only one acceptance per term since the study places are centrally distributed. For most other fields, the distribution of study places is decentralized and applicants thus often get accepted at various universities. Vacating a study place at a particular German university is consequently much more costly for medicine than for most of the other subjects.

Finally, we exploit the GSR to examine how foreigners react to far-right demonstrations. The results of this analysis are reported in Column 4 of Table 3. However, in contrast to the previous analyses, we do not use a dyadic regression model when considering foreigners. Instead, we present estimates from a classical fixed effect model with university and year fixed effects. These estimates suggest that the total number of foreign students that started to study at the University of Dresden significantly decreased because of the protests held by Pegida and other right-wing movements.

6.1.2 Synthetic Control results

As in Section 5.1, we apply the SC method to verify the results of our regression analyses. Figure 7 thus shows the results of an SC analysis in which the dependent variable is the total number of domestic first-semester students who moved to another state after graduating from high school.[37] In the left panel, we compare the University of Dresden with its synthetic counterpart (for details on the composition of the synthetic University of Dresden, see Appendix Table A.12). We observe a notable divergence in the post-treatment period. More specifically, while virtually no difference existed between the University of Dresden and the synthetic University of Dresden in 2014, the difference in the total number of domestic first-year students from other states was about 250 students in 2015 and even about 1,000 students in 2016 and 2017. The corresponding placebo graph (right panel of Figure 7), ratio graph (Appendix Figure B.19), and weighted regression (Appendix Table A.11) confirm the impression of the treatment graph. We

[37] We use similar conditions as in Section 5.1.2 to obtain an appropriate donor pool. First, we only take into account universities that are located in cities with at least 200,000 inhabitants. Second, we drop all universities whose pre-treatment mean in the respective dependent variable is smaller than one-third of the pre-treatment mean of the University of Dresden.

Figure 7 SC results for in-migration (Students from other state).

Notes: This figure presents the results of an SC analysis. The outcome variable is the total number of domestic first-year students who earned their high school degree in another state. In the left panel, we compare the University of Dresden (solid line) with synthetic University of Dresden (dashed line). Information regarding the composition of the synthetic University of Dresden can be found in Appendix Table A.12. The right panel shows the placebo graph. The permutation p-value is 0.130. The respective ratio graph as well as the leave-one-out analysis are presented in Figure B.19. Appendix Table A.11 shows the results of the corresponding weighted regression.

therefore believe that this SC analysis provides additional evidence for the hypothesis that far-right protests reduce the influx of young high-skilled people.

Appendix B.2 shows the results of two other SC analyses. In the first analysis, we focus on those domestic first-year students that did not leave the state in which they graduated from high school. Consistent with the results of our dyadic fixed effect analysis, we find that the treatment and the placebo graph provide evidence for a small decrease in in-migration (Appendix Figure B.20). The estimates of the related weighted regression substantiate the graphical evidence (Appendix Table A.11). However, due to Dresden's low rank in the ratio graph (Appendix Figure B.21),[38] we are rather cautious when interpreting the results of this SC analysis. In the second SC analysis, we pay attention to foreign students. The findings of this analysis confirm that the number of foreign students at the University of Dresden decreased due to the right-wing protests in Dresden (Appendix Figure B.22).

[38]The main reason for Dresden's low rank in the ratio graph is the rather poor fit in the first pre-treatment period.

6.2 Results for our-migration

In the final part of our analysis, we investigate whether right-wing rallies influence out-migration. As outlined in detail in Section 2, we expect (if any) smaller effects than for in-migration.

Table 4 reports the results of eight dyadic fixed effect analyses. In all these regressions, we use a model that is similar to the model used in Column 4 of Table 1 and apply a two-way clustering procedure.[39] Our sample consists of all county-pairs where the county of origin is a county borough. Panel A presents estimates for the total population. Panel B, C and D focus on a particular age cohort. In each panel, the first column pays attention to Germans who move within a state, whereas the second column considers Germans that move to another state.

Panel A suggests the total number of Germans that moved away from the city of Dresden increased due to the rallies of the far-right. However, since neither of the two regression coefficients is statistically significant at conventional levels, we do not think that far-right demonstrations have a strong effect on out-migration. When differentiating between young, middle-aged, and old people, we observe a statistically significant increase in the number of middle-aged and old people that moved to another state. The economic relevance of these increases is, however, rather small because of the relatively low number of middle-aged and old people that leave their state of residence.

As in Section 5, we use the SC method to verify the findings of our dyadic fixed effect regressions. The results of these SC analyses can be found in Appendix B.3. Consistent with the estimates shown in Table 4, our SC results provide virtually no evidence for the hypothesis that right-wing protests have notable effect on out-migration.

7 Conclusion

Motivated by the growing number of large-scale right-wing protests in the Western World, this paper investigates how these demonstrations affect in- and out-migration. To address this question, we use data from Germany and exploit that the city of Dresden suddenly experienced a series of far-

[39] More specifically, our model includes a full set of dyadic fixed effects, a full set of year-by-state-of-origin fixed effects, a full set of year-specific county-of-destination fixed effects, and our four control variables (per-capita income, unemployment rate, second home tax, exposure to extreme flood in 2013).

Table 4 Dyadic fixed effect estimates for our-migration (total population)

	Panel A: Total Pop.		**Panel B: 18 − 30**	
	(1)	(2)	(1)	(2)
$DD^o \times \mathbb{1}_{t>2014}$	51.041	0.927	-9.184	-0.053
	(47.2627)	(0.5428)	(15.0034)	(0.4486)
$\bar{Y}_{\text{Dresden, j, t < 2015}}$	686.0	20.1	293.2	11.5
	Panel C: 30 − 50		**Panel B: 50 − 65**	
	(1)	(2)	(1)	(2)
$DD^o \times \mathbb{1}_{t>2014}$	30.940	0.667*	5.287	0.160***
	(30.2419)	(0.3113)	(3.4788)	(0.0483)
$\bar{Y}_{\text{Dresden, j, t < 2015}}$	208.3	5.1	43.5	0.8
Observations	74,004	536,270	74,004	536,270
Units of origin	County boroughs	County boroughs	County boroughs	County boroughs
Units of destination	All counties	All counties	All counties	All counties
Dyadic FE	Yes	Yes	Yes	Yes
Region-of-origin × Year FE	Yes	Yes	Yes	Yes
County-of-destination × Year FE	Yes	Yes	Yes	Yes
County-level controls	Yes	Yes	Yes	Yes

Notes: This table shows OLS estimates. The dependent variable is the total number of Germans that moved in a particular year from one county to another. We present two-way clustered standard errors in parentheses and apply the following notation to highlight point estimates that are significantly different from zero: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

right rallies. We show that the number of young Germans and foreigners that move to Dresden decreased due to these protests. Our explanation for this result is that the far-right protests changed people's views about the attractiveness of the city of Dresden. For out-migration, we find only minor effects.

Due to limited data availability, our analysis pays no attention to non-German people who live in Germany. In future work, we would like to address this issue. We also would like to study how start-up entrepreneurs react to far-right protests when making location choice. Finally, we think that it is worth to examine whether counter-demonstrations can help to mitigate the adverse effects of right-wing protests on in-migration.

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Appendix for online publication

A Additional tables

A.1 Additional tables for Section 5

Table A.1 List of German cities with more than 200,000 inhabitants.

City	City	City	City
Berlin (B)	Bremen (HB)	Karlsruhe (KA)	Halle (HAL)
Hamburg (HH)	Dresden (DD)	Mannheim (MA)	Magdeburg (MD)
Munich (M)	Hanover (H)	Augsburg (A)	Freiburg (FR)
Cologne (K)	Nürnberg (N)	Wiesbaden (WI)	Krefeld (KR)
Frankfurt (F)	Duisburg (DU)	Mönchengladbach (MG)	Mainz (MZ)
Stuttgart (S)	Bochum (BO)	Gelsenkirchen (GE)	Lübeck (HL)
Düsseldorf (D)	Wuppertal (W)	Braunschweig (BS)	Erfurt (EF)
Leipzig (L)	Bielefeld (BI)	Aachen (AC)	Oberhausen (OB)
Dortmund (DO)	Bonn (BN)	Kiel (KI)	Rostock (HRO)
Essen (E)	Münster (MS)	Chemnitz (C)	Kassel (KS)

Notes: This table lists all German cities with more than 200,000 inhabitants. The cities are ordered according to their total number of inhabitants in 2019. In parentheses, we report the acronyms that we use in our SC graphs to refer to a particular city.

Table A.2 Dyadic fixed effect estimates for in-migration (by region)

	(1)	(2)	(3)	(4)
$DD^d \times \mathbb{1}_{t>2014}$	-12.696***	-1.944***	-1.613**	-1.474***
	(3.1134)	(0.2928)	(0.5970)	(0.2836)
Region of origin	East Germany	North Germany	South Germany	West Germany
Observations	101,220	100,926	174,496	159,628
$\bar{Y}_{i,\ \text{Dresden},\ t<2015}$	75.7	20.4	15.5	13.1

Notes: This table shows OLS estimates. The dependent variable is the total number of Germans that moved in a particular year from one county to another. The list of places of destinations includes all county boroughs. The regression model is the same as in Column 4 of Table 1. We present two-way clustered standard errors in parentheses and apply the following notation to highlight point estimates that are significantly different from zero: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.3 Weighted regressions for in-migration (Section 5).

	(1)	(2)	(3)	(4)	(5)
$DD^d \times \mathbb{1}_{t>2014}$	-358.329	-1072.197**	-783.618**	-866.278***	54.339
	(484.3928)	(477.3722)	(345.4728)	(306.4635)	(74.9565)
Observations	98	126	70	140	112
Corresponding SC analysis	Fig. B.1	Fig. B.3	Fig. B.5	Fig. 2	Fig. B.7
	(6)	(7)	(8)	(9)	(10)
$DD^d \times \mathbb{1}_{t>2014}$	-9.067	-23.953	-7.572	105.865***	-20.460**
	(83.6019)	(18.4108)	(23.9764)	(16.5310)	(8.6041)
Observations	140	98	84	384	336
Corresponding SC analysis	Fig. B.9	Fig. B.11	Fig. B.13	Fig. 5	Fig. B.17

Notes: This table shows estimates from weighted least squares regressions. The dependent variable is the same as in the corresponding SC analysis. The weights produced by the SC approach (see Appendix Figure A.3) are used as sample weights. We present robust standard errors in parentheses and apply the following notation to highlight point estimates that are significantly different from zero: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.4 Weights to create the synthetic Dresden (Section 5).

City	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Bielefeld	0	0	0	0	0	0.112	0	0	0	0
Bonn	0	0	0	0	0.021	0	0	0.212	0.361	0
Bremen	0	0.143	0	0.082	0	0.137	0	0	0	0.082
Chemnitz	0	0	0	0	0.019	0	0	0	0	0
Dortmund	0	0	0	0	0	0.041	0	0.362	0	0.026
Düsseldorf	0	0.027	0	0	0.035	0	0.050	0	0	0
Erfurt	0	0	0	0	0	0	0	0.165	0	0.198
Essen	0	0	0	0	0	0	0	0	0	0
Frankfurt	0	0	0	0.070	0	0	0	0	0.077	0
Freiburg	0	0	0	0	0	0.159	0	0	0	0
Halle	0	0	0	0.123	0	0	0	0	0	0
Hannover	0	0	0	0	0	0	0	0	0	0.348
Karlsruhe	0.085	0	0	0	0	0	0	0	0	0
Kassel	0	0	0	0	0	0	0	0	0	0.155
Kiel	0	0	0	0	0	0.144	0	0	0	0
Köln	0.108	0	0.125	0	0	0	0	0	0	0.155
Krefeld	0	0	0	0	0	0	0.163	0	0	0
Leipzig	0	0.256	0	0.212	0.765	0.119	0	0	0.149	0
Magdeburg	0.539	0.306	0.417	0.194	0	0.102	0	0	0	0
Mainz	0	0.066	0	0.117	0	0	0	0.103	0.149	0
Mannheim	0	0.091	0	0.001	0	0	0	0	0	0
München	0.167	0.119	0.241	0.150	0.042	0.024	0.052	0.158	0.079	0.
Münster	0	0.093	0	0.051	0.108	0	0.204	0	0.147	0
Oberhausen	0	0	0	0	0	0	0.089	0	0	0
Rostock	0.080	0	0.218	0	0.011	0	0	0	0	0
Stuttgart	0.020	0	0	0	0	0.162	0	0	0.038	0
Wuppertal	0	0	0	0	0	0	0.442	0	0	0
Corresponding SC analysis	Fig. B.1	Fig. B.3	Fig. B.5	Fig. 2	Fig. B.7	Fig. B.9	Fig. B.11	Fig. B.13	Fig. 5	Fig. B.17

Table A.5 List of supra-regional newspapers included in *GBI-Genios wiso*.

Newspaper	Newspaper	Newspaper
Börsen-Zeitung	FOCUS	UNISPIEGEL
Christ und Welt	FOCUS-MONEY	WELT am Sonntag
DER SPIEGEL	Handelsblatt	WELT KOMPAKT
Der Tagesspiegel	Jüdische Allgemeine	WELT ONLINE
DIE WELT	KulturSPIEGEL	ZEIT Campus
DIE ZEIT	Le monde diplomatique	ZEIT Geschichte
DIE ZEIT online	SPIEGEL ONLINE	ZEIT Wissen
DIE WELT	Tageszeitung (taz)	

Table A.6 List of protest-related keywords.

Keyword	Keyword	Keyword
Ausschreitungen ('clashes')	Demo ('demo')	Demos ('demos'')
Demonstration ('demonstration')	Demonstrationen ('demonstrations')	demonstrieren ('to demonstrate')
demonstrierten ('demonstrated')	Kundgebung ('rally')	Kundgebungen ('rallies')
Protest ('protest')	Proteste ('protests')	protestieren ('to protest')
protestierten ('protested')	Pegida	

Table A.7 Fixed effect regressions for media attention.

	(1)	(2)	(3)
$DD \times \mathbb{1}_{t>09/14}$	0.293***	1.240***	-0.0191
	(0.0248)	(0.0497)	(0.0186)
Type of newspaper articles	All	Protest-related	Other
Observations	1,872	1,872	1,872

Notes: This table shows OLS estimates. The dependent variable is the log of the total number of articles in the supra-regional newspaper included in *GBI-Genios wiso* (for a list, see Appendix Table A.5). The list of protest-related keywords can be found in Appendix Table A.6). We present two-way clustered standard errors in parentheses and apply the following notation to highlight point estimates that are significantly different from zero: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.8 Survey questions (*Brandmeyer Stadtmarken-Monitor*)

Aspect	Year	Language	Translation
Likable city	2015	German	„(...) finde ich rundum sympathisch.“
		English	"I find (. . .) likeable all round."
	2020	German	„(...) finde ich rundum sympathisch.“
		English	"I find (. . .) likeable all round."
Good reputation	2015	German	„(...) hat einen sehr guten Ruf.“
		English	"(...) has a very good reputation."
	2020	German	„(...) hat einen sehr guten Ruf.“
		English	"(...) has a very good reputation."
Economically powerful	2015	German	„(...) ist eine wirtschaftlich sehr starke Stadt.“
		English	"(...) is a very strong city economically."
	2020	German	„(...) ist eine wirtschaftlich sehr starke Stadt.“
		English	"(...) is a very strong city economically."
Beautiful cityscape	2015	German	„(...) ist eine sehr schöne Stadt.“
		English	"(...) is a very beautiful city."
	2020	German	„(...) ist eine sehr schöne Stadt.“
		English	"(...) is a very beautiful city."
Secure place	2015	German	„(...) ist eine sehr saubere und sichere Stadt.“
		English	"(...) is a very clean and safe city."
	2020	German	„(...) ist eine sehr sichere Stadt, die effizient auf Krisen reagieren kann.“
		English	"(...) is a very safe city that can respond efficiently to crises."

A.2 Additional tables for Section 6

Table A.9 List of public universities in Germany.

University	University	University	University
RWTH Aachen	Uni. Eichstätt-Ingolstadt	Uni. Jena	Uni. Paderborn
Uni. Augsburg	Uni. Erfurt	TU Kaiserslautern	Uni. Passau
Uni. Bamberg	Uni. Erlangen-Nürnberg	Uni. Karlsruhe	Uni. Potsdam
Uni. Bayreuth	Uni. Flensburg	Uni. Kassel	Uni. Regensburg
FU Berlin	Uni. Frankfurt/Main	Uni. Kiel	Uni. Rostock
HU Berlin	Uni. Frankfurt/Oder	Uni. Koblenz-Landau	Uni. Saarbrücken
TU Berlin	TU Freiberg	Uni. Köln	Uni. Siegen
Uni. Bochum	Uni. Freiburg	Uni. Konstanz	Uni. Stuttgart
Uni. Bonn	Uni. Gießen	Uni. Leipzig	Uni. Trier
Uni. Bielefeld	Uni. Göttingen	Uni. Lübeck	Uni. Tübingen
TU Braunschweig	Uni. Greifswald	Uni. Lüneburg	Uni. Ulm
Uni. Bremen	Uni. Halle	Uni. Magdeburg	Uni. Vechta
TU Chemnitz	Uni. Hamburg	Uni. Mainz	Uni. Weimar
TU Clausthal	HafenCity Uni. Hamburg	Uni. Mannheim	Uni. Wuppertal
Uni. Cottbus	TU Hamburg-Harburg	Uni. Marburg	Uni. Würzburg
TU Darmstadt	Uni. Hannover	TU München	
Uni. Dortmund	Uni. Heidelberg	Uni. München	
TU Dresden	Uni. Hildesheim	Uni. Münster	
Uni. Duisburg-Essen	Uni Hohenheim	Uni. Oldenburg	
Uni. Düsseldorf	TU Ilmenau	Uni. Osnabrück	

Table A.10 Dyadic fixed effect estimates for in-migration (German students, by subject)

	(1)	(2)	(3)
$DD^d \times \mathbb{1}_{t>2014}$	-2.129**	-0.424*	-0.092
	(0.918)	(0.190)	(0.131)
Field of study	Natural & Engineering Sc.	Social Sc. & Humanities	Medicine
Observations	270,000	270,000	270,000
$\bar{Y}_{i,\ \text{Dresden, t} < 2015}$	5.2	2.1	0.5

Notes: This table shows OLS estimates.The dependent variable is the total number of first-year students that earned their high school degree in a particular county and started to study at a particular university in a given year. The regression model is the same as in Column 1 of Table 3. We present two-way clustered standard errors in parentheses and apply the following notation to highlight point estimates that are significantly different from zero: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.11 Weighted regressions for in-migration (Section 6.1)

	(1)	(2)	(3)
$DD^d \times \mathbb{1}_{t>2014}$	-551.951***	-322.848***	-420.650***
	(125.4278)	(109.4751)	(104.2051)
Observations	36	36	45
Corresponding SC analysis	Fig. 7	Fig. B.20	Fig. B.22

Notes: This table shows estimates from weighted least squares regressions. The dependent variable is the same as in the corresponding SC analysis. The weights produced by the SC approach (see Appendix Figure A.12) are used as sample weights. We present robust standard errors in parentheses and apply the following notation to highlight point estimates that are significantly different from zero: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.12 Weights to create the synthetic University of Dresden (Section 6.1).

University	(1)	(2)	(3)
RWTH Aachen	0	0	0.409
FU Berlin	0	0	0.053
Uni. Duisburg-Essen	0.051	0	0
Uni. Halle	0	0.260	0
Uni. Hamburg	0	0.505	0.411
Uni. Leipzig	0.744	0.235	0.127
Uni. München	0.205	0	0
Corresponding SC analysis	Fig. 7	Fig. B.20	Fig. B.22

Table A.13 Weighted regressions for out-migration (Section 6.2).

	(1)	(2)	(3)	(4)
$DD^o \times \mathbb{1}_{t>2014}$	349.369**	205.028	-36.865	45.300
	(147.0219)	(187.7664)	(132.7802)	(90.6915)
Observations	56	56	84	84
Corresponding SC analysis	Fig. B.24	Fig. B.26	Fig. B.28	Fig. B.30
	(5)	(6)	(7)	(8)
$DD^o \times \mathbb{1}_{t>2014}$	196.109**	158.441*	11.822	38.347***
	(71.2529)	(92.2949)	(13.9688)	(13.0415)
Observations	42	70	98	126
Corresponding SC analysis	Fig. B.32	Fig. B.34	Fig. B.36	Fig. B.38

Notes: This table shows estimates from weighted least squares regressions. The dependent variable is the same as in the corresponding SC analysis. The weights produced by the SC approach (see Appendix Figure A.14) are used as sample weights. We present robust standard errors in parentheses and apply the following notation to highlight point estimates that are significantly different from zero: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

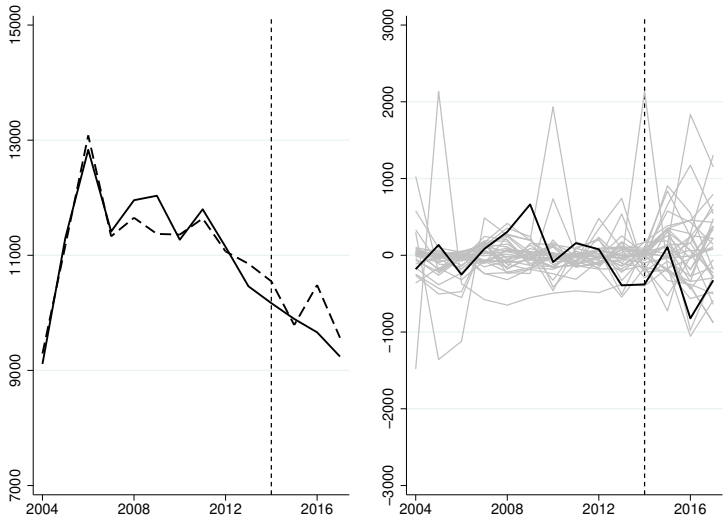
Table A.14 Weights to create the synthetic Dresden (Section 6.2).

City	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bonn	0	0	0	0	0	0	0	0.008
Chemnitz	0	0	0	0	0	0	0.112	0
Dortmund	0	0	0	0	0	0	0	0.181
Duisburg	0	0	0.021	0	0	0	0	0.065
Gelsenkirchen	0	0	0	0	0	0	0.097	0
Halle	0	0	0	0	0	0	0	0.270
Hannover	0	0.148	0.196	0.230	0	0.178	0	0.123
Karlsruhe	0.594	0	0.103	0	0	0	0	0.099
Kiel	0	0	0	0	0	0	0.579	0
Krefeld	0	0	0	0	0	0	0.062	0.200
Leipzig	0	0	0	0.331	0.764	0.201	0	0.054
Magdeburg	0	0.589	0.484	0.204	0	0	0	0
München	0	0.263	0.196	0.156	0	0	0	0
Münster	0.207	0	0	0	0	0	0	0
Nürnberg	0.199	0	0	0	0.236	0.470	0	0
Rostock	0	0	0	0	0	0.152	0.045	0
Stuttgart	0	0	0	0.078	0	0	0.104	0

B Additional figures

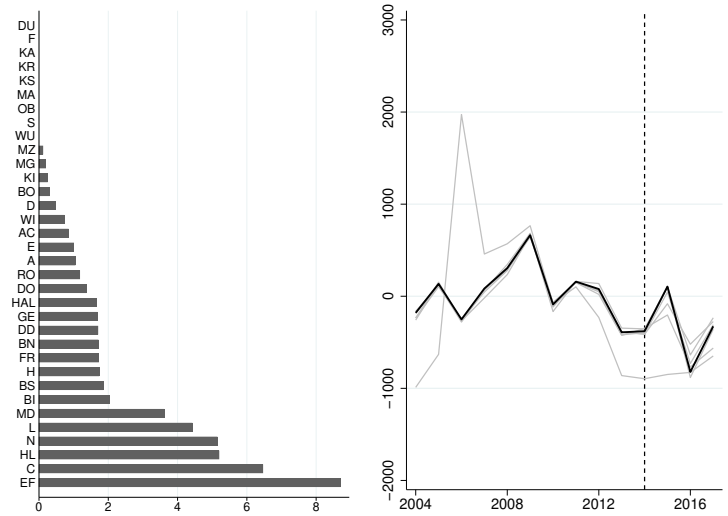
B.1 Additional figures for Section 5

Figure B.1 SC results for in-migration (Germans from same state, total population).



Notes: This figure shows the results of an SC analysis. The outcome variable is the total number of German incomers who previously lived in the same state. In the left panel, we compare Dresden (solid line) with synthetic Dresden (dashed line). Information on the actual composition of synthetic Dresden can be found in Appendix Table A.4. The right panel shows the placebo graph. The permutation p-value is 0.353. The respective ratio graph as well as the leave-one-out analysis are presented in Appendix Figure B.2. Appendix Table A.3 shows the results of the corresponding weighted regression.

Figure B.2 SC results for in-migration (Germans from same state, total population).

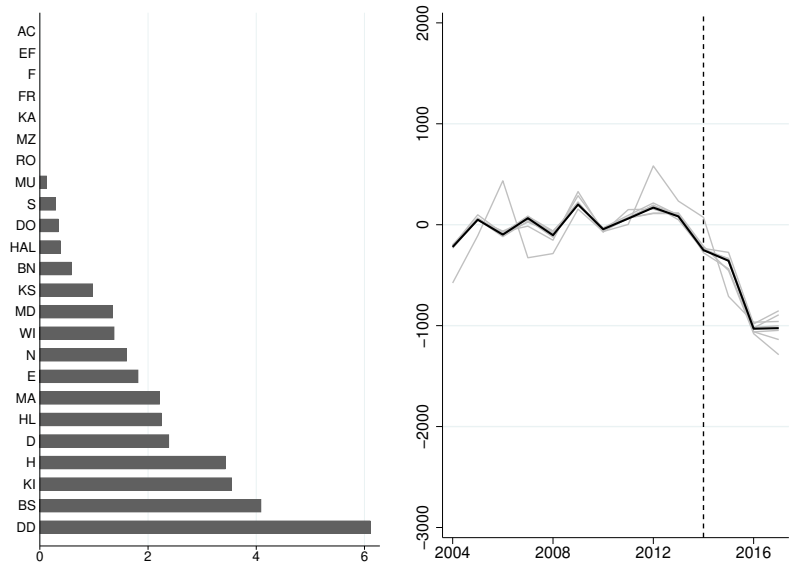


Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure B.1 shows the respective treatment and placebo graph. A list of abbreviations can be found in Appendix Table A.1. The city of interest is Dresden (DD).

Figure B.3 SC results for in-migration (Germans from another state, total population).

Notes: This figure shows the results of an SC analysis. The outcome variable is the total number of German incomers who previously lived in another state. In the left panel, we compare the city of Dresden (solid line) with synthetic Dresden (dashed line). Information on the composition of synthetic Dresden can be found in Appendix Table A.4. The right panel shows the placebo graph. The permutation p-value is 0.042. The respective ratio graph as well as the leave-one-out analysis are presented in Figure B.4. Appendix Table A.3 shows the results of the corresponding weighted regression.

Figure B.4 SC results for in-migration (Germans from another state, total population).

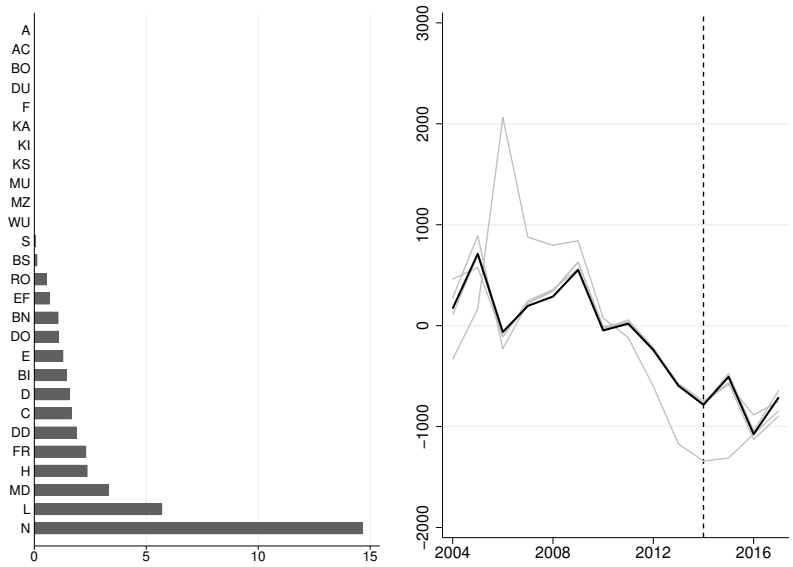


Notes: ... This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure B.3 shows the respective treatment and placebo graph. A list of abbreviations can be found in Appendix Table A.1. The city of interest is Dresden (DD).

Figure B.5 SC results for in-migration (Germans from same state, 18 – 30).

Notes: This figure shows the results of an SC analysis. The outcome variable is the total number of German incomers (aged 18 – 30) who previously lived in the same state. In the left panel, we compare Dresden (solid line) with synthetic Dresden (dashed line). Information on the actual composition of synthetic Dresden can be found in Appendix Table A.4. The right panel shows the placebo graph. The permutation p-value is 0.222. The respective ratio graph as well as the leave-one-out analysis are presented in Appendix Figure B.6. Appendix Table A.3 shows the results of the corresponding weighted regression.

Figure B.6 SC results for in-migration (Germans from same state, 18 – 30).

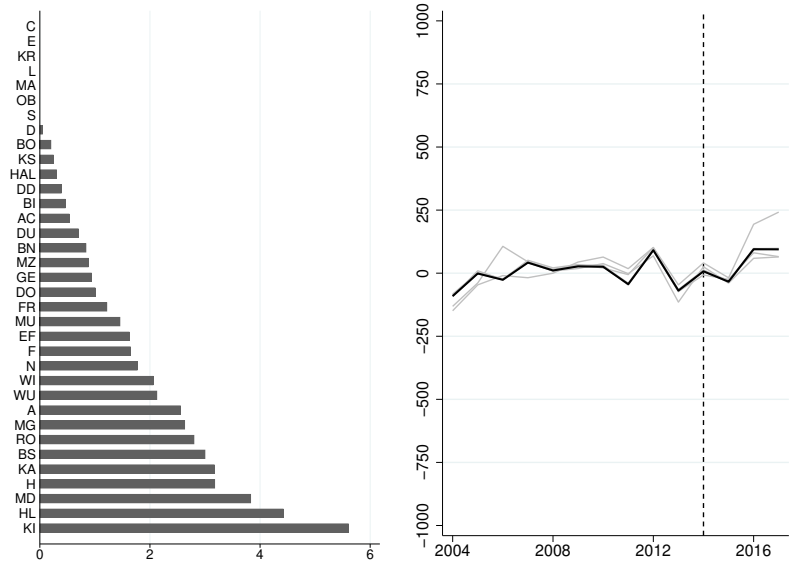


Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure B.5 shows the respective treatment and placebo graph. A list of abbreviations can be found in Appendix Table A.1. The city of interest is Dresden (DD).

Figure B.7 SC results for in-migration (Germans from same state, 30 – 50).

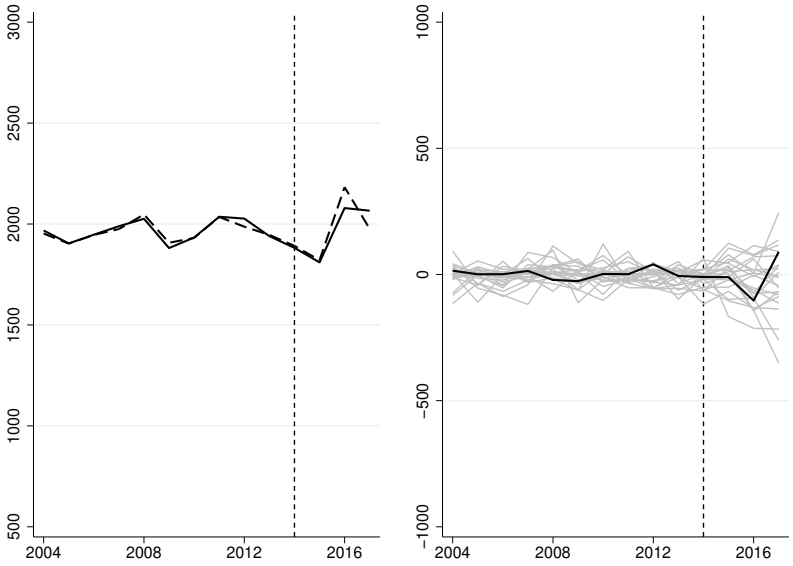
Notes: This figure shows the results of an SC analysis. The outcome variable is the total number of German incomers (aged 30 – 50) who previously lived in the same state. In the left panel, we compare Dresden (solid line) with synthetic Dresden (dashed line). Information on the actual composition of synthetic Dresden can be found in Appendix Table A.4. The right panel shows the placebo graph. The permutation p-value is 0.686. The respective ratio graph as well as the leave-one-out analysis are presented in Appendix Figure B.8. Appendix Table A.3 shows the results of the corresponding weighted regression.

Figure B.8 SC results for in-migration (Germans from same state, 30 – 50).



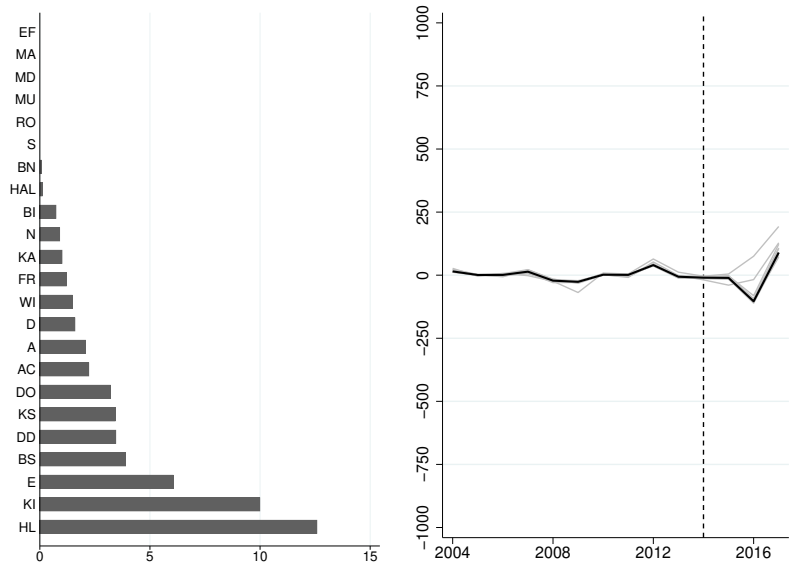
Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure B.7 shows the respective treatment and placebo graph. A list of abbreviations can be found in Appendix Table A.1. The city of interest is Dresden (DD).

Figure B.9 SC results for in-migration (Germans from same state, 30 – 50).



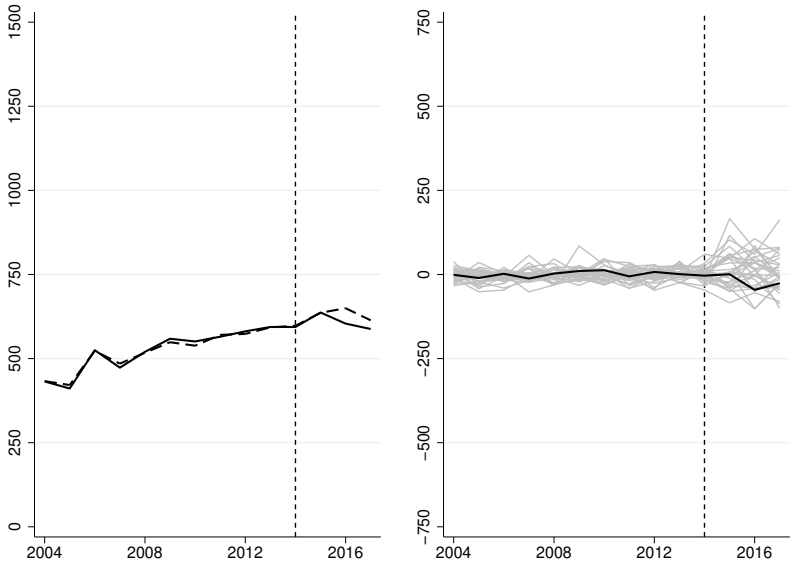
Notes: This figure shows the results of an SC analysis. The outcome variable is the total number of German incomers (aged 30 – 50) who previously lived in another state. In the left panel, we compare the city of Dresden (solid line) with synthetic Dresden (dashed line). Information on the composition of synthetic Dresden can be found in Appendix Table A.4. The right panel shows the placebo graph. The permutation p-value is 0.217. The respective ratio graph as well as the leave-one-out analysis are presented in Figure B.10. Appendix Table A.3 shows the results of the corresponding weighted regression.

Figure B.10 SC results for in-migration (Germans from same state, 30 – 50).



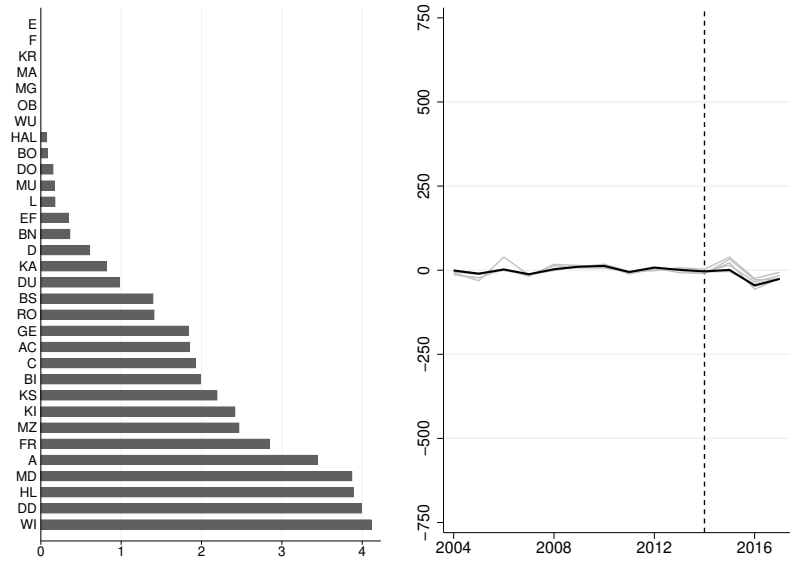
Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure B.9 shows the respective treatment and placebo graph. A list of abbreviations can be found in Appendix Table A.1. The city of interest is Dresden (DD).

Figure B.11 SC results for in-migration (Germans from same state, 50 – 65).



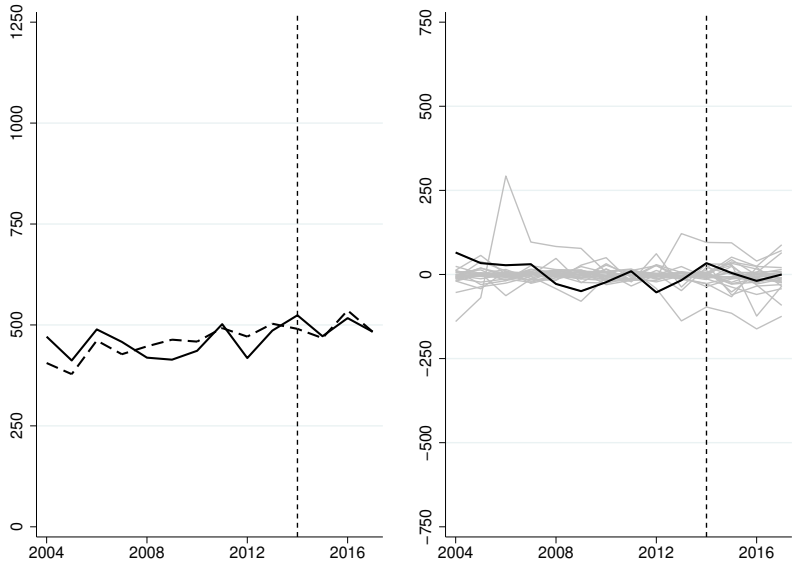
Notes: This figure shows the results of an SC analysis. The outcome variable is the total number of German incomers (aged 50 – 65) who previously lived in the same state. In the left panel, we compare Dresden (solid line) with synthetic Dresden (dashed line). Information on the actual composition of synthetic Dresden can be found in Appendix Table A.4. The right panel shows the placebo graph. The permutation p-value is 0.063. The respective ratio graph as well as the leave-one-out analysis are presented in Appendix Figure B.12. Appendix Table A.3 shows the results of the corresponding weighted regression.

Figure B.12 SC results for in-migration (Germans from same state, 50 – 65).



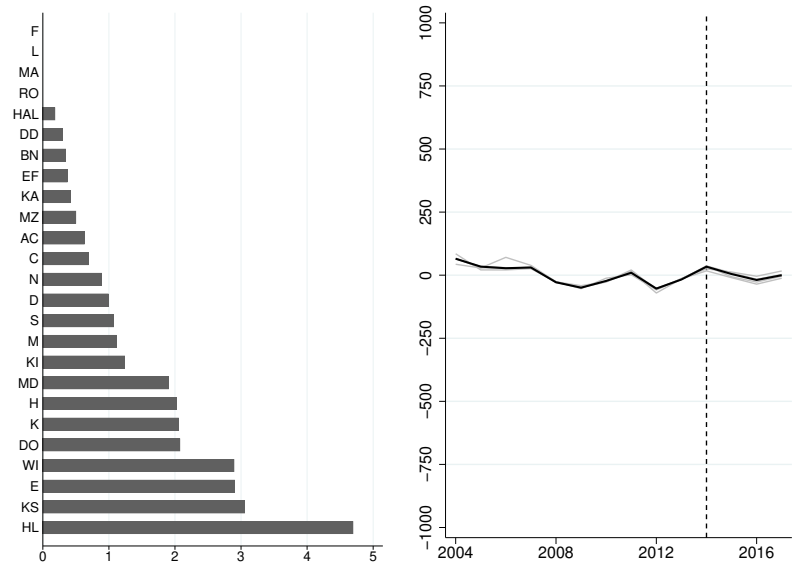
Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure B.11 shows the respective treatment and placebo graph. A list of abbreviations can be found in Appendix Table A.1. The city of interest is Dresden (DD).

Figure B.13 SC results for in-migration (Germans from same state, 50 – 65).



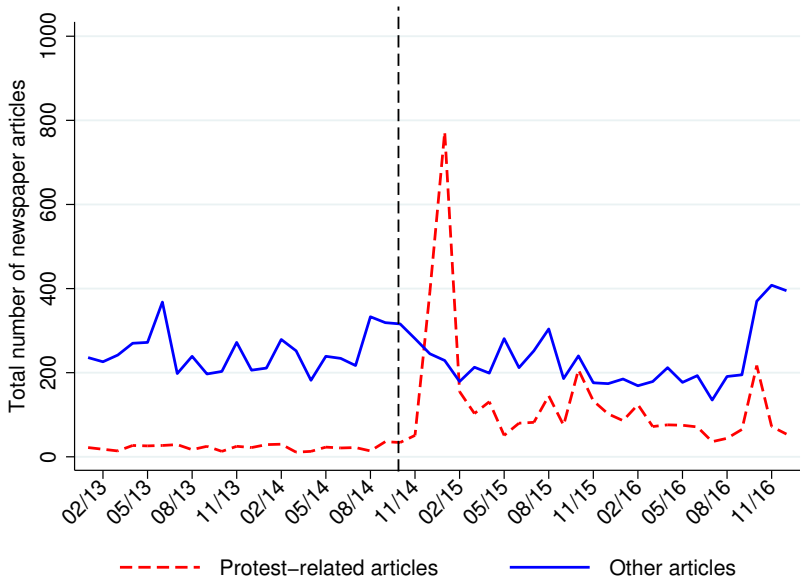
Notes: This figure shows the results of an SC analysis. The outcome variable is the total number of German incomers (aged 50 – 65) who previously lived in another state. In the left panel, we compare the city of Dresden (solid line) with synthetic Dresden (dashed line). Information on the composition of synthetic Dresden can be found in Appendix Table A.4. The right panel shows the placebo graph. The permutation p-value is 0.800. The respective ratio graph as well as the leave-one-out analysis are presented in Figure B.14. Appendix Table A.3 shows the results of the corresponding weighted regression.

Figure B.14 SC results for in-migration (Germans from same state, 50 – 65).



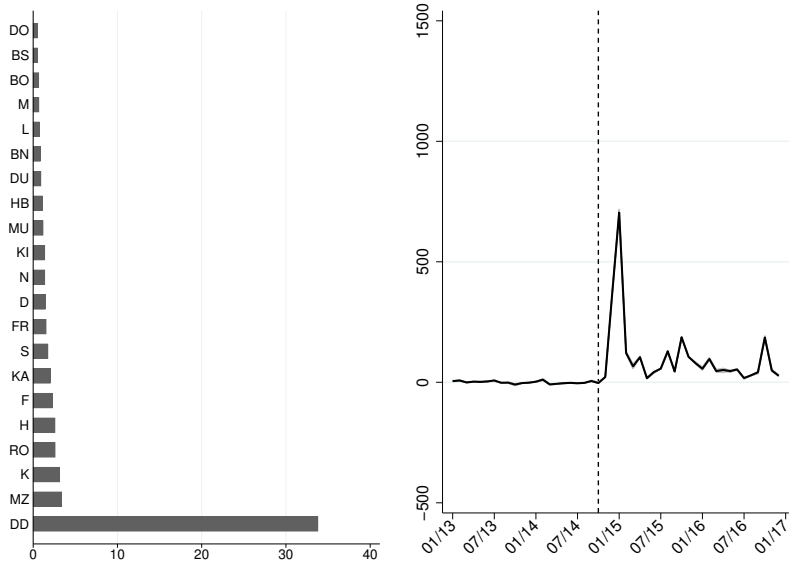
Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure B.11 shows the respective treatment and placebo graph. A list of abbreviations can be found in Appendix Table A.1. The city of interest is Dresden (DD).

Figure B.15 Dresden's media attention (by type).



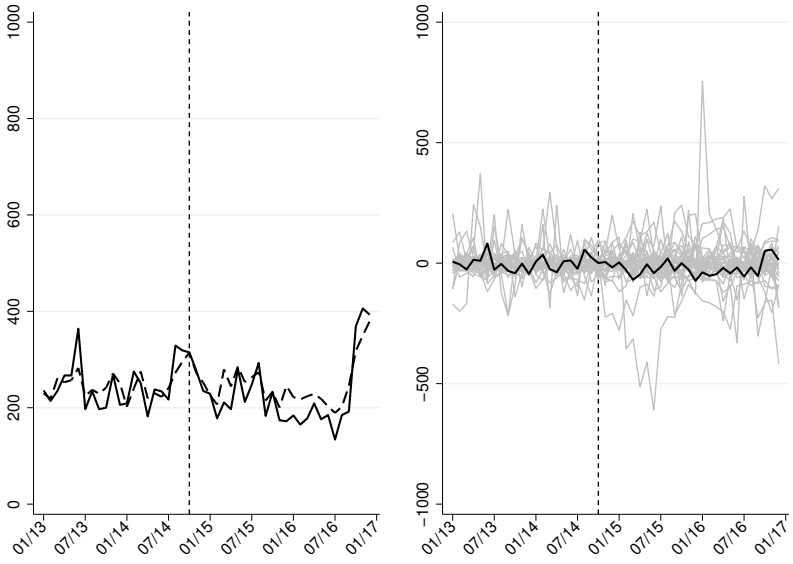
Notes: This figure shows on a monthly basis the total number of articles in sample of supra-regional newspapers that include the word "Dresden". We differentiate between articles that are related to protest events and articles that are not related to protest events.

Figure B.16 SC results for media attention (protest-related articles).



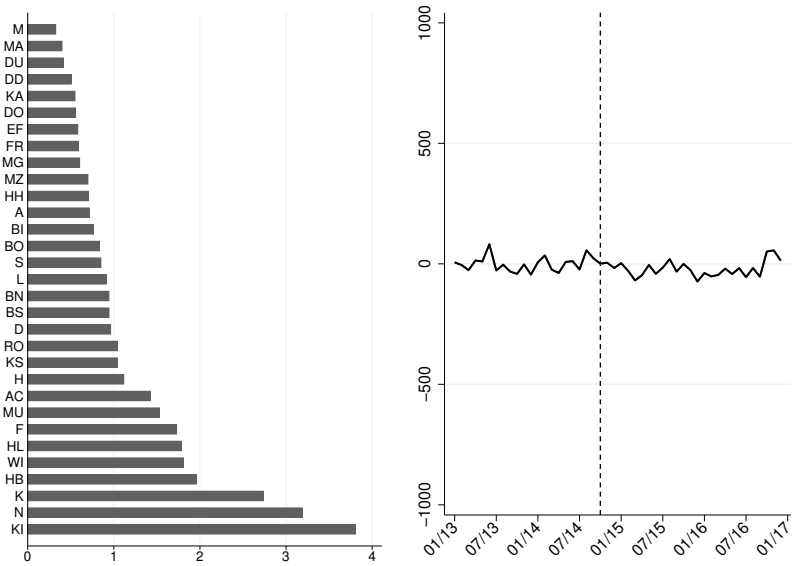
Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Figure 5 shows the respective treatment and placebo graph. A list of abbreviations can be found in Appendix Table A.1. The city of interest is Dresden (DD).

Figure B.17 SC results for media attention (non-protest-related articles).



Notes: This figure shows the results of an SC analysis. The outcome variable is the total number of newspaper articles that are not related to protest events. In the left panel, we compare the city of Dresden (solid line) with synthetic Dresden (dashed line). Information on the composition of synthetic Dresden can be found in Appendix Table A.4. The right panel shows the placebo graph. The permutation p-value is 0.903. The respective ratio graph as well as the leave-one-out analysis are presented in Figure B.18. Appendix Table A.3 shows the results of the corresponding weighted regression.

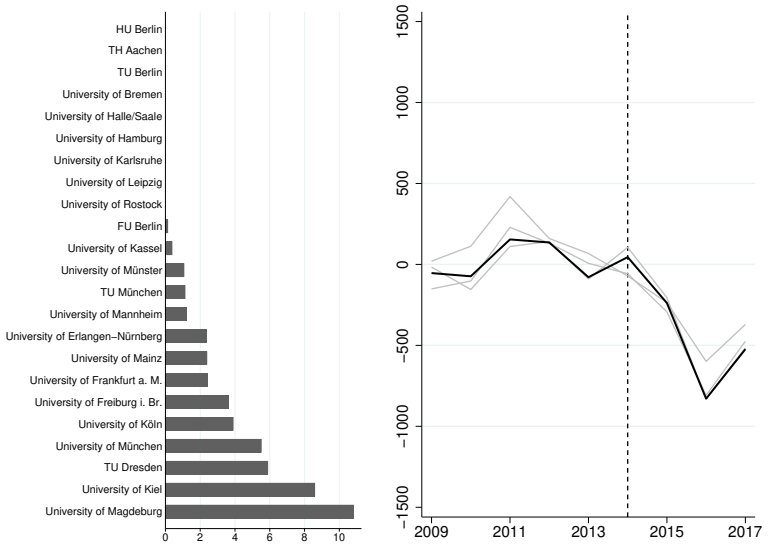
Figure B.18 SC results for media attention (non-protest-related articles).



Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure B.17 shows the respective treatment and placebo graph. A list of abbreviations can be found in Appendix Table A.1. The city of interest is Dresden (DD).

B.2 Additional figures for Section 6.1

Figure B.19 SC results for in-migration (Students from other state).

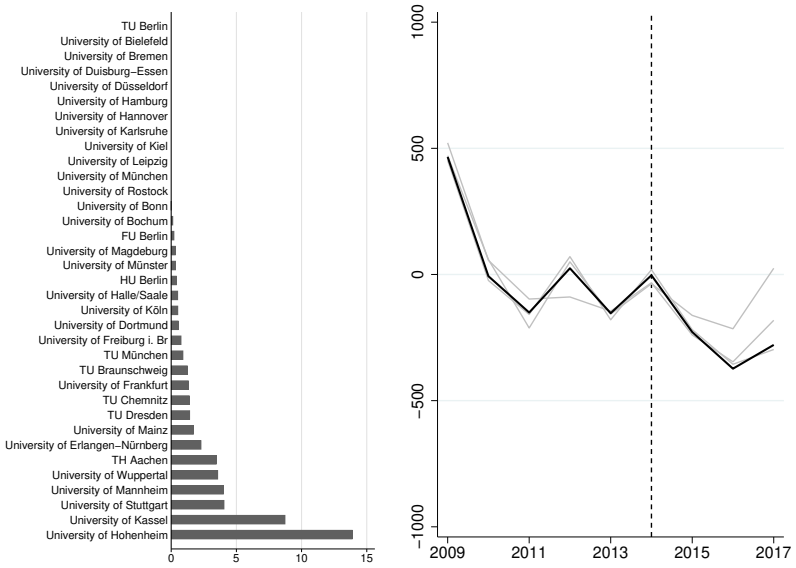


Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure 7 shows the respective treatment and placebo graph. The unit of interest is the University of Dresden.

Figure B.20 SC results for in-migration (Students from the same state).

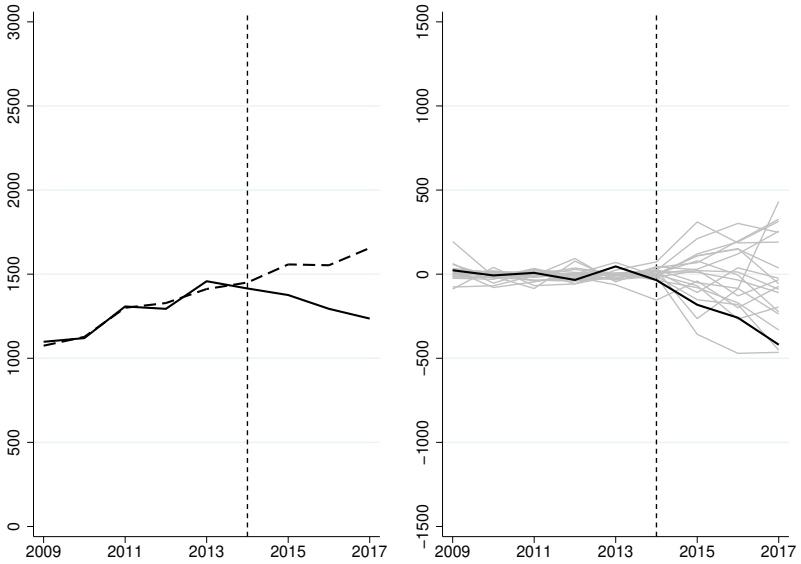
Notes: This figure presents the results of an SC analysis. The outcome variable is the total number of domestic first-year students who earned their high school degree in the same state. In the left panel, we compare the University of Dresden (solid line) with synthetic University of Dresden (dashed line). Information regarding the composition of the synthetic University of Dresden can be found in Appendix Table A.12. The right panel shows the placebo graph. The permutation p-value is 0.237. The respective ratio graph as well as the leave-one-out analysis are presented in Figure B.21. Appendix Table A.11 shows the results of the corresponding weighted regression.

Figure B.21 SC results for in-migration (Students from the same state).



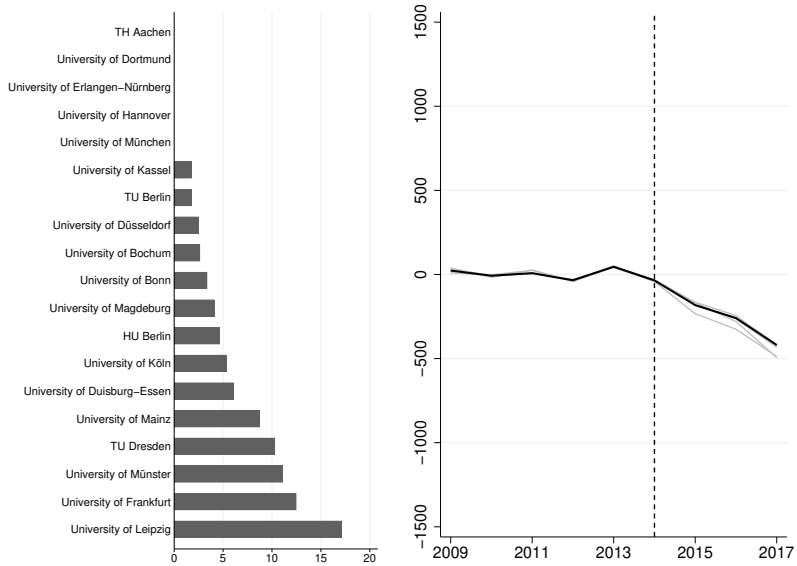
Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure B.20 shows the respective treatment and placebo graph. The unit of interest is the University of Dresden.

Figure B.22 SC results for in-migration (foreign students).



Notes: This figure presents the results of an SC analysis. The outcome variable is the total number of foreign first-year students. In the left panel, we compare the University of Dresden (solid line) with synthetic University of Dresden (dashed line). Information regarding the composition of the synthetic University of Dresden can be found in Appendix Table A.12. The right panel shows the placebo graph. The permutation p-value is 0.211. The respective ratio graph as well as the leave-one-out analysis are presented in Figure B.23. Appendix Table A.11 shows the results of the corresponding weighted regression.

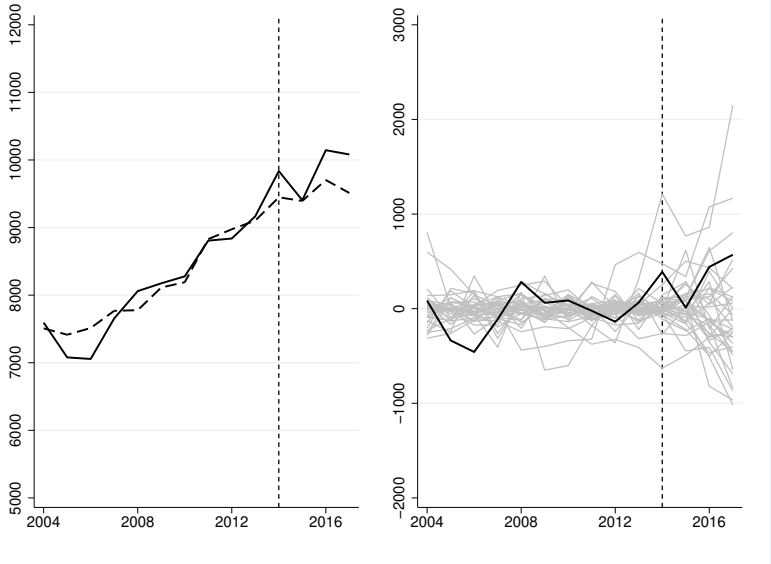
Figure B.23 SC results for in-migration (foreign students).



Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure B.22 shows the respective treatment and placebo graph. The unit of interest is the University of Dresden.

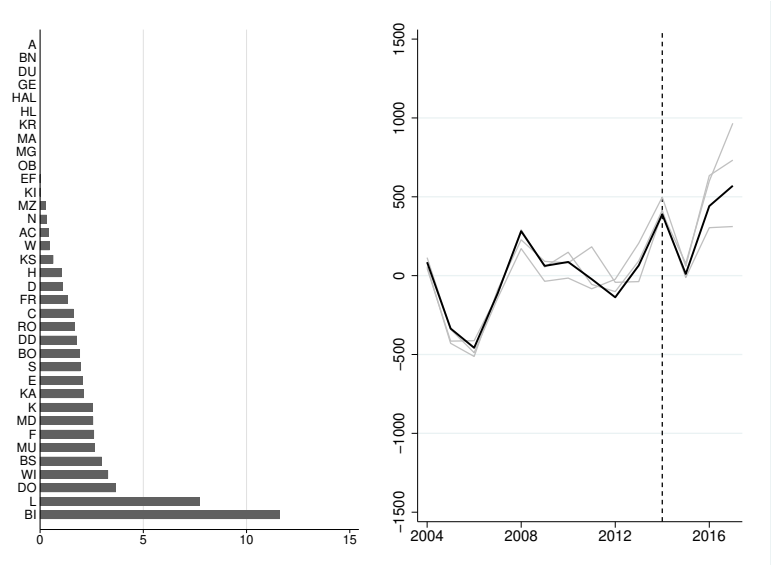
B.3 Additional figure for Section 6.2

Figure B.24 SC results for out-migration (Germans from same state, total population).



Notes: This figure shows the results of an SC analysis. The outcome variable is the total number of Germans who moved to another place in the same state. In the left panel, we compare Dresden (solid line) with synthetic Dresden (dashed line). Information on the actual composition of synthetic Dresden can be found in Appendix Table A.14. The right panel shows the placebo graph. The permutation p-value is 0.400. The respective ratio graph as well as the leave-one-out analysis are presented in Appendix Figure B.25. Appendix Table A.13 shows the results of the corresponding weighted regression.

Figure B.25 SC results for out-migration (Germans from same state, total population).

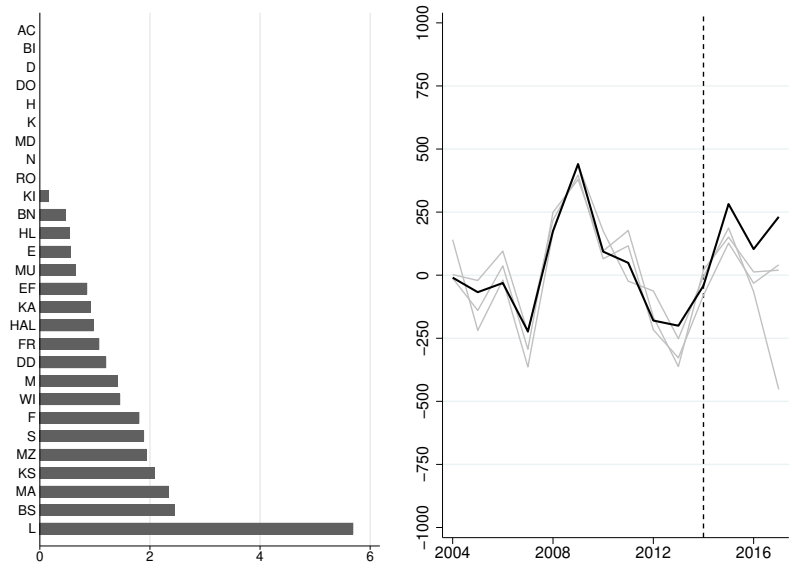


Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure B.24 shows the respective treatment and placebo graph. The unit of interest is the University of Dresden.

Figure B.26 SC results for out-migration (Germans from other state, total population).

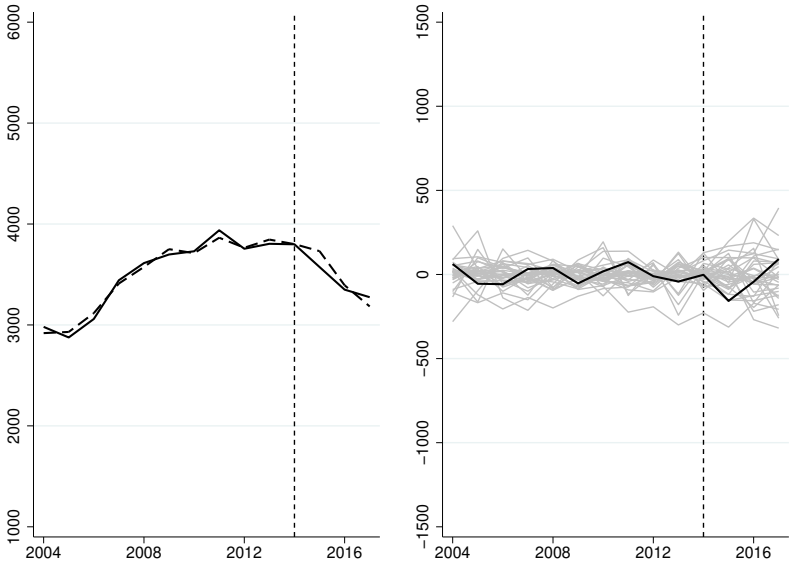
Notes: This figure shows the results of an SC analysis. The outcome variable is the total number of Germans who moved to a place in another state. In the left panel, we compare Dresden (solid line) with synthetic Dresden (dashed line). Information on the actual composition of synthetic Dresden can be found in Appendix Table A.14. The right panel shows the placebo graph. The permutation p-value is 0.357. The respective ratio graph as well as the leave-one-out analysis are presented in Appendix Figure B.27. Appendix Table A.13 shows the results of the corresponding weighted regression.

Figure B.27 SC results for out-migration (Germans from other state, total population).



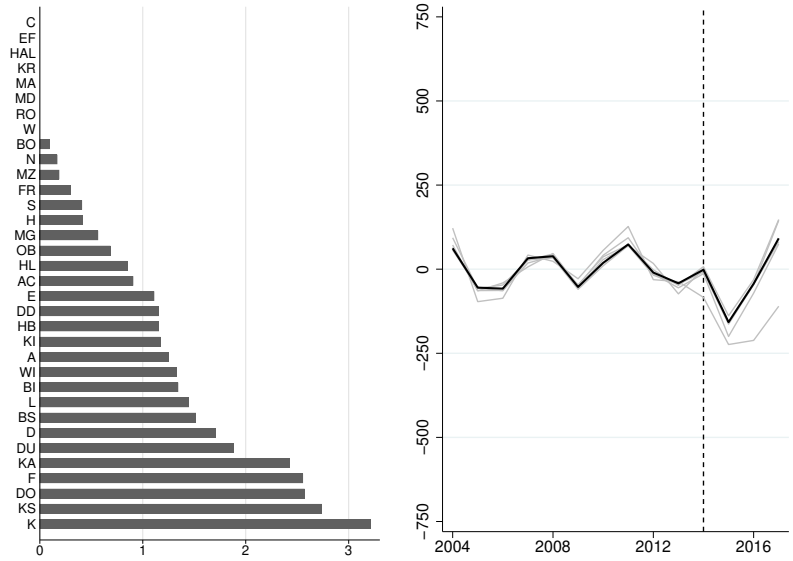
Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure B.26 shows the respective treatment and placebo graph. The unit of interest is the University of Dresden.

Figure B.28 SC results for out-migration (Germans from same state, 18 – 30).



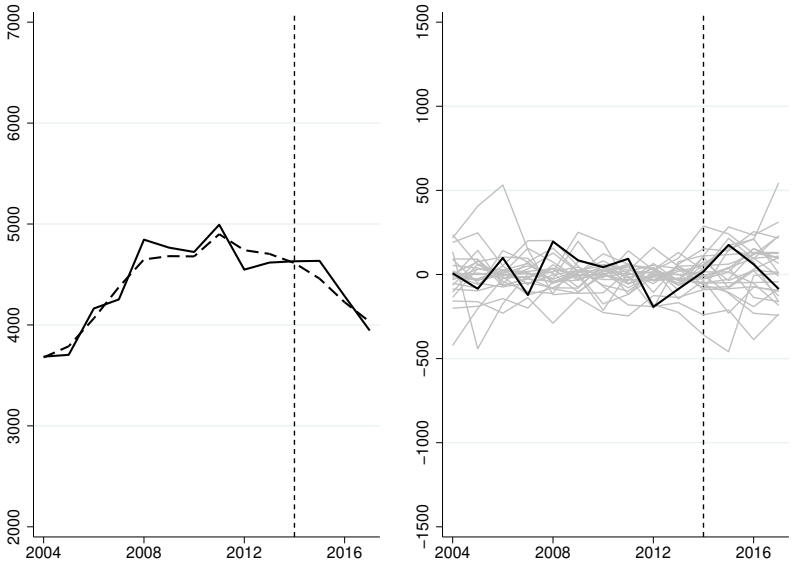
Notes: This figure shows the results of an SC analysis. The outcome variable is the total number of Germans (aged 18 – 30) who moved to another place in the same state. In the left panel, we compare Dresden (solid line) with synthetic Dresden (dashed line). Information on the actual composition of synthetic Dresden can be found in Appendix Table A.14. The right panel shows the placebo graph. The permutation p-value is 0.441. The respective ratio graph as well as the leave-one-out analysis are presented in Appendix Figure B.29. Appendix Table A.13 shows the results of the corresponding weighted regression.

Figure B.29 SC results for out-migration (Germans from same state, 18 – 30).



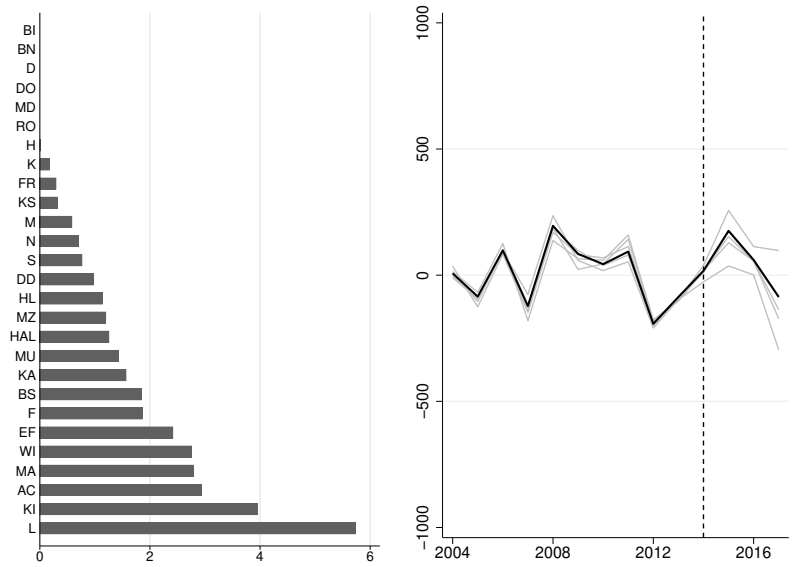
Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure B.28 shows the respective treatment and placebo graph. The unit of interest is the University of Dresden.

Figure B.30 SC results for out-migration (Germans from other state, 18 – 30).



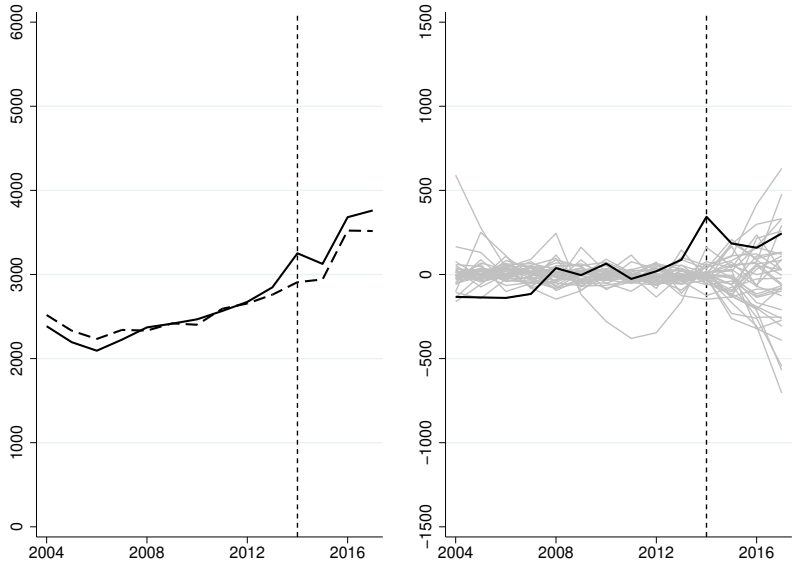
Notes: This figure shows the results of an SC analysis. The outcome variable is the total number of Germans (aged 18 – 30) who moved to a place in another state. In the left panel, we compare Dresden (solid line) with synthetic Dresden (dashed line). Information on the actual composition of synthetic Dresden can be found in Appendix Table A.14. The right panel shows the placebo graph. The permutation p-value is 0.519. The respective ratio graph as well as the leave-one-out analysis are presented in Appendix Figure B.31. Appendix Table A.13 shows the results of the corresponding weighted regression.

Figure B.31 SC results for out-migration (Germans from other state, 18 – 30).



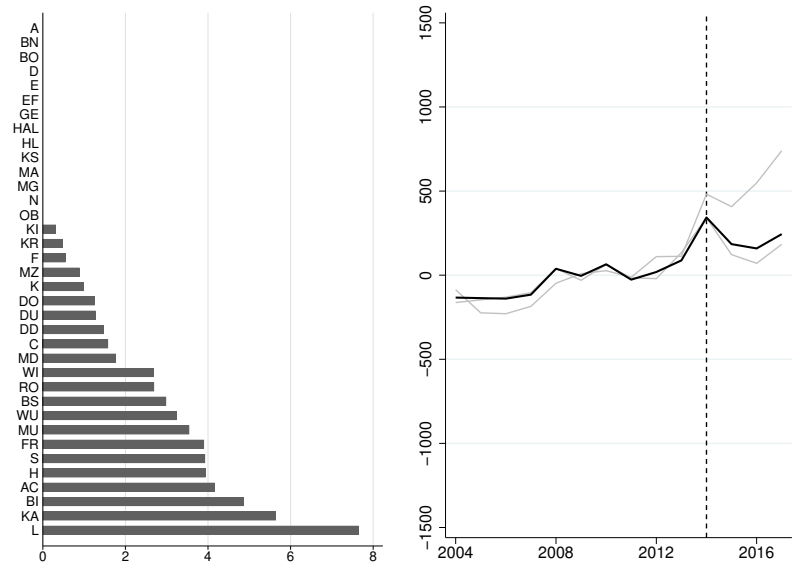
Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure B.30 shows the respective treatment and placebo graph. The unit of interest is the University of Dresden.

Figure B.32 SC results for out-migration (Germans from same state, 30 – 50).



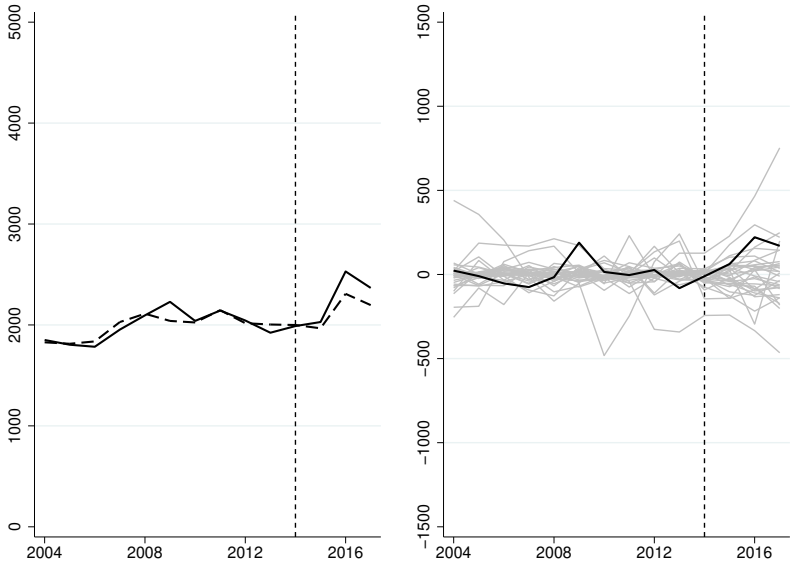
Notes: This figure shows the results of an SC analysis. The outcome variable is the total number of Germans (aged 30 – 50) who moved to another place in the same state. In the left panel, we compare Dresden (solid line) with synthetic Dresden (dashed line). Information on the actual composition of synthetic Dresden can be found in Appendix Table A.14. The right panel shows the placebo graph. The permutation p-value is 0.417. The respective ratio graph as well as the leave-one-out analysis are presented in Appendix Figure B.33. Appendix Table A.13 shows the results of the corresponding weighted regression.

Figure B.33 SC results for out-migration (Germans from same state, 30 – 50).



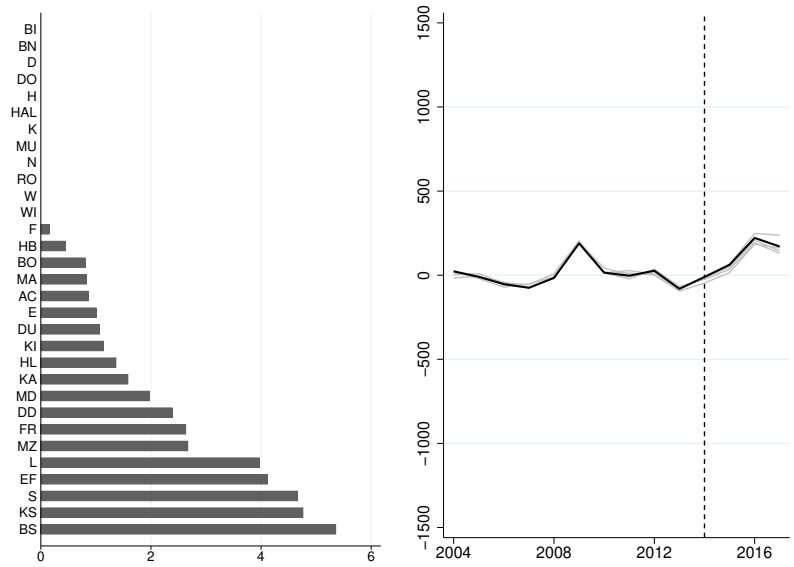
Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure B.32 shows the respective treatment and placebo graph. The unit of interest is the University of Dresden.

Figure B.34 SC results for out-migration (Germans from other state, 30 – 50).



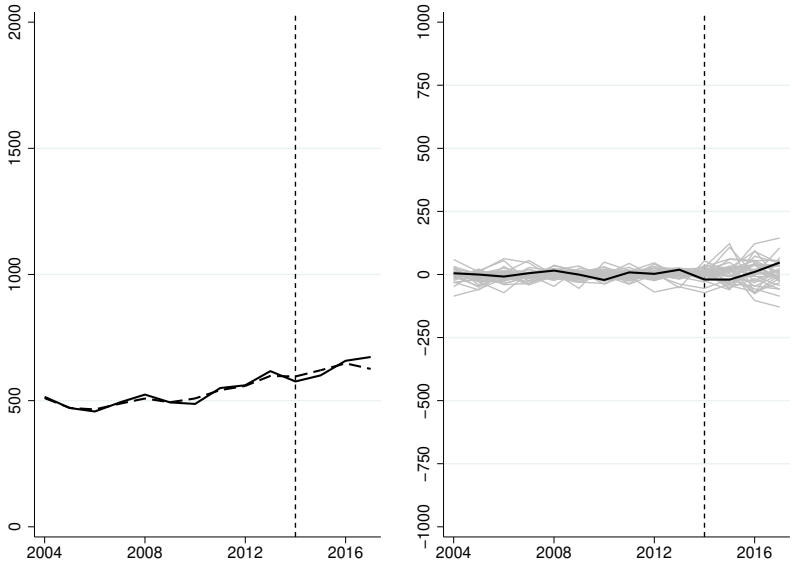
Notes: This figure shows the results of an SC analysis. The outcome variable is the total number of Germans (aged 30 – 50) who moved to a place in another state. In the left panel, we compare Dresden (solid line) with synthetic Dresden (dashed line). Information on the actual composition of synthetic Dresden can be found in Appendix Table A.14. The right panel shows the placebo graph. The permutation p-value is 0.258. The respective ratio graph as well as the leave-one-out analysis are presented in Appendix Figure B.31. Appendix Table A.13 shows the results of the corresponding weighted regression.

Figure B.35 SC results for out-migration (Germans from other state, 30 – 50).



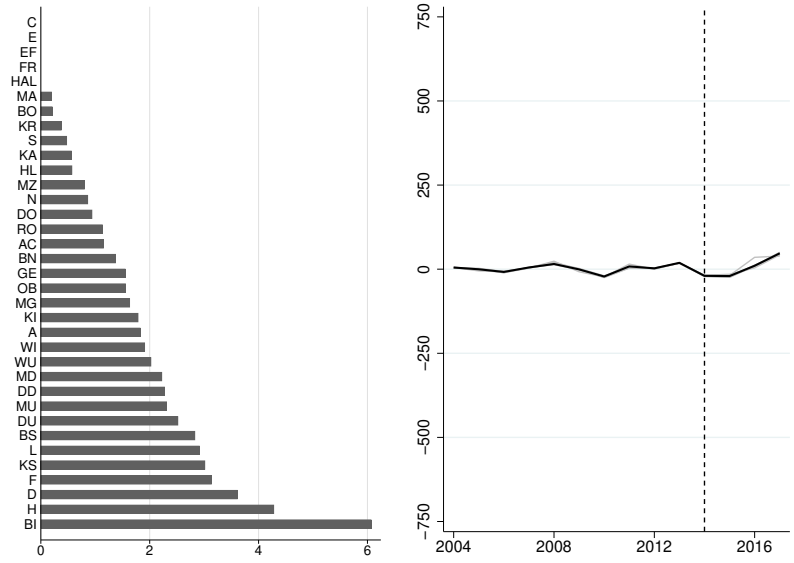
Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure B.34 shows the respective treatment and placebo graph. The unit of interest is the University of Dresden.

Figure B.36 SC results for out-migration (Germans from same state, 50 – 65).



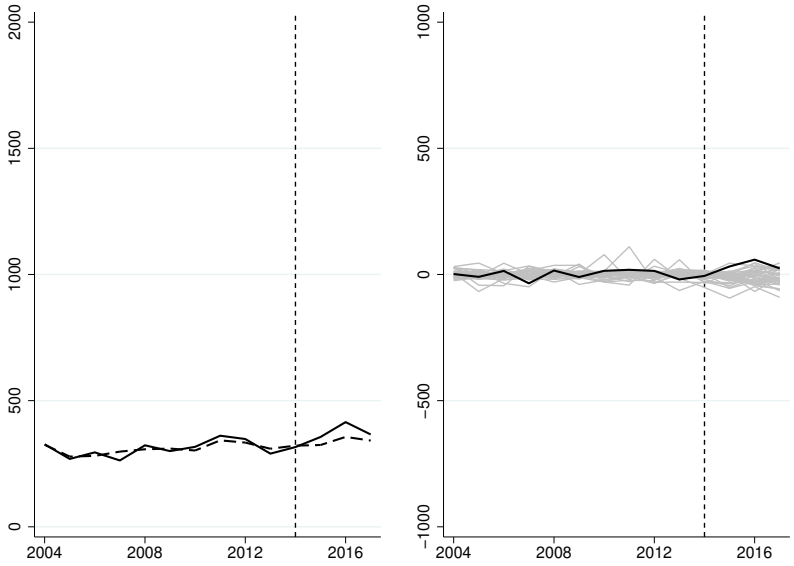
Notes: This figure shows the results of an SC analysis. The outcome variable is the total number of Germans (aged 50 – 65) who moved to another place in the same state. In the left panel, we compare Dresden (solid line) with synthetic Dresden (dashed line). Information on the actual composition of synthetic Dresden can be found in Appendix Table A.14. The right panel shows the placebo graph. The permutation p-value is 0.286. The respective ratio graph as well as the leave-one-out analysis are presented in Appendix Figure B.37. Appendix Table A.13 shows the results of the corresponding weighted regression.

Figure B.37 SC results for out-migration (Germans from same state, 50 – 65).



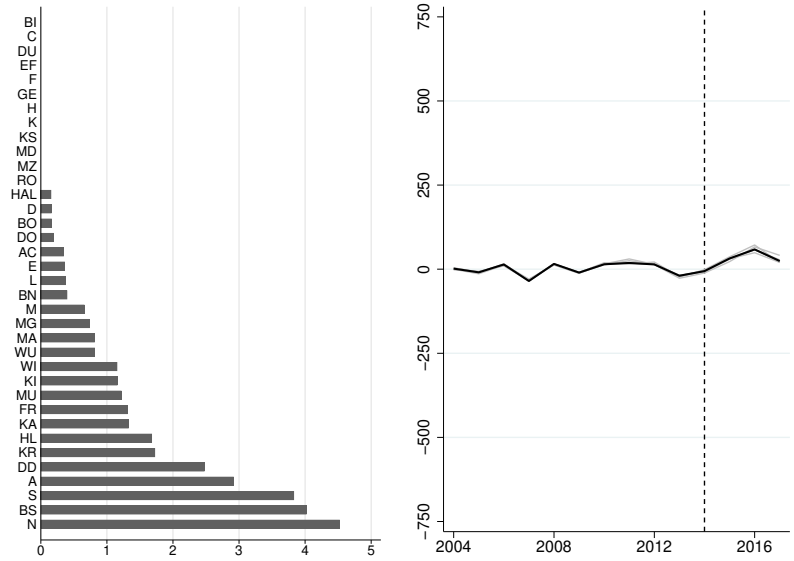
Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure B.36 shows the respective treatment and placebo graph. The unit of interest is the University of Dresden.

Figure B.38 SC results for out-migration (Germans from other state, 50 – 65).



Notes: This figure shows the results of an SC analysis. The outcome variable is the total number of Germans (aged 50 – 65) who moved to a place in another state. In the left panel, we compare Dresden (solid line) with synthetic Dresden (dashed line). Information on the actual composition of synthetic Dresden can be found in Appendix Table A.14. The right panel shows the placebo graph. The permutation p-value is 0.135. The respective ratio graph as well as the leave-one-out analysis are presented in Appendix Figure B.31. Appendix Table A.13 shows the results of the corresponding weighted regression.

Figure B.39 SC results for out-migration (Germans from other state, 50 – 65).



Notes: This figure shows a ratio graph (left panel) and the results of a leave-one-out analysis (right panel). Appendix Figure B.38 shows the respective treatment and placebo graph. The unit of interest is the University of Dresden.