Deole, Sumit S.; Huang, Yue

Working Paper

How do new immigration flows affect existing immigrants? Evidence from the refugee crisis in Germany

GLO Discussion Paper, No. 579

Provided in Cooperation with:
Global Labor Organization (GLO)

Suggested Citation: Deole, Sumit S.; Huang, Yue (2020) : How do new immigration flows affect existing immigrants? Evidence from the refugee crisis in Germany, GLO Discussion Paper, No. 579, Global Labor Organization (GLO), Essen

This Version is available at:
https://hdl.handle.net/10419/221743

How do new immigration flows affect existing immigrants? Evidence from the refugee crisis in Germany

Sumit Deole*
Martin Luther University Halle-Wittenberg, Germany
Yue Huang†
Otto von Guericke University Magdeburg, Germany

June 24, 2020

Abstract. We apply difference-in-differences regressions to study the impact of the 2015 refugee crisis in Germany on the culturally closer diaspora of existing immigrants originating from Turkey and Middle-Eastern and North-African countries (TMENA). Our identification allows us to emphasize the role of immigrants' culture in estimating immigration's socio-economic impact. Additionally, we distinguish between the labor demand and labor supply effects associated with immigration, which enables us to reflect on the ambiguous labor market impact of immigration suggested in the existing literature. In particular, we find that TMENA immigrants experienced a substantial reduction in unemployment in 2015, consistent with the differential demand shock induced by refugees' consumption of culturally similar goods and services. However, the unemployment effects dissipated starting in 2016, coinciding with refugees' delayed yet incremental labor market integration. We also consider the social impact of the refugee crisis and find that while worries about immigration increased among all respondents, the increases were statistically significantly smaller among TMENA immigrants, primarily due to their cultural proximity to arriving refugees. Our results suggest that TMENA immigrants' assimilation of German identity was unaffected by the refugee crisis.

Keywords: European refugee crisis, existing immigrants, socio-economic assimilation.
JEL Classification: F22, J15, Z13.

Acknowledgement: The paper has benefited from comments received at the third *Understanding voluntary and forced migration* conference in Lille (France), and the seminar at the University of Hamburg. We also thank Christoph Wunder, Wolf-Heimo Grieben, and Michael Kvasnicka for their comments on earlier drafts. All remaining errors are our own.

*Corresponding author. Email: sumitdeole@gmail.com.
†Email: yue.huang@ovgu.de.

1 Introduction

An ample amount of economics literature is devoted to estimating the impact of immigration.[1,2] This literature often focuses on the impact of immigration on natives and sidelines or many times completely ignores the multifaceted effects that the new immigration flows can have on existing immigrants. International immigration being one of the most contentious issues in this increasingly globalized world, we provide an extensive analysis of the impact of sudden and massive inflows of new immigrants on the existing immigrants. Notably, we exploit the episode of the 2015 European refugee crisis (ERC) to study its socio-economic impact on the diaspora of existing immigrants in Germany originating from Turkey and Middle-Eastern and North African countries (TMENA).[3]

Our study contributes to the existing literature in the following ways. First, we contribute to the literature investigating the impact of the arrival of Syrian refugees in a country on its natives (Fallah et al., 2019; Ceritoglu et al., 2017; Tumen, 2016) by demonstrating the differential effects the refugee inflows have on existing immigrants. Second, we exploit the time-variation in the treatment effect to distinctly identify the labor market effects associated with refugees' arrival (*immediate* labor demand effects) and their *delayed* labor market integration (labor supply effects).[4] Our ability to distinguish between immediate labor demand effects and delayed labor supply effects associated with immigration flows sets us apart from the existing literature (Fallah et al., 2019; Ceritoglu et al., 2017; Tumen, 2016; Malaeb and Wahba, 2018). It allows us to reflect on the ambiguous labor market effects of immigration suggested in the existing literature.[5] Finally, we emphasize the crucial role played by immigrants' culture in determining the impact of immigration. We do this by examining how refugee inflows distinctly affected the culturally proximate diaspora of existing immigrants. Our results suggest that, given their cultural proximity to arriving refugees, TMENA immigrants perceived the ERC's social impact differently than other immigrant groups (and German natives).

TMENA immigrants have a long history of residence in Germany. Especially, the Turkish immigrants,

[1]For a review of the existing literature on the economic impact of immigration, please *see* Kerr and Kerr (2011).

[2]The major strands of economics literature on immigration can be classified on the basis of the outcomes investigated, e.g., labor market outcomes (Borjas, 2017; Card, 1990; Ceritoglu et al., 2017; Jaeger et al., 2018; Peri and Yasenov, 2019; Tumen, 2016; Fallah et al., 2019; Brenke et al., 2009), crime rate (Bell et al., 2013; Bianchi et al., 2012; Butcher and Piehl, 1998; Dehos, 2017; Huang and Kvasnicka, 2019; Mastrobuoni and Pinotti, 2011; Spenkuch, 2014), housing market (Kürschner Rauck and Kvasnicka, 2018; Tumen, 2016), education (Brunello and Rocco, 2013; Brunello et al., 2017; Hunt, 2017), health (Escarce and Rocco, 2018), and political outcomes (Harmon, 2018; Brunner and Kuhn, 2018; Sola, 2018).

[3]We interchangeably refer to the treatment of the 2015 European refugee crisis as *ERC* or *refugee crisis*.

[4]More recently, Malaeb and Wahba (2018) study the economic impact of the influx of Syrian refugees to Jordan on *all* economic immigrants in Jordan. Their post-treatment sample period, however, consists of the year 2016. We show later that the economic effects of the refugee inflows can be time-varying, ambiguous and need careful consideration.

[5]Please refer to the seminal debate on the impact of immigration, e.g., *see* Borjas (2017) and Card (1990).

one of the largest diasporas of immigrants in Germany, first arrived as a part of the *Gastarbeiter* program. The program allowed, among many other countries, immigrants from other TMENA countries such as Morocco and Tunisia, though in relatively lower numbers. Since their arrival, other immigrant groups have smoothly integrated into the German society, but the socio-economic assimilation of Islamic immigrants, especially of Turkish immigrants, has been a major concern widely shared among policy-makers and researchers alike (Constant et al., 2006; Constant et al., 2012). For example, Constant et al. (2012, p.79) show that Turkish immigrants report the lowest levels of education in Germany. Additionally, their cultural integration levels are also among the lowest, denoted by lower inter-ethnic marriage rates (Constant et al., 2012, p.86) and higher fertility rates (Constant et al., 2012, p.94). An emerging literature is devoted to unearthing the determinants of their lower assimilation levels (Deole, 2019; Steinhardt, 2018). This paper aims to contribute to this literature by introducing a novel determinant of immigrants' socio-economic assimilation in the host environment, i.e., further immigration.

In the year 2015, around 890,000 asylum seekers entered Germany, a crisis referred to as the European refugee crisis (BAMF, 2016b). As these inflows are largely exogenous, the ERC provides us with a quasi-experimental setting. Using German Socio-Economic Panel data (SOEP, version 34), we implement difference-in-differences regressions to estimate the average differences in treatment effects of the ERC on TMENA immigrants and non-TMENA immigrants in Germany. To construct our experimental groups, we refer to the literature that underlines the crucial role the respondent's ethnic identity plays in determining her socio-economic behavior (Charness et al., 2007; Constant and Zimmermann, 2008; Battu and Zenou, 2010; Hatton and Leigh, 2011; Angelini et al. 2015; Bisin et al., 2016). The baseline sample is restricted to respondents with migrant background only, i.e., first-generation and second-generation immigrants in Germany.[6] Individuals originating from TMENA countries are the treated group, whereas non-TMENA immigrants are the control group observations.

Our empirical strategy hinges on the following two justifications. First, we provide supporting argument that the arriving Middle-Eastern refugees, predominantly originating from Syria and Iraq, are culturally proximate to TMENA immigrants than non-TMENA immigrants (and German natives). Besides being TMENA countries, Syria and Iraq share geographical borders and historical connections with many countries, especially Turkey. Most notably, the centuries-long rule of the *Ottoman Empire* spread across the Middle-East, which included modern-day Turkey, Syria, and Iraq. Moreover, Islam, as the predominant religion, is another common feature of TMENA countries. Finally, we refer to the headline measure of the

[6] In subsection 4.3, we consider German natives as another control group to verify our main findings.

country's culture frequently used in the economics literature, i.e., Hofstede's individualism index (Hofstede, 2001).[7] It ranks countries on a scale ranging from collectivist (0) to individualistic (100) countries. This measure for a selected few countries is as follows: Syria (35), Turkey (37), Iraq (30), Germany (67), Poland (60), Czech Republic (58), and Italy (76). These numbers suggest that TMENA and non-TMENA countries show significant differences in the individualism measure.

Second, we justify whether the ERC can indeed have differential socio-economic effects on TMENA immigrants. Regarding the economic effects, we expect the following two opposing effects. First, we expect that the sudden arrival of more than half a million Middle-Eastern asylum seekers to Germany may impose an immediate demand shock on the economy. However, asylum seekers' consumption of culturally similar goods and services (e.g., ethnic grocery stores, restaurants serving *halal* food, demand for translators, and other help for refugees) may impose a differential demand effect for TMENA immigrants, positively affecting their labor market outcomes. Second, differential labor supply effects associated with refugees' labor market integration can be studied. In doing so, we note that the labor market entry of refugees was incremental and delayed, primarily due to the time-consuming yet necessary completion of asylum procedures, language courses, and professional training. Following D'Amuri et al. (2010), we assume a higher degree of substitution between these groups in the labor market, resulting in increased competition for jobs for existing TMENA immigrants.[8] In response, we expect that the positive employment effects observed earlier by TMENA immigrants dissipate depending on the level increases in refugees' delayed labor market integration. Next, we discuss the social impact of the ERC. Due to TMENA immigrants' cultural proximity with new immigrants, the social impact of the ERC, measured in respondent's self-reported worries about immigration and crime development in their surroundings, is expected to be less pronounced among TMENA immigrants. We also investigate the ERC's impact on the respondent's social assimilation outcome, i.e., self-identification as German.

Our main findings for the ERC's economic impact are as follows. We detected a substantial reduction in TMENA immigrants' unemployment in 2015, which we interpret to be consistent with the differential demand shock explanation. However, we found that the reduction in unemployment dissipated starting in 2016, coinciding with refugees' delayed yet incremental labor market integration. Our analysis does not yield any results for TMENA immigrants' hourly wages. Concerning the ERC's social impact, in line with

[7] Gorodnichenko and Roland (2017) show that countries that fair higher on this indicator have a more individualistic culture, which leads to more innovation and higher growth, highlighting the role of the country's culture in its economic performance.

[8] Brenke et al. (2010) investigate the impact of EU's Eastern enlargement on German labor market and provide supporting evidence for this assumption. They descriptively show that the newly arrived immigrants from Eastern Europe were less educated compared to existing immigrant groups and more likely to compete for jobs with especially non-EU immigrants than with EU-citizens and German natives.

Brunner and Kuhn (2018) and Sola (2018), we report significant increases in social worries among both existing TMENA and non-TMENA immigrants in Germany. However, due to their cultural proximity to arriving refugees, we show that TMENA immigrants reported significantly smaller increases in their worries than non-TMENA immigrants. Finally, we report that the ERC did not reinforce the belief of German identity among TMENA immigrants. We corroborate our key findings by reporting that the socio-economic effects found earlier were stronger in states with more substantial increases in the ratio of Middle-Eastern refugees over German population.

2 Background and theoretical underpinnings

2.1 Background: 2015 European refugee crisis

Coinciding with Chancellor Angela Merkel's announcement about suspending the Dublin Regulation on the 25th August 2015, Germany stopped sending Syrian asylum seekers to their entry port in the EU and started accepting Syrian refugees (Deutsche Welle, 2015).[9] The announcement is widely referred to as the Open Border Policy (OBP). Several days later, on 4th September 2015, Germany opened its borders to refugees who had been stuck in Budapest train station for days (Blume et al., 2016). Another announcement was made to ensure that there is no upper limit on the number of asylum seekers that Germany should receive (Bröcker and Quadbeck, 2015). Consequently, by the end of the year 2015, around 890,000 asylum seekers entered Germany (BAMF, 2016b; BMI, 2016).

Figure 1 plots the monthly inflows of asylum seekers and asylum applications in Germany. We make the following two observations. First, the monthly inflows of asylum seekers remained rather steady until 2015 before suddenly and dramatically jumping around the middle of 2015. Second, the monthly numbers of asylum applications did not observe a proportional jump in 2015, but that most applications were filed in 2016.[10] We will exploit these two observations in our identification strategy as elaborated in the subsequent subsection.

It is noteworthy that not all asylum seekers originated from Syria. For example, many originated

[9]The Dublin Regulation determines which European country is responsible for examining asylum applications, submitted by persons seeking international protection (BAMF, 2016b).

[10]BAMF (2019) also report that the number of first-time asylum applications increased substantially in 2016 before dropping again in 2017: 441,899 (2015), 722,370 (2016), 198,317 (2017).

from Iraq and Afghanistan, the other war-torn countries from the region.[11,12,13,14] In Table 1, we extract information on the recently arrived refugees from the SOEP data and make the following observations. First, we see that the refugee inflows indeed increased in 2015 as many refugees report 2015 as their year of immigration to Germany. Second, out of the 9,921 refugees interviewed, a sizeable majority indeed originated from Middle-Eastern countries (5,137 from Syria and 1,299 from Iraq), constituting two-third of the total accepted refugees in Germany.

Upon arrival, asylum seekers were required to report to several dedicated state organizations. Afterward, they were distributed to different states following the "Königstein Key" (*"Königsteiner Schlüssel"*) criteria. This administrative regulation took into account the state's tax revenue and the number of inhabitants in determining the suitable and fair share of asylum seekers that each federal state should receive (BAMF, 2016c). Consequently, the criteria governed the spatial distribution of asylum seekers to all federal states in Germany, limiting refugees' preference of mobility by foot, especially their mobility between federal states. Asylum applicants received then a residence permit for three years (*§§25(1) or (2), 26 Aufenthaltsgesetz*) if they were entitled to asylum (*Art. 16a(1) Grundgesetz*) or granted refugee status (§3(1) Asylgesetz).[15] The residence permit was necessary for their entry into the German labor market.

Next, we ask how substantial the relative increase in the number of Middle-Eastern asylum seekers to existing TMENA immigrants was? To show this, in Figure 2, we plot the ratio of Middle-Eastern asylum seekers to the existing TMENA immigrant population in 11 West-German states. Central for the empirical set-up is that this ratio (share) was *almost* unchanged until the year 2014 before dramatically increasing in the year 2015. In many states, the share increased substantially from near-zero to as high as 48%. We also observe that there is a substantial variation across states, primarily due to the varying concentrations of existing TMENA immigrants. In words, the share represents the intensity with which the refugee crisis impacted the TMENA population in different states.

[11] BAMF (2019) reports that, in the year 2015, the net migration gain (calculated by subtracting the number of emigrants to these countries from the number of immigrants from these countries in a given year) for Germany from Syria (316,732), Iraq (67,345) and Afghanistan (89,931) amounted to a total of 474,008 asylum seekers. This number dropped in years 2016 (Total=282,151; Syria=153,239; Iraq=61,409; Afghanistan=67,503) and 2017 (Total=76,942; Syria=49,123; Iraq=20,800; Afghanistan=7,019). A vast majority of these immigrants were asylum seekers.

[12] Citizens of Eritrea were also allowed to seek asylum in the EU officially.

[13] In Figure A-1 and A-2 in the online appendix, we show that the Middle-Eastern refugees or asylum seekers constituted the majority among all newly arrived.

[14] For baseline results, we assume Afghanistan as a TMENA country. This assumption, however, is not crucial for the main results due to the small number of existing immigrants from Afghanistan (12 observations).

[15] *See* Huang and Kvasnicka (2019) for more information.

2.2 Theoretical underpinnings

Now, we discuss our hypotheses on the ERC's socio-economic impact and underline the theoretical underpinnings of our expected results.[16]

Economic effects

We begin by discussing the ERC's differential impact on TMENA immigrants' economic outcomes, i.e., their labor market outcomes. One way to conceptualize ERC's economic impact is to consider its impact on the labor demand side of the economy. Upon arrival, asylum seekers were granted cash allowances to cover monthly expenses, while rent and health insurance were covered by the state (Hauser, 2018). Their consumption decisions may generate additional demand benefiting the economy overall. However, their preference for culturally similar consumer products and services can fuel excess demand for the businesses owned by existing TMENA immigrants (grocery stores, *halal* restaurants, translation-related, and other help for refugees). This additional demand can differentially affect TMENA immigrants' employment outcomes resulting in increased hiring and reduced unemployment rates.[17] The demand shock should show up immediately upon asylum seekers' arrival in the country.

Middle-Eastern refugees' entry into the German labor market should be the other consideration to conceptualize the differential economic effects of the crisis on TMENA immigrants. As Table 1 notes, the incoming Middle-Eastern refugees are relatively low-educated (approx. 10 education years), a category previously occupied by existing TMENA immigrants (Constant et al., 2012, p.79). Their lower educational qualifications have been discussed as concerns for their labor market integration (Brücker, 2018). However, as the table shows, older cohorts of refugees are increasingly finding jobs in Germany. That is, we see that refugees, who arrived before the year 2015, report their labor force status as "working" than those who arrived later. As we assume a higher degree of substitution between these two groups in the labor market, refugees' labor market integration increases the competition for jobs for the existing TMENA immigrants and negatively impacts their labor market outcomes, such as their employment prospects and hourly

[16] Independent of its socio-economic impact, the ERC may have had a causal implication for the TMENA immigrants' subjective well-being. Alternatively, the effects on well-being can be assumed to be an additive function of the economic and social effects of the ERC. In Table A-1 in the online appendix, we show results for the effects of ERC on individuals' well-being, measured by their satisfaction with life and health.

[17] For example, Olney (2013) finds that low-skilled immigration is positively associated with local number of establishments due to immigrant-induced increase in consumption. Please also *see*: Bettin et al. (2019); Jahn and Steinhardt (2018). Our hypothesis entails that the newly created firms improve employment prospects for culturally proximate immigrants, i.e., existing TMENA immigrants.

wages.[18]

Unlike the demand-side effects, the labor supply effects, however, were not immediate and were delayed due to the following reasons. First, asylum seekers' entry into the labor market was conditional on their acquisition of the *refugee status*.[19] However, as noted in subsection 2.1, most refugees submitted their asylum application with a slight delay (in 2016). Moreover, in its entirety, the application process was time-consuming. It could take anywhere between a few months to a year to obtain the refugee status. For example, Figure 3 plots the state-level number of Middle-Eastern refugees (recognized asylum seekers).[20] It clearly shows that the refugee population begins to increase in 2016 onward, i.e., one year after the recorded increases in asylum inflows. Second, refugees were required to be proficient in the native language before being seriously considered for formal jobs. A typical language course can take at least a few months to achieve a certain level of proficiency that prepares them for work.[21] Finally, the skills of the refugees were not flexibly tradeable in the host labor market (Brücker, 2018). In many cases, refugees went through further education and training to be accommodated in the labor market. As Table 1 shows, around 4% of all refugees underwent further education or professional training. Nevertheless, from the table, it is evident that an increasing number of refugees are finding jobs in Germany (Brücker, 2018; Zeit Online, 2018).[22]

Given various linguistic and skill-related impediments faced by refugees in finding jobs, many might have tried their luck in business and self-employment. For example, Bettin et al. (2019) highlight a positive association between the population share of low-skilled immigrants and the creation of firms that typically require small start-up capital. Therefore, additionally, we investigate whether the ERC affected TMENA immigrants' self-employment prospects.

Social effects

Various social outcomes can be affected in the aftermath of the ERC. The existing literature can direct us towards some of these channels. First and foremost, the extensive news coverage that the ERC received

[18] Along with the impact of the ERC on the extensive margin of labor supply and hourly wages of the existing TMENA immigrants, our analysis also considers the impact on the intensive margin (measured in terms of weekly hours worked). The estimates are presented in Table A-1 in the online appendix.

[19] Once accepted, the recognized refugees were granted a residence permit with permission to work in Germany. They could enjoy social benefits and were likely to enter the local labor market. Upon entry, they can apply for social benefits, such as basic insurance for job hunters (Sozialgesetzbuch II). "Jobangeboten für Zugewanderte" provided by the Federal Employment Agency helps and supports refugees to search for a job. For more information, please see: https://www.arbeitsagentur.de/unternehmen/arbeitskraefte/gefluechtete-beschaeftigen.

[20] Figure A-3 in the online appendix plots the evolution of the number of asylum seekers separately from Syria, Iraq, and Afghanistan. The figures show that Syrian asylum seekers indeed form the largest group among the Middle-Eastern countries.

[21] The integration course for new immigrants consists of a 600-hour language course and a 100-hour orientation course. Half of the language course provides basic knowledge, and the subsequent half represents follow-on language knowledge (BAMF, 2016a).

[22] *See* newspaper coverage on the topic for supporting anecdotal evidence (Britzelmeier, 2016; FNP, 2018; Maruhn, 2016; Woldin, 2017).

underlined the country's struggle in dealing with the massive and sudden inflows of asylum seekers and highlighted immigration as a policy issue (Hatton, 2017; Holmes and Castañeda, 2016). Most existing literature studies the attitudes of German citizens and shows that in the aftermath of the ERC, they reported increased concerns towards immigration policy (Brunner and Kuhn, 2018; Gehrsitz and Ungerer, 2018; Sola, 2018).[23] In this paper, we study the immigrant respondents' worries about further immigration to Germany and expect that these worries increased among TMENA and non-TMENA respondents after the ERC. However, due to their cultural proximity to the newly arrived refugees, we expect that TMENA immigrants were less worried about the ERC's social impact and reported relatively smaller increase in worries about immigration.

Second, in opposition to Angela Merkel's OBP announcement, non-violent protests were held all across Germany. Many violent incidents were also recorded in the vicinity of the refugee centers (Entorf and Lange, 2019; Benček and Strasheim, 2016). For example, Benček and Strasheim provide a georeferenced event dataset on anti-refugee violence and social unrest in Germany in 2014 and 2015. They show that the country observed 443 demonstrations, 195 assault, 157 arson attacks, and 763 miscellaneous attacks. Emerging literature shows that targeted violent events can be detrimental to the targeted minority's various social outcomes (Gould and Klor, 2016; Haddad, 2007; Elsayed and de Grip, 2018; Deole, 2019). Consequently, we consider the impact of the ERC on respondent's worries about crime development in Germany and their belief of German identity. The existing literature finds a (moderate) positive or no effect of immigration on crime in the host country (Bell et al., 2013; Bianchi et al., 2012; Butcher and Piehl, 1998; Dehos, 2017; Huang and Kvasnicka, 2019; Mastrobuoni and Pinotti, 2011; Spenkuch, 2014). Regardless, in public understanding, massive inflows of immigrants are generally feared to exacerbate crime rates. Therefore, we expect that worries about crime development in Germany should increase among all respondents after the ERC. However, we expect the increase in worries about crime to be lower among TMENA immigrants due to their cultural familiarity with the arriving asylum seekers.[24] Finally, seeing the stories of unconditional support shown to the refugees may re-enforce the belief of German identity among existing TMENA immigrants. However, xenophobic violent events are shown to reduce such belief

[23] An exception includes Braakmann et al. (2017). The authors use UK Citizenship Survey data (2007-2010) to study the immigrant respondents' worries about further immigration.

[24] The social media coverage of anti-refugee sentiments and hate speech is also worth considering. Müller and Schwarz (2019) argue that the social media arm of the far-right party *Alternative für Deutschland (AfD)* successfully generated and exploited anti-refugee sentiments on Facebook in Germany. AfD's social media outreach was broad, with the largest Facebook presence than any other political party in Germany. The authors show that the social media depiction of anti-refugee sentiments and online hate speech had real-life implications; that is, it propagated hate crimes. Therefore, additionally, we study ERC's impact on the respondent's worries towards xenophobic hostility in their surrounding and find similar patterns of results (*see* Table A-1 in the online appendix).

(Deole, 2019). Therefore, we also test whether TMENA immigrants changed their self-identification as Germans in the aftermath of the ERC.

3 Data and empirical strategy

We use the German Socio-Economic Panel (SOEP, version 34, longitudinal data for years 1984-2017), a wide-ranging representative longitudinal dataset of private households in Germany (Goebel et al., 2019). The SOEP provides extensive information on respondents' demographic, economic and migration-related characteristics. For our study, we construct several measures of respondents' labor market performance, social worries and social assimilation.

The following data restrictions are employed. Following Chabé-Ferret (2015), we keep the difference-in-differences (DiD) symmetric around the treatment date by restricting the sample period to 2013-2017, i.e., two years before and two years after the proximate treatment year of 2015.[25] For the baseline results, we focus mainly on the respondents with migrant background *only* (i.e., first- and second-generation immigrants).[26] To exclude immigrants who entered Germany in response to the increasingly devastating Syrian civil war, we restrict the sample to immigrants who arrived in Germany before the year 2012. The sample is further restricted to non-refugee migrants to make it more homogeneous in terms of their reasons for immigration to Germany. Due to the lower number of existing TMENA immigrants in East Germany, we restrict the analysis to respondents from West Germany (11 federal states). Our focus on labor market outcomes requires us to further restrict the sample to the working-age population (age 18-65). This sample restriction also applies to social outcomes. For the investigation of economic outcomes, we consider respondents active on the labor market, i.e., respondents with labor force status as "working" and respondents registered as "unemployed" with the Employment Office. Consequently, the sample for the analysis of economic outcomes contains information on 1195 TMENA and 5904 non-TMENA individuals.

3.1 Data and variables

Treated and control group

We construct our treated and control groups using the information on the respondents' migration background. Existing immigrants originating from the TMENA region are defined as the treated group.

[25] Chabé-Ferret (2015) shows that the symmetric DiD is consistent in both cases when the selection bias is symmetric and asymmetric around the treatment date.

[26] Subsection 4.3 re-estimates the model after including natives to the sample and shows that this sample restriction is not essential for the robustness of the main results.

The SOEP respondents report originating from the following TMENA countries: Turkey, Iran, Syria, Afghanistan, Tunisia, Iraq, Morocco, Lebanon, Algeria, Egypt, Somalia, Jordan, Libya, Kurdistan, Yemen, and Palestine. Thus, we create a dummy variable, $Treat$, that takes the value of 1 if the respondent or one of her parents was born in TMENA countries, and 0 otherwise. The choice of a proper control group is crucial for our analysis. For baseline results, we define all the non-TMENA immigrants in Germany as the control group, which includes immigrants from countries in Central and Eastern Europe, Western Europe, America, Asia, and Africa. In the next subsection, we extensively discuss the robustness of our control group.

Outcome measures

Table 2 defines the outcome measures used for the analysis. We study the following two sets of outcomes: (1) economic outcomes, especially labor market performance variables; and (2) social outcomes, including social worries and social assimilation. The labor market performance variables constitute a total of three outcomes, i.e., unemployment status ($unemp$), hourly wages in logarithm ($lwage$) and self-employment status ($selfemp$). $unemp$ is a dummy variable that equals 1 if the respondent is unemployed and 0 otherwise. $lwage$, a continuous variable, represents the employed individual's hourly wage.[27] The variable $selfemp$ takes the value of 1 if the respondent is self-employed and 0 otherwise. Table 3 presents the pre-treatment means of the outcome variables as a comparison between the treated and control groups. We note that TMENA immigrants report higher unemployment rates at 20% than non-TMENA immigrants (13.1%). The remaining two economic outcomes, however, are highly comparable between the two groups.

For social outcomes, we consider the respondent's following two social worries (scaled from 1 - *not worried* to 3 - *very much worried*): (1) worries about further immigration and (2) worries about crime development in Germany. These outcomes are recorded annually and are defined as shown in Table 2. The descriptive statistics presented in Table 3 suggest that TMENA immigrants, on average, report slightly higher social worries than non-TMENA immigrants. We also consider a social assimilation outcome "feel German" ($fGerman$), which ranges between 1 - *not at all* to 5 - *completely*. This variable is included in the SOEP questionnaire in 2013, 2014, and 2016. Also, understandably so, only immigrant respondents are asked this question, and German natives are not. Table 3 shows that TMENA immigrants are less likely to self-identify themselves as German than non-TMENA immigrants.

[27] Hourly wage is calculated as (gross monthly labor income × 12)/(actual weekly work time × 52).

Other covariates

The ERC is an exogenous event for existing TMENA and non-TMENA immigrants. However, the structure of the existing TMENA and non-TMENA immigrants, e.g., age, marital status, and education, could be differently correlated with the structure of newly arrived refugees. These individual characteristics can also have some effect on the outcomes of interest. Therefore, we use these characteristics as control variables. To do this, we consider essential demographic characteristics of the respondents, such as their age, marital status (single, married or divorced), legally handicapped (yes / no), spatial category (living in the urban or rural region), and the federal state of residence. The SOEP also provides information on immigrant's year of immigration to Germany. Using this information, we construct indicators representing immigrants' residence term in Germany. Immigrants who have resided in Germany for five or fewer years are defined as short-stay immigrants. Similarly, we define the immigrants with the residence of 6 to 20 years as medium stay and longer than 20 years as long-stay immigrants. All second-generation immigrants belong to the latter group. We also control for whether the respondent is the house-owner and whether the respondent is the household head. Host country's language skill is of great importance for immigrants' welfare in the host environment (Angelini et al., 2015). Therefore, we employ two dummy variables, indicating whether the respondent can speak and write German well. We also control for individuals' years of education and working experience.

3.2 Empirical strategy

To estimate the causal effect of the ERC on existing immigrants, we implement the difference-in-differences (DiD) strategy. We estimate the following regression equation:

$$Y_{ist} = \alpha + \sum_{t=2014}^{2017} \beta \; Year_t + \sum_{t=2014}^{2017} \gamma \; Treat_i \times Year_t + \boldsymbol{X_{it}'}\boldsymbol{\tau} + \lambda_i + \lambda_s + u_{ist}, \tag{1}$$

where Y_{ist} is the outcome variable of individual i who resided in state s and responded in year t. The dummy variable $Treat_i$ takes the value 1 if the respondent belongs to the treated group (TMENA immigrants) and 0 otherwise. $\sum_{t=2014}^{2017} Year_t$ is a set of year dummy variables. The treatment effect is captured by the coefficient on the interaction term between $Treat_i$ and $Year_t$ for the year 2015 onward. $\boldsymbol{X_{it}}$ is a vector of individual-level characteristics, which can have effects on the outcome variable and are potentially correlated with the treated status of individuals. These include age and its quadratic and cubic terms, marital status (dummy variables for married and divorced), legally handicapped, living in the urban region, the residence time in Germany (dummy variables for medium and long stay), ownership of

housing flat, household head, German language skill (dummy variables for a good level of oral and written language), years of education and working experience with their quadratic terms respectively.[28] λ_s, a set of state dummies, controls for state-level differences in time-invariant (un-)observable factors influencing the outcomes. λ_i controls for individual fixed effects, i.e., level differences in outcomes between respondents caused by individual-specific time-invariant factors. u_{ist} is the error term.

Section 4.1 begins with the discussion of the common trend assumption (CTA), an essential identifying assumption of the DiD estimation, which suggests that both treated and control groups should follow the same trend in the absence of treatment. A crucial concern that needs separate consideration is whether the control group was unaffected by the ERC. When the control group is affected in the same direction as the treatment group, we can interpret our estimates to be downward biased. However, if the direction of the ERC's impact on the control group is unclear, we suggest that the estimated effects should be interpreted simply as average differences in treatment effects, i.e., differential treatment effects, between TMENA and non-TMENA immigrants.

Now, we mention two main concerns for our identification, which we address in section 4. First, DiD estimation assumes that there are no other shocks to the treated group during the treatment period. However, some Islamist terror events occurred in major European cities shortly around the OBP announcement, e.g., 13 November 2015 Paris attacks, 22 March 2016 Brussels Bombings, 19 December 2016 Berlin truck attack. Research suggests that Islamist terror events can exacerbate the labor market discrimination against existing Islamic immigrants (broadly speaking TMENA immigrants) in the West and adversely affect their labor market outcomes (Dávila and Mora, 2005; Cornelissen and Jirjahn, 2012). In subsection 4.2, we address this concern by assuming that the impact due to confounding events, such as Islamist terror attacks, is uniform across states and by re-estimating the treatment effects associated with the refugee crisis by considering a continuous measure of the treatment. We exploit variations in the treatment across states and time by using the state-level ratio of Middle-Eastern refugees over German population as our new treatment measure. We assume that other events affect all residents in Germany identically and are accounted for by year fixed effects, and identify the impact of refugee scales on outcomes.[29]

Next, we address the concern regarding the ethnic composition of our experimental groups. While the treated group consists of culturally proximate immigrants from a relatively homogeneous ethnic background

[28] Note that the year fixed effects account for linear age effects and therefore, the linear age term is dropped from the estimation.

[29] A concern may arise that the state-level population share of Middle-Eastern refugees is endogenous. To address this concern, we assume that the (un)observable factors that could influence both refugee distribution and outcome variables are time-invariant and can be controlled for by state fixed effects. Additionally, we employ the ratio of Middle-Eastern asylum seekers over German population as a new treatment measure to mitigate the endogeneity issue.

(TMENA immigrants), the baseline control group comprises of immigrants of diverse ethnic backgrounds (West-European immigrants, Central and East-European immigrants and other immigrants).[30] This characteristic of our baseline setup can be particularly problematic in the case if there exist other shocks that vary by the respondent's ethnicity or by unobserved characteristics correlated with ethnicity. To address this concern, in subsection 4.3, we re-estimate the baseline model by using a relatively ethnically homogeneous control group, i.e., German natives (and Central and East European immigrants), and verify our main findings.

4 Results

4.1 Main results

This section discusses the CTA and provides supportive evidence that the ERC indeed induced changes in outcomes. Our baseline results are presented in Table 4. While columns (1)-(3) report the results for the ERC's economic impact, columns (4)-(6) present the estimates of its social impact. We make the following three observations. First, we find no significant differences in outcomes between the years 2013 and 2014, indicating that our treated and control groups follow the same trend in the pre-treatment period, supporting evidence of the CTA.[31] Second, we observe the effects associated with the treatment year of 2015 for many outcomes. Column (1) reports that TMENA immigrants observed a reduction in their unemployment in 2015. In columns (2)-(3), we find that the respondent's hourly wages and self-employment probability were not affected. In columns (4)-(5), we present the estimates for respondent's social worries. Main results suggest that TMENA immigrants reported statistically significant lower increases in their social worries about immigration policy than non-TMENA immigrants.[32]

Third, we verify whether the ERC's impact persisted as years passed by (2016 onward). Column (1) first reports that the unemployment effects observed in 2015 dissipated starting in 2016. Second, the results in column (3) report a sizeable reduction in the self-employment prospects for TMENA immigrants in 2016 onward. We interpret both these findings to be consistent with the Middle-Eastern refugees' incremental and delayed entry into the German labor market. Concerning the social impact, we find

[30]Immigrants originating from Turkey form the dominant group among the TMENA group. We separately estimate the ERC' impact on Turkish immigrants in Table A-3 in the online appendix and report that the results are qualitatively similar to the baseline results. Due to the smaller sample size of MENA immigrants, the results separately estimated for MENA immigrants lack precision and are not very informative.

[31]Table A-4 in the online appendix tests the CTA after extending the pre-treatment sample period to include years until 2011. Most specifications find supporting evidence of the CTA and attest to the robustness of the main results.

[32]Table A-2 in the online appendix shows the coefficient on all year dummies for our baseline estimates. It is clear that both treated and control groups report higher worries in the crisis year compared to the base year.

that, compared to non-TMENA immigrants, the smaller increases in TMENA immigrants' social worries found earlier strengthened in the year 2016. The relative reduction in TMENA respondents' worries about immigration remained statistically significant in 2017 as well, whereas, worries about crime lost their statistical significance. Finally, we investigate the ERC's impact on the respondent's social assimilation outcome. Column (8) finds that TMENA immigrants' self-identification as German was not affected by the refugee crisis.

4.2 Treatment Intensity

So far, we identified the treatment effect identical to all German federal states. As noted in Section 3.2, confounding events in the treatment period could bias our results. To mitigate this concern, we assume that the impact of confounding events is uniform across the country and exploit the geographical variation in the actual increases in the refugees' share in the German population. In doing so, we use a continuous measure of the treatment intensity in the form of the state-level ratio of Middle-Eastern refugees over German population.[33,34] This exercise helps us to reflect on whether the estimated effect of ERC is associated with *actual* increase in population shares of refugees.

We make these results comparable to the baseline estimates by quantifying the labor demand and labor supply effects associated with the ERC separately. For example, in Panel (A) of Table 5, we restrict the sample to the survey years 2013 and 2015 and estimate the unemployment effects associated with the immediate labor demand effects. Additionally, in Panel (B), we restrict the sample to the survey years 2013 and 2016 and estimate the unemployment effects associated with refugees' delayed labor market integration. A broad reading of the results presented in Panel (A) and (B) suggests that we obtain qualitatively similar results to our baseline estimates.

Column (1) in panel (A) shows that TMENA immigrants observed a statistically significant reduction in their unemployment in the year 2015 in states with more substantial increases in the ratio of Middle-Eastern refugees over German population. In terms of magnitude, one standard deviation increase in the population share of Middle-Eastern refugees, which is equivalent to an increase of 0.1 percentage points (0.001 points), results in a lower unemployment rate for TMENA immigrants by 0.02 points, which is about

[33] In all observed years, there is a positive number of Middle-Eastern refugees, but the substantial variation in the ratio over German population across time arises due to the ERC. *See* Figure A-4 in the online appendix.

[34] Following Malaeb and Wahba (2018), we also calculate the state-level "excess" stock of MENA refugees/asylum seekers between 2013 and 2015 as well as between 2013 and 2016 and standardize them by the German population in 2013. This variable is set to 0 for the year 2013. This strategy also avoids the bias due to the change in natives' behavior post-ERC. That is, facing the mass inflow of refugees, natives may move to other counties. The results are shown in Table A-6 in the online appendix. We confirm that the results share qualitative similarity with the results presented here.

10% of the pre-treatment mean of the treated (*see* Table 3). The results presented in column (1) of Panel (B) provide supporting evidence to our earlier findings that the reduction in unemployment observed in 2015 dissipated by 2016. Additionally, the results of column (3) in Panel (B) find that a similar increase in the ratio of Middle-Eastern refugees (by 0.001 points) leads to a lower self-employment possibility for TMENA immigrants by 0.0035, which is about 5.1% of the pre-treatment means of the treated.

The results of column (4) of Panel (A) suggest that the increase in the ratio of Middle-Eastern refugees decreases TMENA immigrants' worry about immigration statistically significantly. In terms of magnitude, for the increase in the ratio of Middle-Eastern refugees by 0.001 points, TMENA's worry about immigration is 0.085 smaller than non-TMENA, and the difference is about 4.2% of the pre-treatment mean for the treated. Columns (4)-(5) of the panel (B) further show that compared to non-TMENA immigrants, the increase in Middle-Eastern refugees between 2013 and 2016 has a negative effect on TMENA's worries about immigration and crime development. As the share of Middle-Eastern refugees rises by 0.001, TMENA immigrants' worry is smaller than non-TMENA by 0.047 about immigration and 0.027 about crime, that is equivalent to around 2.3% and 1.2% of the pre-treatment means for TMENA immigrants, respectively. Since the variation in the share of refugees is at the state level, we further verify our results after clustering the standard errors at the state level. Due to the small number of clusters (only eleven states), we employ wild bootstrap tests. The results are qualitatively similar to the ones presented above (*see* Table A-5 in the online appendix).

Since the distribution of refugees across states may be correlated with some time-variant (un)observable factors (e.g., local difficulties in entering employment or anti-immigrant crimes), it is possible that the use of refugees may lead to an endogeneity problem and can bias the estimates. Therefore, in Panel (C) and (D) of Table 5, we consider the ratio of Middle-Eastern asylum seekers over German population as the new treatment measure.[35] Note that the term asylum seekers also includes those who are still in the asylum application procedure and randomly assigned to the 16 federal states following the Königstein Key. State fixed effects control for the possibility that some states always have more or less asylum seekers than the others. The use of asylum seeker numbers and state fixed effects can mitigate the endogeneity problem. The results are broadly in line with the ones reported above.

[35] Figure A-5 in the online appendix presents the state-level ratio of Middle-Eastern asylum seekers over German population across years.

4.3 Robustness checks

4.3.1 Alternative definitions of experimental groups

First, we test the robustness of our main results by considering German natives as another control group. As noted in subsection 3.2, this method helps us to avoid the potential bias induced by ethnicity-specific shocks that may occur in home countries of non-TMENA immigrants. The results are presented in panel (A) of Table B-1 in the online appendix. Similar to baseline results, TMENA immigrants show lower self-employment chances in 2016 and less social worries than natives. To show that TMENA immigrants were distinctly impacted by the ERC, in panel (B) of Table B-1, we consider non-TMENA immigrants, our baseline control group, as the new treated group. As is evident, there are no significant differences in unemployment status between Germans and non-TMENA immigrants. Also, we find that non-TMENA immigrants even reported relatively more social worries than Germans. In summary, the results of the specifications presented in panels (A) and (B) corroborate our findings that the ERC differently impacted TMENA and non-TMENA immigrants in Germany.

Second, we separately estimate equation (1) by dividing the baseline control group into observations belonging to major ethnicities residing in Germany, i.e., Central and East-European immigrants, West-European immigrants, and other immigrants. Table B-2 in the online appendix shows the results when Central and East-European (CEE) immigrants (Panel A), West-European and non-CEE immigrants (Panel B) and other immigrants (Panel C) are used separately as three distinct control groups. The results presented in the table provide a broadly supporting evidence to our baseline findings.

4.3.2 Alternative treatment definitions

Next, we qualify our main findings with consideration to alternative treatment definitions. In equation (1), the effect associated with the survey year 2015 is considered to be the baseline treatment effect of interest. This treatment definition is rather vague as the inflow of asylum seekers peaked around the second half of the year 2015. In this subsection, we divide the sample for the year 2015 into the pre-treatment and post-treatment period and re-verify the baseline results. We do this by using two alternative treatment definitions. First, we divide the 2015 sample based on the date of the OBP announcement and estimate the treatment effect associated with the OBP announcement. Table B-3 presents the results. The generation of variables and discussion of results are provided in the online appendix.

However, this alternative faces two issues that need clarification. First, as discussed earlier, the refugee inflows increased months before the OBP announcement, i.e., approx. around the first half of 2015. Due

to the uncertainty around the treatment date, the CTA may not hold as the treatment associated with the immigrant inflows partly occurs in the pre-treatment period, i.e., before the OBP announcement. This concern is indeed supported by the results presented in column (1) of Table B-3. Second, the number of SOEP observations recorded after the OBP announcement in the year 2015 is very small. In total, SOEP interviewed only 103 TMENA individuals in the months following the OBP announcement in the year 2015, whereas this number for non-TMENA individuals is 601.[36] The small sample size can affect the precision of the interaction effects of interest. Therefore, we employ an additional treatment definition. That is, we divide the 2015 sample approximately around the middle of the year 2015 to capture the effects associated with the jump in monthly refugee inflows observed in Figure 1. Table B-4 shows the results. The main results of this table attest to the robustness of the main findings of the paper.

5 Conclusion

The socio-economic integration of immigrants continues to be a topic of great importance in the light of increased international migration to western countries. Although vast literature exists on the topic, whether new immigration inflows affect existing immigrants has been rarely analyzed. Using the ERC as a natural experiment that brought a large number of asylum seekers from Middle-Eastern countries to Europe, we study the effects of their arrival on socio-economic outcomes of the culturally proximate diaspora of existing TMENA immigrants in Germany.

With the DiD framework, we first demonstrate an immediate yet transitory reduction in the unemployment of TMENA immigrants. Second, we find that although all residents in Germany showed increased worries about immigration after the ERC, TMENA immigrants reported significantly smaller increases in the worries. Third, TMENA immigrants' assimilation of German identity was not affected by the refugee crisis. The key findings are corroborated with numerous robustness checks.

This paper guides us towards future research that investigates the impact of new immigration flows on existing immigrants. First, a similar experimental set-up can be implemented to study the impact of ERC in other European countries. For example, in Sweden, asylum seekers' inflows reached record highs during the ERC while the country has measurably large diaspora of existing TMENA immigrants. Second, new research can provide us a deeper understanding of the ERC's impact on social integration outcomes that are shown to be essential for immigrants' assimilation and general well-being in the host environment. The ERC's impact on TMENA immigrants' labor market participation, inter-ethnic marriage rates, and

[36] These numbers are obtained from the sample used to study the unemployment status.

networking with friends from other ethnicities can be studied. These measures are available in the existing databases and provide insightful avenues for future research.

References

Angelini, V., Casi, L., & Corazzini, L. (2015). Life satisfaction of immigrants: does cultural assimilation matter? *Journal of Population Economics*, 28(3):817–844.

Battu, H. & Zenou, Y. (2010). Oppositional identities and employment for ethnic minorities: Evidence from England. *The Economic Journal*, 120:F52–F71.

Bell, B., Fasani, F., & Machin, S. (2013). Crime and immigration: Evidence from large immigrant waves. *The Review of Economics and Statistics*, 95(4):1278–1290.

Benček, D. & Strasheim, J. (2016). Refugees welcome? A dataset on anti-refugee violence in Germany. *Research and Politics*, pages 1–11.

Bettin, G., Bianchi, P., Nicolli, F., Ramaciotti, L., & Rizzo, U. (2019). Migration, ethnic concentration and firm entry: evidence from Italian regions. *Regional Studies*, 53(1):55–66.

Bianchi, M., Buonanno, P., & Pinotti, P. (2012). Do immigrants cause crime? *Journal of the European Economic Association*, 10(6):1318–1347.

Bisin, A., Patacchini, E., Verdier, T., & Zenou, Y. (2016). Bend it like beckham: Ethnic identity and integration. *European Economic Review*, 90:146–164.

Blume, G., Brost, M., Hildebrandt, T., Hock, A., Klormann, S., Köckritz, A., Krupa, M., Lau, M., von Randow, G., Thumann, M. T. M., & Wefing, H. (2016). The night Germany lost control. Zeit Online. https://www.zeit.de/serie/mein-fuenfter-september.

Borjas, G. J. (2017). The wage impact of the Marielitos: A reappraisal. *ILR Review*, 70(5):1077–1110.

Braakmann, N., Waqas, M., & Wildman, J. (2017). Are immigrants in favour of immigration? Evidence from England and Wales. *The B.E. Journal of Economic Analysis & Policy*, 17(1).

Britzelmeier, E. (2016). Wie eine syrische Familie die Falafel an den Inn brachte. Süddeutsche Zeitung. https://www.sueddeutsche.de/bayern/oberbayern-wie-eine-syrische-familie-die-falafel-an-den-inn-brachte-1.2778575.

Bröcker, M. & Quadbeck, E. (2015). Interview mit Bundeskanzlerin Angela Merkel "Grundrecht auf Asyl kennt keine Obergrenze". RP Online. https://rp-online.de/politik/deutschland/angela-merkel-das-grundrecht-auf-asyl-kennt-keine-obergrenze_aid-9533771.

Brücker, H. (2018). The flow of migrants to Germany and their integration into the labour market. *IAB-Forum*. Retrieved June 5, 2019, from IAB-FORUM website: https://www.iabforum.de/en/the-flow-of-migrants-to-germany-and-their-integration-into-the-labour-market/.

Brunello, G., Lodigiani, E., & Rocco, L. (2017). Does low skilled immigration cause human capital polarization? Evidence from Italian provinces. IZA Discussion Paper No. 11062.

Brunello, G. & Rocco, L. (2013). The effect of immigration on the school performance of natives: Cross country evidence using pisa test scores. *Economics of Education Review*, 32:234–246.

Brunner, B. & Kuhn, A. (2018). Immigration, cultural distance and natives' attitudes towards immigrants: Evidence from Swiss voting results. *Kyklos*, 71(1):28–58.

Bundesamt für Migration und Flüchtlinge (BAMF) (2016a). Instruction sheet for integration course. Edition: December 2016.

Bundesamt für Migration und Flüchtlinge (BAMF) (2016b). Migrationbericht 2015. Edition: December 2016.

Bundesamt für Migration und Flüchtlinge (BAMF) (2016c). The stages of the German asylum procedure. Edition: October 2016.

Bundesamt für Migration und Flüchtlinge (BAMF) (2019). Migrationsbericht 2016/2017. Edition: January 2019. Retrieved June 2, 2019, from BAMF website: https://www.bamf.de/SharedDocs/Anlagen/DE/Publikationen/Migrationsberichte/migrationsbericht-2016-2017.html?nn=1362958.

Bundesministerium des Innern, für Bau und Heimat (BMI) (2016). 890.000 asylsuchende im jahr 2015. Pressemitteilung 30.09.2016. Retrieved from BMI website: https://www.bmi.bund.de/SharedDocs/pressemitteilungen/DE/2016/09/asylsuchende-2015.html.

Butcher, K. F. & Piehl, A. M. (1998). Cross-city evidence on the relationship between immigration and crime. *Journal of Policy Analysis and Management*, 17(3):457–493.

Card, D. (1990). The impact of the Mariel Boatlift on the Miami labor market. *ILR Review*, 43(2):245–257.

Ceritoglu, E., Yunculer, H. B. G., Torun, H., & Tumen, S. (2017). The impact of Syrian refugees on natives' labor market outcomes in Turkey: Evidence from a quasi-experimental design. *IZA Journal of Labor Policy*, 6(5):1–28.

Chabé-Ferret, S. (2015). Analysis of the bias of matching and difference-in-difference under alternative earnings and selection processes. *Journal of Econometrics*, 185(1):110–123.

Charness, G., Rigotti, L., & Rustichini, A. (2007). Individual behavior and group membership. *American Economic Review*, 97(4):1340–1352.

Constant, A. F., Gataullina, L., Zimmermann, K. F., & Zimmermann, L. (2006). Clash of cultures: Muslims and Christians in the ethnosizing process. IZA Discussion Paper No. 2350.

Constant, A. F., Nottmeyer, O., & Zimmermann, K. F. (2012). Cultural integration in Germany. In Algan, Y., Bisin, A., & Verdier, T., editors, *Cultural Integration of Immigrants in Europe*. (1 ed., pp. 69–124).

Constant, A. F. & Zimmermann, K. F. (2008). Measuring ethnic identity and its impact on economic behavior. *Journal of the European Economic Association*, 6(2-3):424–433.

Cornelissen, T. & Jirjahn, U. (2012). September 11th and the earnings of Muslims in Germany - The moderating role of education and firm size. *Journal of Economic Behavior & Organization*, 81(2):490–504.

D'Amuri, F., Ottaviano, G. I., & Peri, G. (2010). The labor market impact of immigration in Western Germany in the 1990s. *European Economic Review*, 54(4):550–570.

Dávila, A. & Mora, M. T. (2005). Changes in the earnings of Arab men in the US between 2000 and 2002. *Journal of Population Economics*, 18(4):587–601.

Dehos, F. T. (2017). The refugee wave to Germany and its impact on crime. Ruhr Economic Papers No. 737.

Deole, S. (2019). Justice delayed is assimilation denied: Right-wing terror and immigrants' assimilation in Germany. *Labour Economics*. (Forthcoming) https://doi.org/10.1016/j.labeco.2019.03.005.

Deutsche Welle (2015). Germany suspends 'Dublin rules' for Syrians. https://p.dw.com/p/1GLMQ.

Elsayed, A. & de Grip, A. (2018). Terrorism and the integration of Muslim immigrants. *Journal of Population Economics*, 31(1):45–67.

Entorf, H. & Lange, M. (2019). Refugees welcome? Understanding the regional heterogeneity of anti-foreigner hate crimes in Germany. ZEW Discussion Paper No. 19-005.

Escarce, J. J. & Rocco, L. (2018). Immigration and the health of older natives in Western Europe. GLO Discussion Paper No. 228.

Fallah, B., Krafft, C., & Wahba, J. (2019). The impact of refugees on employment and wages in Jordan. *Journal of Development Economics*, 139:203–216.

Frankfurter Neue Presse (FNP) (2018). Syrische Flüchtlinge eröffnen einen Imbiss mit Speisen aus ihrem Heimatland. https://www.fnp.de/lokales/wetteraukreis/friedberg-ort28695/syrische-fluechtlinge-eroeffnen-einen-imbiss-speisen-ihrem-heimatland-10369234.html.

Gehrsitz, M. & Ungerer, M. (2018). Jobs, crime, and votes: A short-run evaluation of the refugee crisis in Germany. ZEW Discussion Paper No. 16-086.

Goebel, J., Grabka, M. M., Liebig, S., Kroh, M., Richter, D., Schröder, C., & Schupp, J. (2019). The German Socio-Economic Panel (SOEP). *Jahrbücher für Nationalökonomie und Statistik / Journal of Economics and Statistics*, (2):345–360.

Gorodnichenko, Y. & Roland, G. (2017). Culture, institutions, and the wealth of nations. *Review of Economics and Statistics*, 99(3):402–416.

Gould, E. D. & Klor, E. F. (2016). The long-run effect of 9/11: Terrorism, backlash, and the assimilation of Muslim immigrants in the west. *The Economic Journal*, 126(597):2064–2114.

Haddad, Y. Y. (2007). The post-9/11 hijab as icon. *Sociology of religion*, 68(3):253–267.

Harmon, N. A. (2018). Immigration, ethnic diversity, and political outcomes: Evidence from Denmark. *The Scandinavian Journal of Economics*, 120(4):1043–1074.

Hatton, T. J. (2017). Public opinion on immigration in Europe: Preference versus salience. IZA Discussion Papers No. 10838.

Hatton, T. J. & Leigh, A. (2011). Immigrants assimilate as communities, not just as individuals. *Journal of Population Economics*, 24(2):389–419.

Hauser, A. (2018). Flüchtlinge in Deutschland So viel Geld bekommen sie wirklich. http://www.migazin.de/2018/06/28/fluechtlinge-in-deutschland-so-viel-geld-bekommen-sie-wirklich/.

Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations*. Sage publications.

Holmes, S. M. & Castañeda, H. (2016). Representing the "European refugee crisis" in Germany and beyond: Deservingness and difference, life and death. *American Ethnologist*, 43(1):12–24.

Huang, Y. & Kvasnicka, M. (2019). Immigration and crimes against natives: The 2015 refugee crisis in Germany. IZA Discussion Paper No. 12469.

Hunt, J. (2017). The impact of immigration on the educational attainment of natives. *The Journal of Human Resources*, 52(4):1060–1118.

Jaeger, D. A., Ruist, J., & Stuhler, J. (2018). Shift-share instruments and the impact of immigration. NBER Working Paper Series No. 24285.

Jahn, V. & Steinhardt, M. F. (2018). Immigration and new firm formation: Evidence from a quasi-experimental setting in Germany. Ruhr Economic Papers #787.

Kerr, S. P. & Kerr, W. R. (2011). Economic impacts of immigrants: A survey. *Finnish Economic Papers*, 24(1):1–32.

Kürschner Rauck, K. & Kvasnicka, M. (2018). The 2015 European refugee crisis and residential housing rents in Germany. FEMM Working Paper Series No. 13/2018.

Malaeb, B. & Wahba, J. (2018). Impact of refugees on immigrants' labor market outcomes. Economic Research Forum Working Paper No. 1194.

Maruhn, M. (2016). Von Falafeln und Integration - Flüchtling eröffnet Imbiss in Essen. Westdeutsche Allgemeine Zeitung. https://www.waz.de/staedte/essen/von-falafeln-und-integration-fluechtling-eroeffnet-imbiss-in-essen-id11732568.html?seite=1.

Mastrobuoni, G. & Pinotti, P. (2011). Migration restrictions and criminal behavior: Evidence from a natural experiment. FEEM Working Paper Series No. 53.2011.

Müller, K. & Schwarz, C. (2019). Fanning the flames of hate: Social media and hate crime. Available at SSRN: https://ssrn.com/abstract=3082972.

Olney, W. W. (2013). Immigration and firm expansion. *Journal of Regional Science*, 53(1):142–157.

Peri, G. & Yasenov, V. (2019). The labor market effects of a refugee wave: Synthetic control method meets the Mariel Boatlift. *Journal of Human Resources*, 54(2):267–309.

SOEP (2019). Socio-economic panel (SOEP), data for years 1984-2017, version 34. doi: 10.5684/soep.v34.

Sola, A. (2018). The 2015 refugee crisis in Germany: Concerns about immigration and populism. SOEP Papers on Multidisciplinary Panel Data Research No. 966.

Spenkuch, J. L. (2014). Understanding the impact of immigration on crime. *American Law and Economics Review*, 16(1):177–219.

Steinhardt, M. F. (2018). The impact of xenophobic violence on the integration of immigrants. IZA Discussion Paper No. 11781.

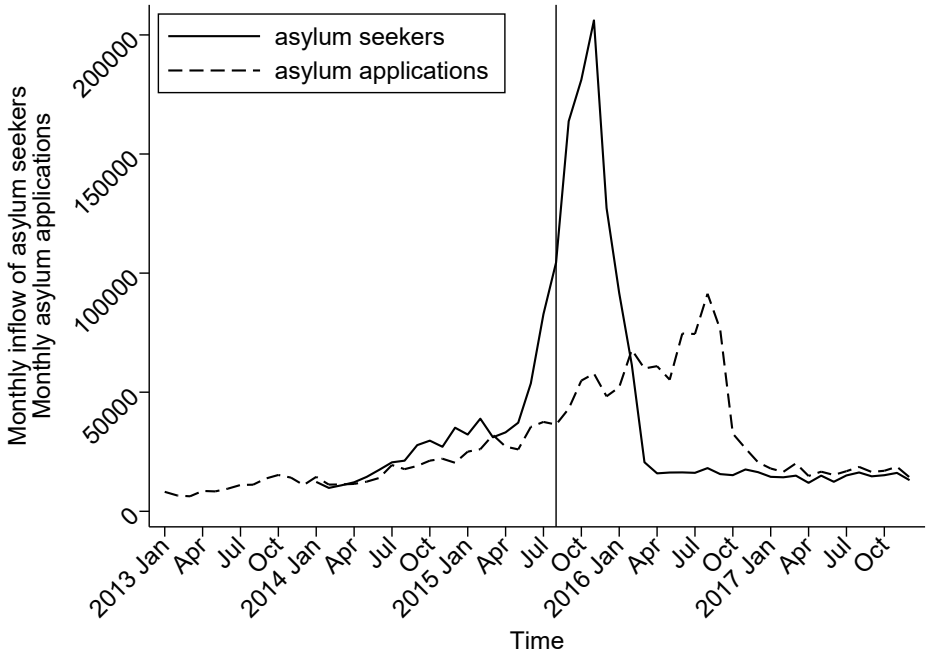
Tumen, S. (2016). The economic impact of Syrian refugees on host countries: Quasi-experimental evidence from Turkey. *American Economic Review*, 106(5):456–60.

Woldin, P. (2017). Flüchtlinge sollen in Hamburg jetzt Imbisse leiten. *Welt*. https://www.welt.de/regionales/hamburg/article165322751/Fluechtlinge-sollen-in-Hamburg-jetzt-Imbisse-leiten.html.

Zeit Online (2018). Mehr als 300.000 Flüchtlinge haben einen Job gefunden. https://www.zeit.de/wirtschaft/2018-08/arbeitsmarkt-fluechtlinge-integration-bundesagentur-fuer-arbeit-ausbildungsplatz.

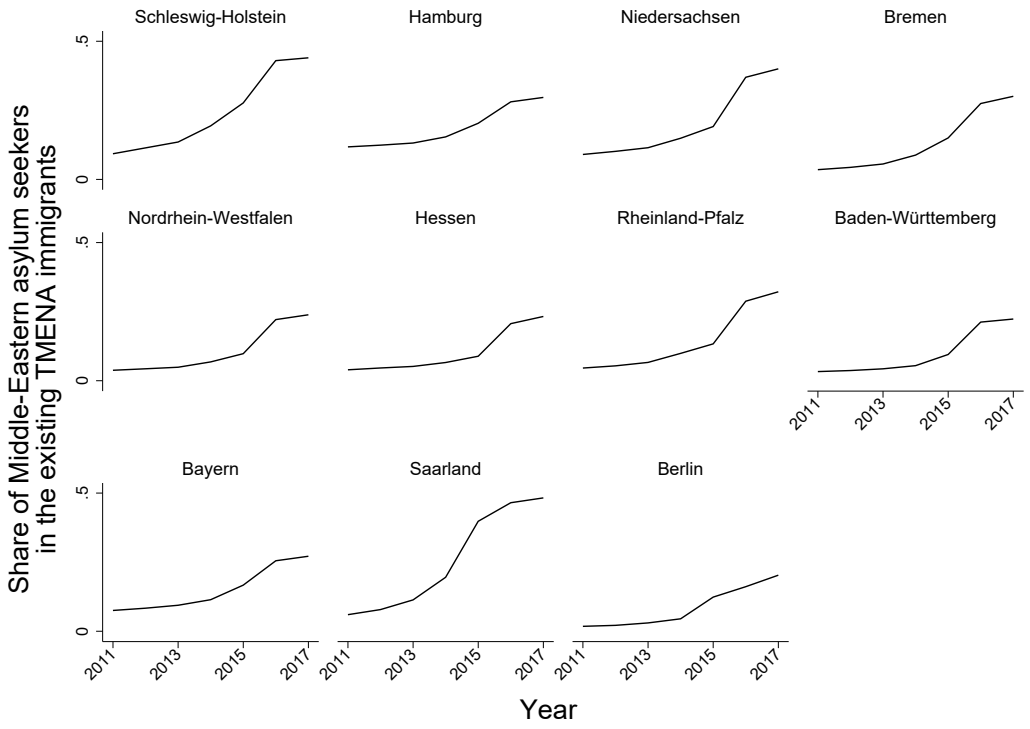
Appendix

FIG. 1: Asylum seekers & asylum applications in Germany



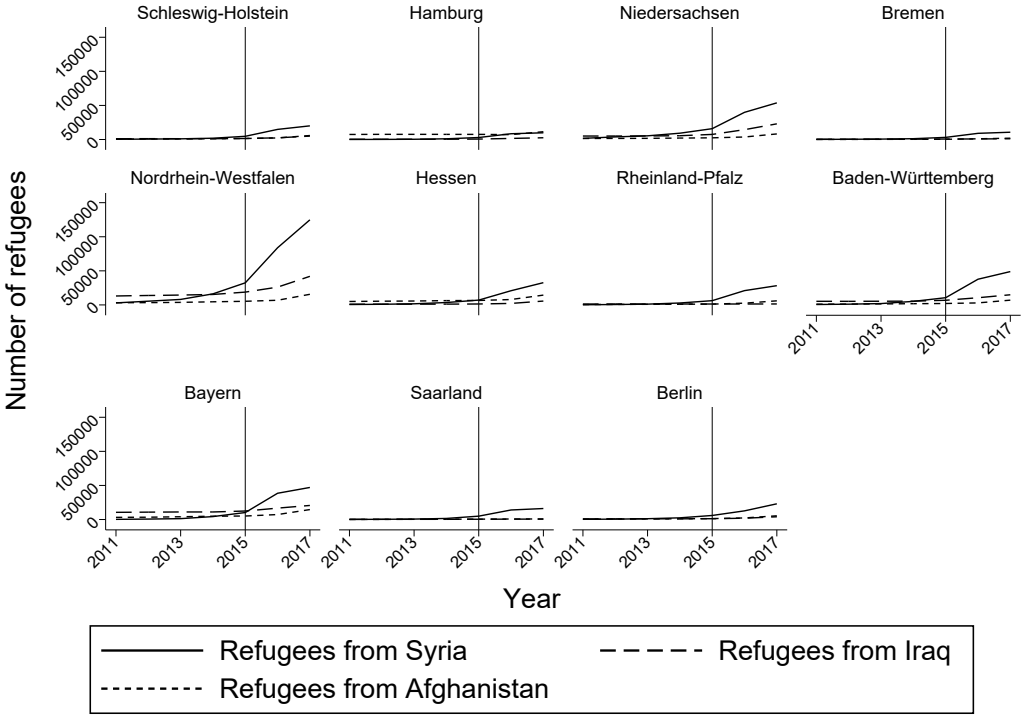
Source: Federal Office for Migration and Refugees.
Notes: This figure shows monthly inflow of asylum seekers and asylum applications in Germany from 2014 to 2017. Note that the data on monthly inflow of asylum seekers are available from 2014 onward. The vertical line represents the timing of the OBP announcement.

FIG. 2: Share of Middle-Eastern asylum seekers in the existing TMENA immigrants in Germany



Data source: Federal Statistical Office, own calculations.
Notes: This figure shows the ratio of asylum seekers from the Middle-East to the existing TMENA immigrants in Germany. These asylum seekers include recognized refugees and other asylum seekers (e.g., currently under the application process). The Middle-Eastern countries considered include Syria, Iraq and Afghanistan.

FIG. 3: Number of refugees from Syria, Iraq and Afghanistan



Data source: Federal Statistical Office, own calculations.
Notes: This figure shows the number of refugees (recognized asylum seekers) from Syria, Iraq and Afghanistan. The vertical line denotes the treatment date, i.e. year 2015.

TABLE 1: Descriptive statistics of Middle-Eastern refugees

Year of immigration	**2013**	**2014**	**2015**	**2016**	**2017**	**All**
Country of origin						
All	811	2,044	5,810	1,198	58	9,921
Afghanistan	114	213	742	144	3	1,216
Iraq	76	125	883	210	5	1,299
Syria	261	994	3,265	571	46	5,137
Characteristics of Middle-Eastern refugees						
Education (in years)	10.153	10.247	9.962	9.532	10.044	9.971
Working experience (in years)	8.292	8.802	8.261	7.090	7.330	8.208
Currently in education/training (dummy)	0.041	0.039	0.039	0.032	0	0.038
Labor force status						
Non-Working	0.537	0.635	0.755	0.857	0.982	0.735
Unemployed	0.202	0.145	0.127	0.057	0.017	0.126
Working	0.230	0.191	0.084	0.055	0	0.108
Among working						
Low-skilled occupation	0.559	0.588	0.606	0.566	-	0.591
Medium-skilled occupation	0.073	0.112	0.058	0.075	-	0.078
High-skilled occupation	0.082	0.040	0.045	0.037	-	0.048
Self-employment	0.064	0.016	0.031	0.037	-	0.031

Source: SOEP v34, 2013-2017, own calculations.
Note: The table provides a description of important individual-level characteristics of refugees that arrived in Germany between years 2013-2017. The refugees were mostly included in the survey years 2016 and 2017.

TABLE 2: Outcome measures: definitions

Variable	Explanation	Range of responses
Economic impact:		
unemp	Unemployment	0 (No) / 1 (Yes)
lwage	Log weekly hourly wage	Continuous number
selfemp	Self-employment	0 (No) / 1 (Yes)
Social impact:		
immigration	Worries about immigration	1 (No concerns at all) - 3 (Very concerned)
crime	Worries about crime development	1 (No concerns at all) - 3 (Very concerned)
fGerman	Feel German	1 (Not at all) - 5 (Completely)

Notes: The table shows the description (explanation and range of responses) of all outcome measures.

TABLE 3: Descriptive statistics
(pre-treatment means, working-age population only)

	Treated: TMENA immigrants Control: non-TMENA immigrants	
	(1) Treated	(2) Control
Outcome variables		
A. Economic outcomes		
Unemployment status	0.200	0.131
Log hourly wage	2.339	2.440
Self-employment status	0.069	0.064
B. Social outcomes		
Worries about immigration	2.012	1.839
Worries about crime development	2.255	2.067
Feel German	3.184	3.540
Explanatory variables		
Age	36.444	39.449
Urban	0.869	0.780
Married	0.655	0.627
Divorced	0.109	0.104
Education	10.820	11.899
Work experience	11.638	14.464
German proficiency: Oral	0.763	0.678
German proficiency: Written	0.710	0.605
HH relationship: Head	0.590	0.587
Owns the house	0.270	0.347
Disabled	0.059	0.040
Years since migration: Medium-term	0.270	0.477
Years since migration: Long-term	0.702	0.466

Source: SOEP v34 2013-2017, unbalanced panel, own calculations.
Notes: The table shows the means of all dependent and explanatory variables in the pre-treatment period, i.e. in 2013 and 2014. For explanatory variables, we obtain the statistics after employing the sample restriction used for economic outcomes.

TABLE 4: Lead and lag effects

	(1)	(2)	(3)	(4)	(5)	(6)
	Economic impact			**Social impact**		
	Unemployment status	**Log hourly wage**	**Self-employment status**	**Worries about immigration**	**crime**	**Feel German**
treated = TMENA immigrants (N = 1,195), control = non-TMENA immigrants (N = 5,904)						
$Treat \times Year_{2014}$	-0.007	-0.001	0.002	-0.031	-0.002	-0.046
	(0.015)	(0.022)	(0.008)	(0.054)	(0.050)	(0.063)
$Treat \times Year_{2015}$	-0.038**	-0.022	-0.001	-0.164***	-0.055	
	(0.018)	(0.024)	(0.010)	(0.056)	(0.051)	
$Treat \times Year_{2016}$	0.001	-0.005	-0.018*	-0.226***	-0.149***	0.074
	(0.019)	(0.025)	(0.011)	(0.059)	(0.052)	(0.072)
$Treat \times Year_{2017}$	-0.012	-0.029	-0.016	-0.202***	-0.063	
	(0.020)	(0.027)	(0.012)	(0.059)	(0.055)	
Observations	19,306	16,725	19,306	18,445	18,445	11,248
# of respondents	7,099	6,371	7,099	6,757	6,757	6,257

Source: SOEP v34 2013-2017, unbalanced panel, own calculations.
Notes: This table shows the lead and lag effects of the ERC in Germany. The control variables include the explanatory variables shown in Table 3. Additionally, we include non-linear terms for the following continuous covariates: age (quadratic and cubic terms), education (quadratic term), and working experience (quadratic term). The individual, state and year fixed effects are also included. Robust standard errors (clustered at individual level) in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE 5: Treatment intensity

	(1)	(2)	(3)	(4)	(5)	(6)
	Economic impact			**Social impact**		
	Unemployment status	**Log hourly wage**	**Self-employment status**	**Worries about immigration**	**crime**	**Feel German**
Panel (A): Middle-Eastern refugees / German population, 2013 & 2015						
treated = TMENA immigrants (N = 981), control = non-TMENA immigrants (N = 5,034)						
$\frac{\text{Middle-Eastern refugees}}{\text{German population}}$	-6.697	15.589	-2.228	6.672	23.023	
	(7.233)	(16.718)	(3.983)	(30.500)	(28.781)	
$Treat \times \frac{\text{Middle-Eastern refugees}}{\text{German population}}$	-21.650**	-16.398	0.968	-84.695**	-53.990	*No Data*
	(10.583)	(14.876)	(5.254)	(39.875)	(37.232)	
Observations	8,742	7,511	8,742	5,714	5,714	
# of respondents	6,015	5,260	6,015	4,581	4,581	
Panel (B): Middle-Eastern refugees / German population, 2013 & 2016						
treated = TMENA immigrants (N = 965), control = non-TMENA immigrants (N = 4,936)						
$\frac{\text{Middle-Eastern refugees}}{\text{German population}}$	-4.496	2.742	1.047	-5.442	1.526	-5.420
	(3.522)	(4.795)	(2.305)	(11.288)	(11.448)	(19.958)
$Treat \times \frac{\text{Middle-Eastern refugees}}{\text{German population}}$	0.584	-3.617	-3.546*	-47.427***	-26.673**	14.232
	(3.658)	(5.470)	(1.966)	(14.174)	(12.301)	(15.597)
Observations	8,257	7,145	8,257	5,648	5,648	6,887
# of respondents	5,901	5,181	5,901	4,686	4,686	5,501
Panel (C): Middle-Eastern asylum seekers / German population, 2013 & 2015						
treated = TMENA immigrants (N = 981), control = non-TMENA immigrants (N = 5,034)						
$\frac{\text{Middle-Eastern AS}}{\text{German population}}$	0.216	3.121	-1.204	-7.164	6.800	
	(3.368)	(7.096)	(2.471)	(16.011)	(16.385)	
$Treat \times \frac{\text{Middle-Eastern AS}}{\text{German population}}$	-11.338*	-8.830	0.094	-50.912**	-40.215**	*No Data*
	(5.859)	(8.174)	(3.001)	(23.235)	(20.513)	
Observations	8,742	7,511	8,742	5,714	5,714	
# of respondents	6,015	5,260	6,015	4,581	4,581	
Panel (D): Middle-Eastern asylum seekers / German population, 2013 & 2016						
treated = TMENA immigrants (N = 965), control = non-TMENA immigrants (N = 4,936)						
$\frac{\text{Middle-Eastern AS}}{\text{German population}}$	-3.041	3.269	-0.173	-19.364*	-2.685	-25.292
	(3.007)	(4.105)	(1.786)	(11.384)	(10.290)	(16.048)
$Treat \times \frac{\text{Middle-Eastern AS}}{\text{German population}}$	-0.057	-1.175	-2.168*	-25.068***	-15.897**	11.470
	(2.039)	(3.022)	(1.208)	(7.728)	(6.610)	(8.912)
Observations	8,257	7,145	8,257	5,648	5,648	6,887
# of respondents	5,901	5,181	5,901	4,686	4,686	5,501

Source: SOEP v34 2013-2017, unbalanced panel, own calculations.
Notes: In this table, we show the socio-economic impact of ERC on existing immigrants with a continuous measure of the treatment. In panel (A) and (B), we consider the ratio of the number of Middle-Eastern refugees over German population in that state. Panel (C) and (D) show the results when the ratio of the number of Middle-Eastern asylum seekers over German population is considered as the treatment intensity measure. We restrict the sample to survey years 2013 and 2015 in panel (A) and (C) and in panel (B) and (D) the sample is restricted to survey years 2013 and 2016. Control variables include all the control variables used for our baseline specifications in Table 4. Robust standard errors (clustered at individual level) in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.