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▶ **Workplace Contact and Support for Anti-Immigration Parties**

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Workplace Contact and Support for Anti-Immigration Parties[*]

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Abstract

This paper studies the consequences of an increased presence of immigrants in the workplace on anti-immigration voting behavior by combining detailed Swedish workplace data with election outcomes for a large anti-immigration party (the *Sweden Democrats*). At each election precinct, we match the election outcomes with the share of non-European co-workers among the average native-born worker for three consecutive elections between 2006 and 2014. Using a fixed effects approach, we estimate a negative effect of an increased share of non-Europeans in the workplace on support for the Sweden Democrats: a one standard deviation increase in the average share of non-European co-workers decreases the precinct vote share for the Sweden Democrats by roughly 0.4 percentage points. We show that these results are solely driven by within-skill contact, and by contact within occupations that are less exposed to job loss. We interpret the results as supporting the contact hypothesis: that increased interactions with minorities reduce prejudice among native-born voters, which leads to lower support for anti-immigration parties.

1   Introduction

A majority of Western European countries have seen a large increase in the number of immigrants in recent decades. In many EU-countries, the number of immigrants as share of the population has exceeded 10 percent and are, in some cases, approaching 15 percent or more.[1] At the same time, the rise of anti-immigration parties constitutes one of the largest changes to the European political landscape. An increasing share of voters now support anti-immigration and protectionist policies. A causal relationship between increased support for these types of parties and a higher influx of immigrants, especially from non-European countries, is often suggested in academic debates: natives are believed to oppose immigration when they are exposed to immigrants and refugees in their neighborhoods.

Yet, it is likely that certain conditions influence the effects of increased exposure to immigrants on voting for anti-immigration parties, for instance, the skill-level of immigrants (Hainmueller and Hiscox, 2010; Valentino et al., 2017; Edo et al., 2019), or the socio-economic status among natives (Strömblad and Malmberg, 2016). A further important aspect is the *type* of intergroup contact associated with an influx of immigrants. According to the *contact hypothesis* (Allport, 1954), extensive and co-operative interactions between majority and minority groups can undermine prejudices and/or negative sentiments about members of minority groups. At the same time, *superficial* contact might instead have an adverse effect on prejudices towards minority groups. Indeed, studies finding a positive association between exposure to immigrants and opposition to immigration often capture superficial contact (Knigge, 1998; Lubbers et al., 2002; Rink et al., 2009; Rydgren and Ruth, 2013; Becker et al., 2016; Colussi et al., 2016; Dustmann et al., 2019; Hangartner et al., 2019; Edo et al., 2019),[2] while *deeper* interactions, usually co-operation between majority and minority group members, have been shown to reduce prejudices and anti-immigration sentiments (Lowe, 2018; McLaren, 2003; Steinmayr, 2016; Simonovits et al., 2017; Finseraas et al.,

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[1]Numbers are based on the Eurostat article *Migration and Migrant Population Statistics*, retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php/Migration_and_migrant_population_statistics on November 24, 2019. See also Davis and Deole (2017).

[2]Contact is labelled as *superficial* in these papers since they (in different ways) rely on spatial variation in the number of refugees or immigrant residents at, for instance, the municipal or national level.

2019; Weiss, 2019).

This study focuses on the *workplace*, which facilitates co-operative interactions between majority and minority group members. Due to this feature, it is a social arena in which interactions are expected to help reduce intergroup prejudice, in line with the contact hypothesis. However, immigrants in the workplace may also reinforce natives' fear of increased competition for high wages and employment. For these reasons, increased presence of immigrants in the workplace have potentially both positive and negative effects on voting for anti-immigration parties: the co-operative and repetitive nature of workplace contact is expected to reduce negative sentiments towards immigrants while a high share of foreign-born co-workers might signal to native workers that their employment status is threatened. Thus, the overall effect of contact in the workplace is ambiguous. Despite being one of our most important arenas for social interactions, there are, to the best of our knowledge, no large-N empirical studies addressing this particular question.

We examine the consequences of workplace contact between native-born and non-European workers on support for anti-immigration parties. Our focus is Sweden, which provides an interesting setting due to i) high quality register data, and ii) a high and, for a long time, growing share of foreign born. We use a full population Swedish data set that includes demographic and socioeconomic information on all legal residents, as well as connects all employed residents to a unique workplace. This allows us to compute the share of co-workers with a non-European background for each native-born worker. These individual-level shares are aggregated on the election precinct level and matched with election outcomes for the largest Swedish anti-immigration party the *Sweden Democrats* (SD) in the national elections in 2006, 2010, and 2014. Our identification strategy relies on the inclusion of precinct fixed effects, as well as controlling for local labor market characteristics and trends. In this setting, our regressor of interest, the average share of non-European co-workers, capture changes to workplace contact among native and non-European workers between each election. Our research design allows us to estimate the effect of the precinct-level change in workplace contact on the change in precinct-level support for the SD.

We find large and statistically significant negative effects of the workplace share of non-Europeans on support for the SD. In our preferred specification,

a one standard deviation increase in the average share of non-European co-workers among resident natives decreases the vote share for the SD in the election precinct by more than 0.4 percentage points, or roughly ten percent of the standard deviation in the outcome.

We extend our baseline result with a number of auxiliary analyses, and reach three conclusions. First, we interpret the negative relationship between voting for the SD and workplace immigration as in line with the contact hypothesis (Allport, 1954): increased contact (at work) between natives and non-Europeans decrease opposition to immigration. Several features of the workplace allow contact to reduce prejudice and conflict between in- and outgroup members: workers are usually interacting repeatedly over longer time periods and are working together towards a common goal, and within skill level, the relationship between co-workers can be considered equal. In our extensions, we show that the negative relationship between contact and opposition to immigration is solely driven by within-skill contact. These results are particularly important for our interpretation, since many workplaces share low levels of vertical integration, and we expect contact to happen primarily within the same skill level. Second, since same-skill immigrants at the workplace decrease votes for the SD, any potential positive effect of same-skill labor market competition on development of voting for anti-immigration parties is offset by the effect of meaningful workplace contact between co-workers. Third, we estimate a negative effect of workplace contact on votes for the SD *only* among workers employed in occupations characterized by a low risk of computerization and automation. A possible interpretation of these results is that labor market competition from immigrants becomes more salient for natives when the natives' occupation is vulnerable, and there is a greater threat of job loss.

There are, however, several threats to interpreting our results as being driven by workplace contact. For instance, precincts with a large share of non-European co-workers among resident natives might also have a large number of immigrant residents. If this is the case, our estimates might pick up contact occurring in other contexts than the workplace, or the fact that non-natives are less likely to vote for anti-immigrant parties. To address these concerns, we complement precinct fixed effects with a large set of socioeconomic and demographic conditions that vary over time, including the share of non-European residents. This should address the issues of conflating

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the effect of workplace contact with contact in other contexts, or concerns that workplace contact is simultaneous with the local share of non-native voters. Another potential concern is the existence of industry-specific trends in both the share of non-European workers and the probability of voting for anti-immigration parties. We address this by considering deviations in the share of non-European co-workers from each industry's national share. Our results are robust to this transformation. We also address concerns about selection of native workers with anti-immigration attitudes into neighborhoods where native residents have, on average, a low share of non-European co-workers. We use a large-scale survey performed on natives in 2009, which covered, among other things, attitudes to immigration. We show that natives with restrictive views on refugee policy in 2009 were not more likely to move or in other ways select into precincts with either increasing or decreasing shares of non-native co-workers between 2010 and 2014.

Our results add to the extensive literature on the emergence and success of anti-immigration/radical right parties. This literature mainly focuses on two explanatory variables: economic conditions and immigration. In both cases, the evidence is inconclusive as some studies find economic distress (e.g. job separations, unemployment rates) and exposure to immigrants to be positively correlated with voting for anti-immigration parties, while other studies find the opposite or no effect. Specifically, we add to the literature concerning exposure and contact with immigrants and how these affect support and demand for anti-immigration policies. Most studies in this scholarship rely on measures of local, regional or national shares of immigrants and either aggregated vote shares or survey data on anti-immigration attitudes. However, less is known about the type of interactions that are believed to reduce prejudice, or to highlight threat to natives' economic and social status. We add to the literature by considering a specific type of interactions, based on contact on the workplace.

We also relate to the literature on the perceived increase in labor market competition that natives face from same-skill immigration. Native workers of a particular skill are expected to lose from immigration of the same skill, as this raises the competition for jobs and lowers the relative wages of the same skill level (Borjas et al. 1996, 1997). As mentioned above, a possibility is that natives are reminded of the potential threat when observing immigrant workers in their workplace, since that confirms the perceived threat.

However, we do not find a positive relationship between increased visibility of foreign-born workers and voting for anti-immigration parties. Instead, we show that increased labor market integration of non-natives have adverse effects on the rise of the Sweden Democrats, despite it potential highlighting the fear of labor market competition between members of in- and outgroups. The next section explains the theoretical considerations related to these results.

2 Theoretical background and related research

The Sweden Democrats were founded in 1988 by former members of the neo-nazi party the *Sweden Party*. In its early years, a large portion of the party members were also active in, or had close ties to, neo-nazi organizations (Widfeldt, 2008). The party had limited electoral success for the first 10-15 years. This lead to a re-branding process in the late 90s, and the party received 1.4 percent of the votes in the 2002 national election. In the 2006 election, the party did not receive enough votes to get past the 4 percent threshold, but did obtain more than 250 seats in different local councils (Rydgren and Ruth, 2011).[3] Four years later, the SD entered the Swedish parliament for the first time, after receiving a vote share of 5.7 percent, resulting in 20 seats. In 2014, the party had once again doubled their support and received close to 13 percent of the votes.

The Sweden Democrats are profiling themselves as a social conservative and anti-immigration party, and their supporters have been shown to find immigration as one of the most salient political issues (Rydgren and van der Meiden, 2018). It seems therefore natural to assume that the consequence of increased immigration is higher support for the SD, and there exists several hypothesis that predicts a positive relationship between immigration and voting for anti-immigration parties. Indeed, a large number of studies provide evidence of a positive association between immigration and support for anti-immigration parties in many European countries (Knigge, 1998; Lubbers et al., 2002; Rink et al., 2009; Rydgren and Ruth, 2013; Becker et al., 2016; Colussi et al., 2016; Valdez, 2014; Dustmann et al., 2019; Hangartner et al., 2019). A popular explanation to this relationship is that na-

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[3]The Swedish electoral system is characterized by *proportional representation*. Each party needs to either get past the national threshold of 4 percent, or the district-level threshold of 12 percent, to receive a seat in the national parliament.

tives fear that their social status and identity are challenged when they are exposed to ethnic minorities (*group positioning theory*). This means that natives in neighborhoods with a high share, or large influx, of immigrants, are more likely to oppose immigration, which leads to higher support for anti-immigration parties.

Similarly, the *ethnic competition hypothesis* submits that the opposition to immigration among natives is based on their fear of competition for employment, housing, and general social welfare between in and outgroup members. One can imagine that this fear intensifies following a large influx of immigrants, which leads to a higher opposition to immigration. The fear of competition for economic resources can be split into two parts: *i)* fear of access to welfare services and benefits, and *ii)* fear of competition for employment and high wages.[4] For the latter, it seems reasonable that the presence of immigrants in one's workplace highlights the threat of competition more than observing them in your neighborhood. We therefore identify the following prediction in line with the ethnic competition hypothesis:

Prediction 1. *Increased presence of foreign-born workers in the workplace highlights the threat of competition for employment and high wages, and therefore increases opposition to immigration.*

However, the expected competition between natives and immigrants depends on the skill level of the members of the two groups. According to the *factor-proportion analysis model* (see, for instance, Borjas et al. 1996, 1997), natives of a particular skill level are expected to be worse off from immigration of the same skill level, as this increases the relative supply of workers of this particular skill level and lowers their relative wages.[5] This suggests that the existence of *same-skill* foreign-born co-workers have a stronger impact on the opposition to immigration. We identify an augmented prediction:

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[4]There is a third part related to economic status, which is that natives oppose low-skilled immigrants which they expect to be a net burden on public finances. This would affect low-skilled natives that are in need of welfare services, but would also lead to higher taxes for high-skilled natives.

[5]The empirical evidence of the consequences of immigration on natives' wages is inconclusive (see, for instance, Card 1990; Borjas 2015; Bodvarsson et al. 2008; Clemens and Hunt 2019; Peri and Yasenov 2017), and it is worth noting that information about whether immigration actually affects wages can influence natives' opposition to immigration (see Haaland and Roth 2017).

Prediction 1.1 *Increased presence of **same-skill** foreign-born workers in the workplace is more likely to highlight the threat of competition for employment and high wages, and therefore increases opposition to immigration.*

A different relationship between the presence of refugees and immigrants and anti-immigrant attitudes is predicted by the *contact hypothesis* (Allport, 1954), which argues that intergroup contact could reduce prejudice. Increased presence of immigrants instead predicts a lower support for anti-immigration parties. However, the *type* of contact is crucial for it to influence prejudice: Allport (1954) notes that co-operation between members of in and outgroups reduces negative sentiments while it may increase from superficial "casual" contact. It is further argued that the contact is more probable to decrease prejudice if it happens on an equal level, is repetitive, and aims towards a common goal. In accordance with the contact hypothesis, we identify the second prediction:

Prediction 2. *Increased presence of foreign-born workers in the workplace leads to meaningful intergroup contact, which reduces prejudice towards minorities and lowers opposition to immigration.*

Since team work dominates the modern labor market (Hamilton et al., 2003), the workplace is likely to satisfy the conditions under which intergroup contact reduces prejudice between members of in and outgroups.[6] This is in particular true for interpersonal contact between co-workers of the same skill. Imagine a firm employing both low-skill and high-skill workers. At one of this firm's workplaces, all employees interact at, for instance, the workplace cafeteria, or at social events organized by the firm. However, since workers of the same skill are performing similar tasks, they are more likely to encounter each other frequently in the workplace. This means that there is a larger opportunity for meaningful and, most importantly, co-operative contact. Same-skill workers are also more likely to share similar backgrounds and experiences and consider each other equals. Within-skill contact with foreign-born co-workers is thus more likely to reduce prejudice

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[6]Kokkonen et al. (2015) show that natives with immigrant co-workers are more likely to befriend immigrants.

towards minorities and lower opposition to immigration, contrary to the effect formulated in Prediction 1.1.

Contact and within-skill competition are both fairly well discussed mechanisms in the literature on anti-immigration attitudes. Another less discussed, yet still important, factor potentially influencing the perceived threat of increased labor market competition with immigrants is how vulnerable the workers of a particular occupation are to job loss. Fear of being separated from their jobs, for instance due to globalization or technological change, can affect how natives react to foreign-born co-workers.[7] In occupations where the expected job loss is very low, an increased share of immigrants in the workplace within the same occupation is arguably less of a threat to natives compared to occupations where separation, or turnover, is high. This leads to the last prediction regarding the positive relationship between exposure to immigrants in the workplace and opposition to immigration:

Prediction 3 *The threat of increased competition for employment and high wages with same-skill foreign-born workers is only highlighted among native workers employed in **vulnerable** occupations.*

The aforementioned studies on the association between exposure to minorities in one's neighborhood and voting for anti-immigration parties point in the same direction, namely to an increased support.[8] However, a recent wave of studies in economics, political science and sociology provide evidence of reduced prejudice due to intergroup contact in a large variety of different settings. For instance, Finseraas et al. (2019) use a field experiment where Norwegian soldiers were randomly assigned to share rooms with ethnic minorities, and show that intergroup interactions increased trust towards immigrants. In Broockman and Kalla (2016), voters in South Florida were randomly exposed to active perspective-taking through door-to-door canvassing, which was found to reduce transphobia. Also, a 3-week camp for Israeli and Palestinian teenagers was found to improve participants' outgroup attitudes (Schroeder and Risen, 2016).[9] The social settings in these

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[7]Dehdari (2019) shows that layoff notices received by low-skilled native workers lead to stronger support for the Sweden Democrats in areas populated by low-skilled immigrants.

[8]Steinmayr (2016) finds that support for the Austrian right-wing party the *Freedom Party of Austria* increased in areas where refugees were merely passing in 2015, while it was lower in communities that actually hosted refugees.

[9]Pettigrew and Tropp (2006) conduct a meta-analytic test from 515 studies and con-

studies encompass a much closer contact than the superficial "casual" contact one would expect from minorities simply being visible in the neighborhood, and do not highlight intergroup competition for economic resources. In these types of settings, the effect of contact is less ambiguous.

This paper studies workplace contact, where the expected net effect of increased contact between natives and non-Europeans on support for anti-immigration parties are, according to Predictions 1 to 3, ambiguous. If interpersonal contact between co-workers is meaningful and co-operative, we expect it to reduce prejudice and anti-immigration attitudes. If it is instead superficial, natives might fear that their economic (or social) identity is threatened, which boosts anti-immigration attitudes. To the best of our knowledge, this paper is the first to study the relationship between intergroup contact in the workplace and support for anti-immigration parties, and we find a negative impact of contact on the vote share for the Swedish anti-immigration party the Sweden Democrats. This suggests that even if concerns for increased labor market competition increases with workplace interactions, this effect is offset by reduced prejudice and improved intergroup attitudes.

3   Data and empirical design

In this section we present the data and the empirical design used to study our research question. We begin by describing the construction of the sample and the variables used in Section 3.1. Thereafter we present the empirical model in Section 3.2. Detailed descriptive statistics on the sample is found in the Appendix, Section A.

3.1   Sample construction and data

National, regional and local elections in Sweden take place once every fourth year, of which we will use outcomes in three consecutive (national) elections between 2006 and 2014. The reason for choosing these years is fairly straightforward: we do not yet have access to any data from the latest election year (2018), making 2014 the most recent election available in the data. Before the 2006 national election, the SD remained very small, receiving less than 1.5 percent of the votes in the 2002 national election.

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clude that intergroup contact typically reduces intergroup prejudice.

Figure 1: Distribution over precincts, percent voted for the SD, 2006-2014
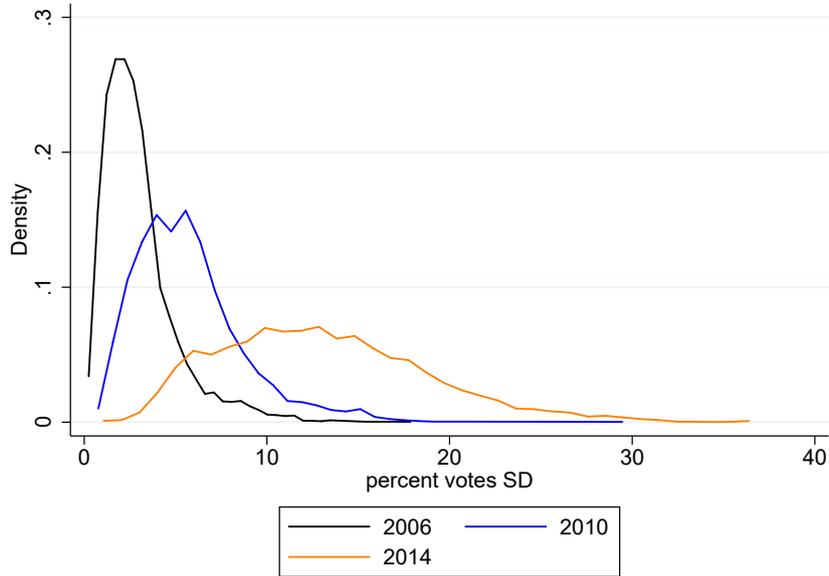
Our outcome of interest, meant to capture voting for anti-immigration parties, is based on the election results for the Sweden Democrats. Naturally, given electoral secrecy, we cannot track voting for each individual voter. Instead we make use of the lowest level of aggregation, namely the election precincts. In each election, there are more than 5,500 precincts, and each voter is linked to one unique election precinct based on their residence. On average, each precinct comprise around 1,000 eligible voters.

The precinct-level mean support for the SD over our entire period (2006-2014) was 7.26 percent. The higher numbers in the distribution are skewed towards the more recent elections, since the party increased their vote share by, on average, 5 percentage points per election (see summary statistics in Appendix, Table A1). As an illustration, in Figure 1, we show the distribution of votes (in percent) for the SD in all precincts, for 2006, 2010 and 2014. In 2014 the average precinct registered around 13 percent of the votes for the SD. In 2006, very few precincts (6 out of around 5,500 precincts) had a support higher or equal to 13 percent. The increase has hence been large and nationwide.

It should be noted that some precincts are either removed, changed, or

merged with other precincts between two consecutive elections.[10] Although the lion's share of precincts remain unchanged between two consecutive elections, we match precincts between elections using geographical data on population density.[11] This prevents us from losing too many observations, and makes our observations comparable over time. The matching procedure leaves us with a total of 5,836 comparable precincts.

Using workplace data to measure workplace contact

For the construction of our treatment and control variables, our analyses make use of detailed individual-level full population register data. The data is provided by Statistics Sweden and includes both matched workplace and individual-level data for a rich set of socioeconomic and demographic variables. The individual-level information will be used to construct aggregated measures on the election precinct level.

To construct our treatment variable, we utilize the fact that the great majority of working individuals are connected not only to a specific firm, but a unique workplace. A workplace is defined as an address, a property or a group of coherent premises, where a company operates. All firms hence have at least one workplace, but firms with operations in more than one address or property are divided into several workplaces. Since we wish to capture contact, the workplace is arguably more suitable than a firm, which can entail rather large enterprises with many workers never encountering each other.

We connect each individual to the share of workers born *outside of Europe* in his or her workplace.[12] We choose to focus on non-Europeans rather

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[10]The local council of each municipality determines the borders for the election precincts ahead of each election, with the aim of balancing the population of eligible voters.

[11]The number of precincts in 2006 and 2010 were 5783 and 5668 respectively, while it had increased to 5837 in the 2014 election. We create a time-invariant unit by first matching the 2006 precincts and the 2014 precincts with detailed population data that comes in 100×100 meter squares. The population of each overlapping part of a precinct in 2006 with precincts from 2014 is divided by that precincts total population, to create *population weights*. The number of votes in 2006 for each party, as well as total number of eligible voters, are then multiplied by the population weights before being aggregated on 2014 precinct level. Thus, the total votes for each party in 2006 is separated into overlapping parts with the 2014 precincts, and the number of votes distributed into each part depends on the population weights. We use the same method to match the 2010 and the 2014 election precincts. A similar method is used in Dehdari (2019) and by Autor et al. (2016) (using county population).

[12]We also exclude North American and Japanese immigrants when constructing the

than immigrants in general, since we expect negative views or prejudice on for example Nordic immigrants and Western Europeans to be less prevalent. Since our main outcome is measured at the precinct level, we have to aggregate the workplace shares to this level. The treatment variable is therefore created in two steps: We first define the share of non-European immigrant co-workers at workplace w for individual i living in precinct p in election year t, if the individual is born in Sweden ($i \in native$, where $native$ is the set of all native-born individuals):

$$Immig\_Share_{iwpt} = \frac{Numb\_Immig_{iwt}}{Numb\_Coworkers_{iwt}}, \quad \text{for } i \in native, \qquad (1)$$

where $Numb\_Immig_{iwt}$ is the number of non-European co-workers while $Numb\_Workers_{iwt}$ is the total number of co-workers that worker i has at workplace w.[13] We use the shares for each native individual to create the precinct average share of non-European co-workers among natives residing in precinct p ($i \in P$, where P represents the set containing all natives in precinct p):

$$Mean\_Immig\_Share_{pt} = \frac{1}{|P|} \sum_{i \in P} Immig\_Share_{iwpt} \qquad (2)$$

$Mean\_Immig\_Share_{pt}$, is our main treatment variable, and measures the mean share of non-European co-workers for the native workers residing in precinct p and election year t. Furthermore, when constructing our treatment according to Equations 1 and 2, we restrict the sample of workers by removing i) all self-employed individuals, and ii) all workers with no co-workers at their workplace. These restrictions exclude very small workplaces, in which the share of non-European co-workers is not an informative indicator.

Measurement considerations

As mentioned above, our outcome of interest is the precinct-level support for the SD. The precinct-level support is, in turn, the aggregated result of a

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share of workplace immigrants.

[13]Notice that $Numb\_Immig_{iwt}$ and $Numb\_Workers_{iwt}$ do not require subscript p as co-workers of individual i at workplace w can reside in any precinct.

large number of individual actions by, mainly, native voters.[14] We hypothesize that workplace contact between natives and immigrants, meaningful or superficial, can impact individual voting decisions and, thus, the aggregate precinct-level election results for the SD. Ideally, we would like to obtain actual information on the degree of workplace contact each native has with his or her immigrant co-workers, preferably from survey data, which we then aggregate to the precinct level. In absence of this measure, we approximate the degree of contact by aggregating the share of non-European co-workers in the workplace for each native-born individual, relying on the assumption that the probability of contact is monotonically increasing in this share. However, as our sample of native individuals linked to a specific workplace is smaller than the total number of native voters, we do not accurately capture the precinct-level average workplace contact, and we induce further noise as we also exclude self-employed and natives with no workplace co-workers. These natives are still potentially interacting with immigrants in their respective workplaces, which possibly affects their voting decision.[15] Our estimates are thus potentially suffering from attenuation bias due to these measurement errors.

In addition, in some specifications we restrict the measure of contact to only include within-skill co-workers. In these specifications the number of native workers used in approximating the precinct-level average workplace contact is further reduced, as natives with no co-workers of the same skill are removed. To see this, and to illustrate our aggregation more clearly, consider Figure 2, where we illustrate how the individual-level shares of co-workers are computed. In 2a, native worker i (represented by the black figure) has a total of thirteen co-workers, where eight are natives (white figures) and five are non-European (light gray figures). Thus, native worker i's share of non-European co-workers is 5/13, or approximately 0.38. If we instead compute the share of within-skill non-European co-workers, this share is 2/7, or close to 0.29. In the second part, in Figure 2b: the high-skill native worker (black figure) has a total of seven co-workers, of which four are of immigrant background, but no same-skill co-workers. This worker is included when computing the precinct-level average for the share of non-

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[14]Although Sweden has a relatively large share of foreign-born citizens, the turnout rate is much higher among natives.

[15]For example, self-employed accountants or lawyers might have meaningful interpersonal contact with clients of immigrant background.

Figure 2: Computing the individual-level share of non-European co-workers

(a) Within-skill co-workers

(b) No within-skill co-workers
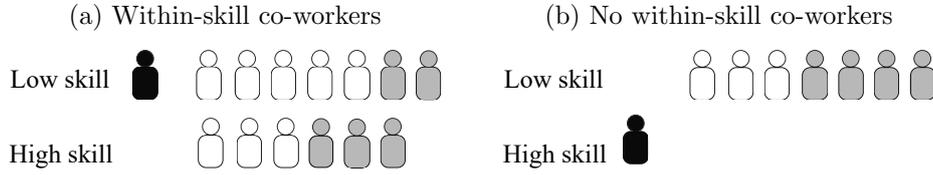
Notes: Example of a workplace where in Figure 2a, individual i (black figure) has a total of 8 native co-workers (white figures) and 5 non-European co-workers (light-gray figures), resulting in a share of non-European co-workers equal to 5/13. In Figure 2b, individual i has no within-skill co-workers and is dropped from the sample when the precinct-average within-skill share of non-European co-workers is computed.

European co-workers, and excluded when we only consider share of same-skill co-workers. Consequently, the estimates using the within-skill shares are even more likely to suffer from attenuation bias.

As a more concrete illustration, we can consider the actual numbers: In 2010 there were 6.1 million native adults eligible to vote in the national elections. Of these, close to 30 percent (1.8 million) were registered as non-working, most of them either unemployed, students or retired. Slightly less than 8 percent (around 470,000 individuals) were running businesses, which leaves around 3.8 million, or 63 percent of the eligible voting population, as working. Of these, we make use of 3.1 million natives that were connected to a unique workplace, and had more than 1 co-worker. These numbers are important to keep in mind as we interpret the magnitude of our estimates.

In our sample, the average of $Mean\_Immig\_Share_{pt}$ 4 percent. This share ranges from practically no non-European co-workers up to almost 30 percent, and the mean is equivalent to, on average, about 23 non-European co-workers in a workplace (see Table A1).[16] In Figure 3, we depict the change in the precinct-level mean share of non-European immigrant co-workers. Between 2006 and 2014, this share increased in most election precincts. Only five percent of the precincts experience decreases in the share of non-European co-workers, either between 2006 and 2010 or 2010 and 2014. This is hardly surprising given the general increase of foreign born as share of the Swedish population during the same time period.[17]

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[16]For more detailed information on for example skill level and birth region of the immigrant co-workers, see Table A2, in the Appendix.

[17]See https://www.scb.se/en/finding-statistics/statistics-by-subject-area/population/population-composition/population-statistics/pong/tables-and-graphs/yearly-statistics--the-whole-country/summary-of-population-statistics/.

Figure 3: Percentage point increase between elections in average non-European co-workers on precinct level
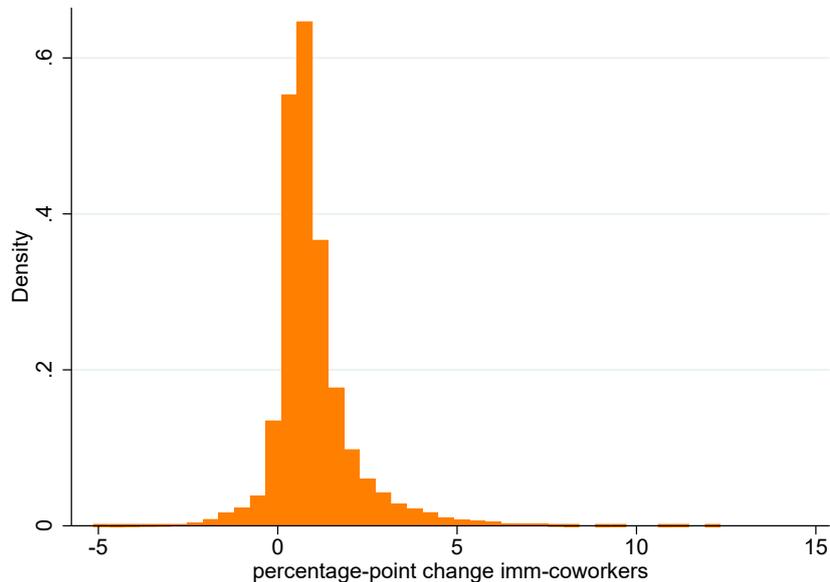
Notes: This histogram shows the change in the mean share of non-European co-workers between the 2006 and the 2010 elections, and between the 2010 and the 2014 elections.

Lastly, we add control variables on two levels: one based on information at the precinct level and one at the workplace level. The workplace controls are constructed in the same way as our treatment. For example, we control for the mean share of young co-workers among natives in precinct p and election year t, and this variable is constructed in a similar manner as our contact variable, according to Equations 1 and 2. Our precinct-level controls are based on the full adult population (older than 18 years) in the precinct.

3.2 Empirical Design

We now turn to the empirical model, which estimates the relationship between workplace presence of non-Europeans among natives on the tendency to vote for the anti-immigration party the Sweden Democrats. For this purpose, we estimate the parameters of the following linear regression model:

$$SD_{pt} = \beta Mean\_Immig\_Share_{pt} + \mathbf{\Gamma}' \boldsymbol{x}_{pt} + \Phi_p + \tau_t + \varepsilon_{pt}, \qquad (3)$$

where SD_{pt} gives the share of votes for the Sweden Democrats in precinct

p and election t, while $Mean\_Immig\_Share_{pt}$ measures the precinct-level mean of non-European immigrant co-workers among precinct residents born in Sweden (see Equation 2). $\boldsymbol{x}_{pt}$ is a vector of precinct-level time-varying controls, including precinct population and population squared, percent of low educated in the precinct, mean number of days unemployed, percent of non-working among Swedish born, percent of non-European immigrants living in the precinct, percent of non-European immigrants who are citizens, and also who are low educated.[18] $\boldsymbol{x}_{pt}$ also includes a number of controls aggregated from the workplace level: average wage among co-workers, share of young co-workers and share of male co-workers, for all working residents in a precinct. We include time and precinct fixed effects, represented by τ_t and Φ_p, respectively. These account for national trends as well as time-invariant precinct level factors. In addition, our preferred specification interacts the time trends with commuting zone fixed effects to capture any specific time trend for a specific commuting zone (60 regions in Sweden). The arguably most important component is Φ_p, representing precinct fixed effects. The analysis will hence capture within-precinct changes over time.

3.2.1 Identification

For identification of β we require that there is no unobserved variation related to votes for SD in precinct p that also confounds the share of immigrant co-workers among native residents in precinct p. Our preferred specification takes care of most potential threats to identification.

First of all, our precinct fixed effects (Φ_p), capture all static differences between neighborhoods. Using only variation over time, our research setting therefore asks: are the precinct-level votes for the SD significantly higher or lower than the average, in an election year with unusually many non-European co-workers among the precinct natives? The precinct fixed effects account for a big part of omitted factors that are simultaneous with both the share of non-European co-workers and support for the SD.

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[18]The education variable is taken from the Swedish education registers, which in this case is divided into seven steps, with 5-7 representing any education above 12 years (gymnasium). We label this as high education. Low education includes those with only 9 years or lower. Mean number of days unemployed is calculated using the number of days a given individual is registered in the Swedish public employment service as unemployed (job searching). Note that these are based on data a year before the election, to possibly account for some bad control problems.

A second worry is that the development on local labor markets is related to both the political outcome of precincts located within the labor market, as well as the labor market integration of migrants. We therefore include year fixed effects interacted with Sweden's 60 local labor markets (commuting zones), which all include several precincts. The inclusion of this control will not only capture the situation on the local labor market, but also the overarching national trend. Both the SD as a political force and immigrants in the workforce has evolved positively over the relevant period (see for example Figures 1 and 3).

Our variation will stem from changes within a precinct over time. There are several reasons we might worry that a given precinct is changing in respects correlated with both the share of non-European co-workers as well as votes for the SD. For example, due to networking and simple geographical proximity, the share of non-Europeans residing in a precinct is likely to be positively correlated with the share of non-European co-workers among the neighboring natives. We therefore control for the percent of non-European immigrants residing in each precinct. Since the effect is potentially different between subgroups of migrants, we also control for the share of low-skilled non-Europeans, as well as the share with citizenship (with voting rights). Most individuals do not work in the same precinct as they live, which makes it possible to separate neighborhood exposure from workplace exposure. To account for idiosyncratic shocks to native workers, we control for the mean number of unemployment days among natives and the percent of non-working natives

The preferred specification given by Equation 3 together with local labor market time trends takes care of all of the above worries. Essentially, given our focus on changes within precincts between elections, the variation in our treatment comes from three sources: 1) individuals can move in-between precincts, causing a change in the socioeconomic and co-worker composition of the precinct residents, 2) individuals can stay in the precinct but change job, or 3) individuals can stay put both in the precinct and at their workplace while the composition in the workplace changes. In other words, even given all of our efforts to capture the effect of the average share of non-European co-workers on SD votes, individual selection into precincts or workplaces could potentially bias our estimates. We will return to these issues, and provide suggestive evidence against the selection story, in the next section

where we present our results (see Section 4.2).

4   Results

This section presents our baseline estimates of the impact of workplace contact with non-Europeans on support for the SD, as well as the effects of within-skill contact. The main take-away is that we find a clear and robust negative effect of the share of non-European co-workers on voting for the SD – a result in tally with the contact hypothesis.

4.1   Workplace contact and support for the SD

Our baseline estimations are presented in Table 1. The coefficients represent the effect of a standard deviation increase in the average precinct-level share of non-European co-workers among working natives on the vote share for the SD. Column (1) includes the main treatment variable, time and precinct fixed effects as well as time-varying precinct-level controls to account for precinct-specific time trends in a set of key factors, most importantly the share of resident non-Europeans. In column (2) we add an interaction term between the time and the labor market region dummies, which accounts for labor market-specific time trends, while column (3) adds workplace specific controls, including the mean wage, the share of young workers, and the share of men in the workplaces of precinct residents.

The estimated effect of the share of non-European co-workers among natives on the vote share for the Sweden Democrats drops significantly as we control for local labor market trends (compare columns (1) and (2)). As workplace controls are added, the estimated slope coefficient instead becomes more negative (column (3)). The third column represents our most conservative, and most preferred, specification and the estimated slope coefficient suggests that a one standard deviation increase in the share of co-workers (approximately a 3 percentage points increase) is associated with a decrease of 0.428 percentage points in votes for the SD. This decrease represents around 8 percent of a standard deviation in the dependent variable. Compared to the *change* in votes for the SD, the point estimate represent around 12 percent of a standard deviation.

The negative effects in Table 1 (columns 1-3) are not supportive of our first prediction, namely that a higher share of non-European co-workers

18

Table 1: Share of non-European co-workers and support for the SD

	(1)	(2)	(3)	(4)
WP-contact with				
non-Europeans	-0.811***	-0.297**	-0.428***	
	(0.0840)	(0.0934)	(0.0996)	
WP-contact with same				
skill non-Europeans				-0.377***
				(0.107)
WP-contact with opposite				
skill non-Europeans				0.0770
				(0.0496)
Observations	17465	17465	17465	17465
Model	FE	FE	FE	FE
Year FE	Yes	Yes	Yes	Yes
Precinct Controls	Yes	Yes	Yes	Yes
Precinct FE	Yes	Yes	Yes	Yes
Labor market time trends	No	Yes	Yes	Yes
Workplace controls	No	No	Yes	Yes

Notes: The effect of the precinct-level share of non-European co-workers among native-born workers on the vote share for the Sweden Democrats. '***', '**' and '*' indicates statistical significance at 0.1%, 1% and 5% levels, based on clustered standard errors (on precinct level).

would *increase* opposition to immigration. Instead, the results are in line with the contact hypothesis: meaningful and co-operative contact with members of minority groups reduces prejudice and, in turn, voting for anti-immigration parties. At the very least, any increase in anti-immigration voting stemming from more contact with non-Europeans seem to be offset by the decrease from meaningful contact, plausibly reducing prejudice. However, Prediction 1.1 suggests that the *same-skill* presence of foreign-born co-workers captures the threat of increased labor market competition between natives and foreign-born workers more than the overall presence. For example, a *high-skilled* native would not expect to compete for employment and high wages with *low-skilled* immigrants, since these compete on essentially different labor markets.[19] At the same time, we expect co-workers of the same skill level to have even more co-operative and meaningful workplace contact, as they are most likely involved in similar tasks. To shed light on the importance of same-skill non-European co-workers in the context of

[19]High-skilled natives could still be under the impression that their *social* status is threatened when opposite-skill immigrant co-workers become visible in the workplace. The same is true for low-skilled natives.

workplace contact, we divide our sample in two groups: one for high-skilled and one for low-skilled workers, based on occupation categories.[20]

In detail, we reconstruct the treatment variable. In our baseline approach, we take out the share of non-European immigrant co-workers for all native workers. These shares are aggregated to the election precinct-level, which gives us the precinct-level average share of non-European co-workers among the natives residing in that precinct. In the following case, an arbitrary native's share of non-European immigrant co-workers is computed by using only co-workers of the *same skill level* as that native. These individual-level shares are then, just as in the previous case, aggregated to the precinct level. For completeness, we also create a measure for the share of immigrant co-workers in the *opposite* skill cell. This operation follows the same logic as for the same-skill co-workers, which means that we standardize with the number of co-workers in the opposite skill cell. An illustration of the method is given in Figure 2a.

As can be seen from the last column of Table 1, a negative coefficient is estimated only for workplace contact within the same skill level. Compared to the estimated slope coefficient of our preferred specification (column (3)), the estimate for within-skill contact is slightly less negative but qualitatively the same.[21] For contact with opposite-skill co-workers, the estimated slope coefficient is slightly positive and not distinguishable from zero. This shows that the negative effect of workplace contact on voting for the SD is solely driven by within-skill contact, which does not fit well with the competition hypothesis. Instead, it brings support to predictions in line with the contact hypothesis: social networks tend to be stratified depending on social status and class, and a stylized fact in many workplaces is the lack of vertical integration. We therefore expect colleagues to engage more frequently and

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[20]The skill levels are constructed using 1-digit occupation categories from the Swedish Standard Classification of Occupations (SSYK) High skilled include, for example, legislators and senior officials. Armed forces are excluded from the classification. See Dehdari (2019); Table A11 for a full description.

[21]As we discuss in Section 3.1, the estimates presented in column (4) are plausibly suffering from attenuation bias caused by classical measurement errors. As we restrict the measure of workplace contact to only include within-skill co-workers, natives with only workplace co-workers of the opposite skill are dropped. This means that a smaller share of a precinct's workers is used to capture the (average) workplace contact of the native citizens of that precinct. However, it is also worth noting that the estimate for same-skill contact in column (4) is not statistically distinguishable from the one presented in column (3).

on similar tasks within the same skill level, explaining the negative effects in the within-skill estimation. The lack of vertical integration could also explain the absence of any effect of opposite-skill contact on the SD vote shares. Co-workers of opposite skills are less likely to engage repeatedly in co-operative interactions, and usually do not share same or similar backgrounds and qualities.

4.2   Some robustness checks

Before considering the mechanisms in more detail, we validate the robustness of our main effect by providing a number of robustness results. First, we re-estimate the preferred specification presented in Table 1 (column 3) as well as the skill-sorted results in column (4) using samples where we drop precincts with the largest, smallest, most increasing or decreasing populations. The results are found in the Appendix, in Table B1 and B2, and shows that the results are virtually unchanged when we exclude precincts that are plausibly outliers.

Second, we add a couple of placebo estimations. In the first we use the dependent variable with a time lag. In other words, we estimate the effect of the change in the average share of non-European co-workers between 2010 and 2014 on the change in votes for SD between 2006 and 2010. In the second, we consider the effect of simply having more coworkers, by re-estimating our preferred specification, but with number of *any* coworkers as the explanatory variable. These results are found in column (1) and (2) of Table B3 and the estimates are not statistically different from zero.

Third, we may worry that workplaces belonging to certain industry sectors, which are prone (or less prone) to hire both immigrants *and* natives with more liberal (or less liberal) attitudes, concentrate locally. We therefore create a new treatment variable, in which we subtract each native's share of non-European co-workers from the share of non-European workers employed in that native's industry.[22] These shares are then aggregated to the precinct level and used as our treatment variable. Studying the results in column (2) of Table B3, we can observe that the coefficient is even more negative than the baseline case. We hence conclude that the results are robust to industry-specific trends.

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[22]We use two-digit industry sector codes that divides all Swedish firms into close to 70 sectors.

Fourth and last, we examine potential selection into treatment. Given the variation in our treatment, this selection could be either due to potential SD voters moving between precincts, or staying in the precinct but moving between workplaces, in between elections. If an individual with a preference for restrictive immigration policies chooses workplaces based on the workplace composition of foreign born, our results may be biased. Clearly we do not have access to a natural experiment which places immigrant workers as good as randomly in workplaces. However, we can provide suggestive evidence against the selection story by focusing only on natives who stay in a precinct in between elections. By showing that our results are robust to focusing on *stayers*, we at least eliminate the possibility of the results being driven solely by individuals moving in between precincts, in between elections. The results for stayers are found in column (3) of Table B3 and suggest the effect remains negative and statistically significant. Given our large amount of precinct level controls, and that the results are robust to focusing on stayers, we deem it unlikely that *selection into precincts* is the key driver of the results.

That said, staying is also a choice, and we have not considered selection into workplaces. A somewhat separate way to argue against this selection story is to consider preferences for immigration. While the register data do not include party preferences, we do have access to a fairly sizable survey conducted in 2009. The survey holds answers from around 11,000 natives in Sweden about their health, personality and attitudes.[23] Questions spanned from current medical treatments to moral statements, but also some questions on political preferences. In one of the survey questions, respondents were asked to read a political statement, which is part of the Swedish political discourse. Examples include "reduce income inequalities", "leave the European Union", or, "admit fewer refugees in Sweden", which is a salient issue for radical right parties. The respondents were then asked to assess their position from 1 (very poor suggestion) to 5 (excellent suggestion) on a Likert scale.[24] The survey was conducted before the 2010 election, which

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[23]The survey is called Screening Across the Lifespan Twin Young (SALTY) and is a part of the Swedish Twin Registry. The survey was sent out in 2009 to 24,914 Swedish twins born between 1943 and 1958. Of these, 11,261 answered and agreed to have their answers stored and analyzed. For a previous application of the survey and more description on the details, see Dawes et al. (2014).

[24]3 represents "neither good nor bad".

Figure 4: Comparing change in treatment variable depending on attitudes to refugee policy
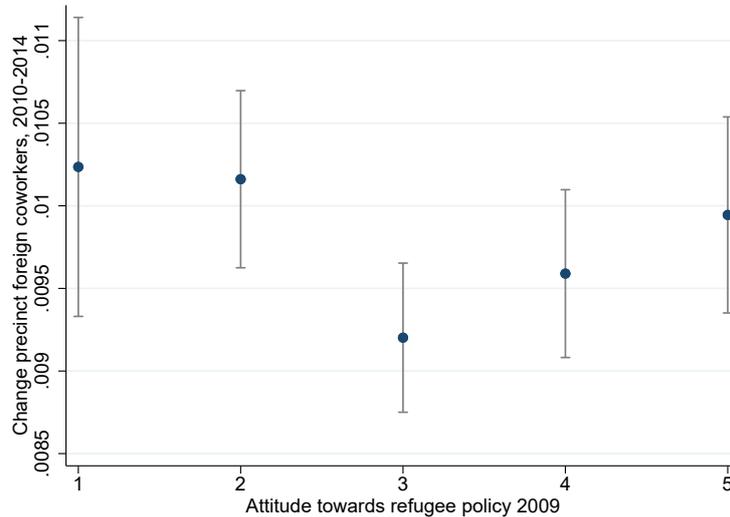
Notes: Scale on *x*-axis represents to what extent survey respondents in 2009 believed Sweden should take in fewer refugees. 5 = excellent suggestion 1= very poor suggestion. Data from Statistics Sweden.

means that attitudes were not influenced by anything taking place between 2010 and 2014.

We use the answer to the question on refugees as an indication of preference for restrictive immigration policy, and relate the answer to changes in workplace context between the two coming elections, 2010 and 2014. Since we can observe the election precinct of each respondent, we match the survey answers of each individual to the share of non-European immigrant co-workers among precinct natives (in other words we match it onto our treatment variable). Our goal is to make sure that respondents with preferences for more restrictive immigration policy in 2009 did not move to or stay in precincts with, on average, a smaller share of non-European immigrant co-workers. Most likely, should the selection story pose problem for our identification, we would expect individuals with a more restrictive view to have a more negative development of precinct immigrant co-workers, as opposed to individuals with a less restrictive view.

As can be seen in Figure 4, we do not find support for the selection story. Individuals strongly agreeing with the suggestion of accepting fewer refugees, i.e. reporting 5, experience an increase in the share of precinct-level non-

European co-workers which is, on average, larger than both those reporting 4 or 3. Survey respondents reporting the suggestion as either poor (2) or very poor (1), favouring more liberal policies, do show somewhat larger increases in the share of migrant co-workers compared to those who prefer a restrictive policy, however, the estimates are not statistically distinguishable from those reporting 5. While not definitive proof, the result from the attitude survey at least give some support to our identification strategy.[25]

So far, we have shown that the estimated negative effect of increased workplace diversity on support for anti-immigration parties is robust to various different specifications, and that these results are not likely driven by selection. In the next section, we explore if this can be attributed to contact.

5   Mechanism

While our data hold many strong features, a clear drawback is that we do not know to what extent individuals actually engage with each other in the workplace. Our interpretation of the results presented in the previous section hinges on the assumption that co-operative and meaningful contact is actually taking place between natives and their co-workers of non-European origins. The mechanism we propose is that of deeper contact between natives and immigrants, and that this explains how the share of non-European co-workers affects support for the SD. This section provides suggestive evidence in line with the proposed mechanism.

To better identify actual contact between work peers, we can stratify the sample in at least two ways. First, we can divide the *workers* in categories we deem more likely to engage with each other, which we did when using only within skill-level variation (see Table 1, column (4)). Second, we can perform the analysis for different sets of *workplaces*. One obvious division in terms of expected contact between co-workers is the size of the workplace. A plausible scenario is that contact is more likely to occur at small workplaces, since the probability of meeting co-workers is smaller in large settings with more co-workers. To this purpose, we categorize all workplaces as either *large*

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[25]Ideally, we would like to test this more directly, by showing how the attitudes of the respondents relate to the change in their *own* workplace composition. Unfortunately, this is currently not possible. The workplace ID used in the full population data, which is the basis of our treatment, is not possible to merge with the workplace ID in the survey, which is based on a separate key.

or *small* by using the number of employees.[26] Small workplaces are defined as having less than the median number of employees, which is equal to 50. Consequently, the number of employees at large workplaces is larger, or equal, to 50. The average share of non-European co-workers at the precinct level is then computed exactly as before, with the main difference that we get separate precinct-level measures for the average native worker employed at a small and a big workplace, respectively.

In the first column of Table 2, we re-estimate the baseline results using information from both large and small workplaces. As can be seen, the negative effect is exclusively driven by contact at small workplaces, which fits well with our idea of contact being the key mechanism. On the other end, the effect at large workplaces is positive, which we return to below.[27]

Note that, even at smaller workplaces it is not certain to what degree individuals with different work-related tasks actually engage with each other. In what follows, we further decompose the subgroups and estimate the effect of four different levels of contact, namely within and between-skill level at small or large workplaces. Since our prior is that contact is the key mechanism, we would expect a larger coefficient (i.e., more negative) for non-Europeans within-skill level at small workplaces, due the higher likelihood of actual interactions.

The estimates are presented in Table 2, column (2), and provide several take-aways. We first note that both coefficients using across skill variation, regardless if we look at large or small workplaces, render small and statistically insignificant point estimates. On the other end, as hypothesized, the point estimate using the share of within-skill level workplace contact with non-Europeans at small workplaces is negative, and qualitatively similar to the point estimate for small workplaces in column (1).[28] This is again in line with the contact hypothesis: meaningful contact within skill at small workplaces reduces support for anti-immigration parties.

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[26]We unfortunately do not have any information of the actual physical size of the workplaces.

[27]It is possible that smaller workplaces have other characteristics as opposed to larger, which might be correlated with our variables of interest. Note, however, that we are already controlling for the share of men, share of young and the average wage in the workplace, which likely takes care of a large share of the different key characteristics across workplaces.

[28]As was the case with the division of workers into low and high skill (Table 1, column (4)) the estimated effect of within-skill workplace contact is most likely suffering from attenuation bias due to classical measurement errors.

Table 2: Effect of non-European co-workers on votes for SD, separated for small and big workplaces

	(1)	(2)
WP-contact with non-Europeans, small WP:s	-0.554***	
	(0.0766)	
WP-contact with non-Europeans, large WP:s	0.400***	
	(0.108)	
WP-contact with same skill non-Europeans, big WP		0.348**
		(0.107)
WP-contact with opposite skill non-Europeans, big WP		-0.00797
		(0.0354)
WP-contact with same skill non-Europeans, small WP		-0.481***
		(0.0774)
WP-contact with opposite skill non-Europeans, small WP		0.0552
		(0.0396)
Observations	17465	17465
Model	FE	FE
Year FE	Yes	Yes
Controls	Yes	Yes
Precinct FE	Yes	Yes
Labor market time trends	Yes	Yes

Notes: The effect of the precinct-level share of non-European co-workers among native-born workers on the vote share for the Sweden Democrats. Effects separated for small and big workplaces, where small is any workplace with less than 50 co-workers. '***', '**' and '*' indicates statistical significance at 0.1%, 1% and 5% levels, based on clustered standard errors (on precinct level).

As can further be seen, the positive effect at large workplaces is almost exclusively driven by within-skill contact. It therefore seems that for large workplaces (as opposed to the average case) any reduction in anti-immigration party voting stemming from contact with non-Europeans, is offset by mechanisms that increase anti-immigration voting, for example within skill labor market competition. We believe the most plausible explanation for the diverging results between small and large workplaces can be attributed to the very size of the workplaces. The much larger pool of same-skill co-workers at a large workplaces makes it less likely that a native interacts, shares tasks, and have any meaningful contact with any given same-skill non-European co-worker. From the lower probability of meaningful contact, it of course also follows that fewer natives will experience the suggested negative effect on voting for the SD from contact with non-European co-workers.

Extension: Is meaningful contact less common within vulnerable occupations?

Taken together, the combined results presented in Tables 1 and 2, suggest that the negative effects of workplace contact with non-European co-workers on voting for anti-immigration parties is related to increased contact. This is in tally with the contact hypothesis and shows that any potential increase in anti-immigration voting stemming from threat of labor market competition is offset by the reduction in prejudice against minorities entailed by meaningful and co-operative contact. However, we have so far assumed that the threat of competition is merely "highlighted" when natives are exposed to immigrants in the workplace. A natural question is whether *actual* labor market vulnerability dampens the overall effect of workplace contact, as specified in Prediction 3. To examine this possibility, we consider the effect of workplace contact among natives employed in vulnerable occupations.

As has been noticed in the labor economics literature, the technological development has lead to an increasing job loss within occupations with a higher degree of routine based tasks (Autor et al., 2003; Autor and Dorn, 2013; Goos et al., 2014). Somewhat simplified, the logic behind this development is that jobs with a high degree of repetitive tasks are easily codifiable and computerized, implying that tasks that were previously made by humans can now be performed with computers. The opposite is true for occupations

27

with more abstract, problem solving tasks.

We use 2-digit ISCO codes to measure workplace vulnerability, effectively categorizing individuals into 27 different occupations. We then separate the precinct-level averages of the share of non-European co-workers into *vulnerable* and *non-vulnerable* using the RTI-index in Goos et al. (2014), The RTI-index classifies the 27 two-digit ISCO-occupation codes with a mean 0 and a standard deviation 1, which gives a scale from office clerks at 2.26 to the, supposedly, safe role of manager at -1.52. To deconstruct even further for our purposes, we consider the top quartile of the index as vulnerable occupations, and the bottom quartile of the index as non-vulnerable occupations. In the interest of not loosing too much information when computing the precinct-level average shares, we use our baseline measure as treatment, i.e. the share of non-European co-workers for natives.

The effect of non-European co-workers is separately estimated for the two categories of vulnerability, and the results are presented in Table 3. As shown in column (1), there is a small positive effect of workplace contact on support for the SD for natives within the most vulnerable occupations, statistically significant at the 5-percent level. The magnitude of the estimate is interpreted as a one standard deviation increase in the share of non-European workers causes a 0.1 percentage point increase in voting for the SD. On the other end, the effect of workplace contact remain negative and statistically significant for natives employed in non-vulnerable occupations (column (2)). The estimate is smaller than the baseline case, and can most likely be attributed to attenuation bias due to the restricted number of natives used in computing the precinct-level averages.

What conclusions can be drawn from Table 3? One possible story is that contact between colleagues is more prevalent among the non-vulnerable occupations. While this would fit very well with our suggested mechanism, we remain sceptical to this interpretation. It is not certain that physical professionals or drivers and mobile plant operators (low vulnerability) have more day to day contact with colleagues than office clerks (high vulnerability). Instead, our preferred interpretation of the results is that increased presence of immigrants in the workplace only translates into concerns of increased labor market competition if ones employment is actually at risk.[29] This would be

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[29]Notice that the fact that higher RTI-scored occupations in general are threatened to a higher degree than low RTI-scoring occupations can be validated with data on layoff

Table 3: Effect of contact with non-European co-workers on votes for SD, separated for vulnerable and non-vulnerable occupations

	Vulnerable (1)	Non-vulnerable (2)
WP contact with non-Europeans, vulnerable occupations	0.091*	
	(0.045)	
WP contact with non-Europeans, non-vulnerable occupations		-0.155*
		(0.068)
Observations	17461	17465
Model	FE	FE
Year FE	Yes	Yes
Controls	Yes	Yes
Precinct FE	Yes	Yes
Labor market time trends	Yes	Yes

Notes: The effect of share of non-European co-workers among native-born workers on the vote share for the Sweden Democrats. Effects separated for vulnerable and non-vulnerable occupations, where vulnerable is the top 25 percent in an RTI-index Goos et al. (2014), and non-vulnerbale is the bottom 25 percent in the same index. '***', '**' and '*' indicates statistical significance at 0.1%, 1% and 5% levels, based on clustered standard errors (on precinct level).

the case among the vulnerable occupations, where an increased number of non-European co-workers might signal competition to a type of occupation with a high risk of computerization. In other words, natives might care more about labor market competition from immigrants if they indeed have a high risk of losing their jobs.

6 Conclusion

In this paper we use Swedish full population data to estimate the relationship between the electoral support for the anti-immigration party the Sweden Democrats and the precinct-share of non-European co-workers among native residents. The estimation includes precinct fixed effects, controls for local labor market trends as well as several time-varying precinct-level controls. Our results suggest that a one standard deviation increase in the share of non-European co-workers among the native precinct residents is related to a 0.43 percentage point drop in votes for SD.

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notices. In Figure B1, in the Appendix, we show how the probability of receiving a layoff notice increased with the RTI-score (2006-2013).

The baseline result, combined with a number of extensions, provide us with three main conclusions. First, we interpret the results as support for the contact hypothesis, namely that an increased presence of minorities (in this case at work) makes natives less inclined to vote for an anti-immigration party. To support our claim, we stratify results along skill levels. Workplaces often have low vertical integration and social interactions happen primarily within the same skill level. We therefore expect only effects from non-Europeans within the same skill cell. Our results show that negative effects on votes for SD arises solely from an increase of non-European co-workers within the same skill level. We also validate these results using small and big workplaces, showing a much stronger effect for smaller as opposed to larger workplaces.

Second, while native workers of a particular skill are expected to lose from immigration of the same skill (as this raises the competition for jobs and lowers the relative wages of the same-skill level, see Borjas et al. 1996, 1997) we do not find support for within-skill competition causing a rise in support for the SD. As noted, the result rather show the opposite. Our results therefore suggest that, even assuming that labor market competition from immigrants increases anti-immigration attitutude, it is on average offset by the reduction in prejudice towards minorities resulting from increased contact.

Third, in an extension to the above results we show that the results are different for vulnerable and non-vulnerable occupations. In detail, we show that the negative effects on votes for anti-immigration parties from increased contact with non-Europeans is seen only in *non-vulnerable* occupations, which have a lower probability of computerization. A possible interpretation of these results is that labor market competition from immigrants becomes more pressing for natives when there is a greater threat of job loss.

The results add new evidence to the expanding literature on the rise of anti-immigration/radical right parties. In particular, it adds to the segment of the literature studying immigration and voting for. The main part of the literature, which considers neighborhood contact, find a positive association between the share of immigrants and radical right voting. Our focus on the workplace suggest that the opposite is true, that there exists a negative association between share of immigrants and support for radical right

parties. Since the context of the workplace and the neighborhood are very different, with the latter consisting mainly of brief and superficial contact, and the former arguably of more co-operative contact, the results should not be seen to stand in contrast to each other. Instead, our results clearly suggest that more emphasis and focus should be given to type of context, and how different types of contact can predict how immigration affects voting on anti-immigration parties.

References

ALLPORT, G. W. (1954): *The nature of prejudice*, Garden City, NJ Anchor.

AUTOR, D. AND D. DORN (2013): "The Growth of Low-Skill Service Jobs and the Polarization of the US Labor Market," *American Economic Review*, 103, 1553—1597.

AUTOR, D., D. DORN, G. HANSON, K. MAJLESI, ET AL. (2016): "Importing Political Polarization? The Electoral Consequences of Rising Trade Exposure," Tech. rep., NBER Working Paper No. 22637.

AUTOR, D., F. LEVY, AND R. MURNANE (2003): "The Skill Content of Recent Technological Change: An Empirical Exploration," *Quarterly Journal of Economics*, 118, 1279—1333.

BECKER, S. O., T. FETZER, ET AL. (2016): "Does Migration Cause Extreme Voting," Tech. rep., Competitive Advantage in the Global Economy (CAGE).

BODVARSSON, Ö. B., H. F. VAN DEN BERG, AND J. J. LEWER (2008): "Measuring immigration's effects on labor demand: A reexamination of the Mariel Boatlift," *Labour Economics*, 15, 560–574.

BORJAS, G. J. (2015): "The wage impact of the Marielitos: A reappraisal," *ILR Review*.

BORJAS, G. J., R. B. FREEMAN, L. F. KATZ, J. DINARDO, AND J. M. ABOWD (1996): "Searching for the Effect of Immigration on the Labor Market," *American Economic Review*, 86, 246–251.

——— (1997): "How much do immigration and trade affect labor market outcomes?" *Brookings papers on economic activity*, 1997, 1–90.

BROOCKMAN, D. AND J. KALLA (2016): "Durably reducing transphobia: A field experiment on door-to-door canvassing," *Science*, 352, 220–224.

CARD, D. (1990): "The impact of the Mariel boatlift on the Miami labor market," *ILR Review*, 43, 245–257.

CLEMENS, M. A. AND J. HUNT (2019): "The Labor Market Effects of Refugee Waves: Reconciling Conflicting Results," *ILR Review*, 72, 818—-857.

COLUSSI, T., I. E. ISPHORDING, AND N. PESTEL (2016): "Minority Salience and Political Extremism," *IZA Discussion Paper No. 10417*.

DAVIS, L. AND S. S. DEOLE (2017): "Immigration and the Rise of Far-right Parties in Europe," *ifo DICE Report*, 15, 10–15.

DAWES, C., D. CESARINI, J. H. FOWLER, M. JOHANNESSON, P. K. E. MAGNUSSON, AND S. OSKARSSON (2014): "The Relationship between Genes, Psychological Traits, and Political Participation," *American Journal of Political Science*, 58, 888–903.

DEHDARI, S. H. (2019): "Economic Distress and Support for Radical Right Parties – Evidence from Sweden," *mimeo*.

DUSTMANN, C., K. VASILJEVA, AND A. PIIL DAMM (2019): "Refugee Migration and Electoral Outcomes," *The Review of Economic Studies*, 86, 2035–2091.

EDO, A., Y. GIESING, ÖZTUNG J, AND P. POUTVAARA (2019): "Immigration and electoral support for the far-left and the far-right," *European Economic Review*, 115, 99–143.

FINSERAAS, H., T. HANSON, Å. A. JOHNSEN, A. KOTSADAM, AND G. TORSVIK (2019): "Trust, ethnic diversity, and personal contact: A field experiment," *Journal of Public Economics*, 173, 72–84.

GOOS, M., A. MANNING, AND A. SALOMONS (2014): "Explaining Job Polarization: Routine-Biased Technological Change and Offshoring," *American Economic Review*, 104, 2509—-2526.

HAALAND, I. AND C. ROTH (2017): "Labor Market Concerns and Support for Immigration," *Unpublished Working Paper*.

HAINMUELLER, J. AND M. J. HISCOX (2010): "Attitudes toward highly skilled and low-skilled immigration: Evidence from a survey experiment," *American Political Science Review*, 104, 61–84.

HAMILTON, B. H., J. A. NICKERSON, AND H. OWAN (2003): "Team incentives and worker heterogeneity: An empirical analysis of the impact of teams on productivity and participation," *Journal of political Economy*, 111, 465–497.

HANGARTNER, D., E. DINAS, M. MARBACH, K. MATAKOS, AND D. XEFTERIS (2019): "Does Exposure to the Refugee Crisis Make Natives More Hostile?" *American Political Science Review*, 113, 442–455.

KNIGGE, P. (1998): "The ecological correlates of right-wing extremism in Western Europe," *European Journal of Political Research*, 34, 249–279.

KOKKONEN, A., P. ESAIASSON, AND M. GILLJAM (2015): "Diverse workplaces and interethnic friendship formation—A multilevel comparison across 21 OECD countries," *Journal of Ethnic and Migration Studies*, 41, 284–305.

LOWE, M. (2018): "Types of Contact: A Field Experiment on Collaborative and Adversarial Caste Integration," *Unpublished Manuscript*.

LUBBERS, M., M. GIJSBERTS, AND P. SCHEEPERS (2002): "Extreme right-wing voting in Western Europe," *European Journal of Political Research*, 41, 345–378.

MCLAREN, L. M. (2003): "Anti-immigrant prejudice in Europe: Contact, threat perception, and preferences for the exclusion of migrants," *Social Forces*, 81, 909–936.

PERI, G. AND V. YASENOV (2017): "The Labor Market Effects of a Refugee Wave: Synthetic Control Method Meets the Mariel Boatlift," *IZA Discussion Paper No. 10605*.

PETTIGREW, T. F. AND L. R. TROPP (2006): "A meta-analytic test of intergroup contact theory." *Journal of Personality and Social Psychology*, 90, 751.

RINK, N., K. PHALET, AND M. SWYNGEDOUW (2009): "The effects of immigrant population size, unemployment, and individual characteristics on voting for the Vlaams Blok in Flanders 1991–1999," *European sociological review*, 25, 411–424.

RYDGREN, J. AND P. RUTH (2011): "Voting for the radical right in Swedish municipalities: Social marginality and ethnic competition?" *Scandinavian Political Studies*, 34, 202–225.

——— (2013): "Contextual explanations of radical right-wing support in Sweden: socioeconomic marginalization, group threat, and the halo effect," *Ethnic and Racial Studies*, 36, 711–728.

RYDGREN, J. AND S. VAN DER MEIDEN (2018): "The radical right and the end of Swedish exceptionalism," *European Political Science*, 1–17.

SCHROEDER, J. AND J. L. RISEN (2016): "Befriending the enemy: Outgroup friendship longitudinally predicts intergroup attitudes in a coexistence program for Israelis and Palestinians," *Group Processes & Intergroup Relations*, 19, 72–93.

SIMONOVITS, G., G. KÉZDI, AND P. KARDOS (2017): "Seeing the World Through the Other's Eye: An Online Intervention Reducing Ethnic Prejudice," *American Political Science Review*, 1–8.

STEINMAYR, A. (2016): "Exposure to Refugees and Voting for the Far-Right: (Unexpected) Results from Austria," *IZA Discussion Paper No. 9790*.

STRÖMBLAD, P. AND B. MALMBERG (2016): "Ethnic segregation and xenophobic party preference: Exploring the influence of the presence of visible minorities on local electoral support for the Sweden Democrats," *Journal of Urban Affairs*, 38, 530–545.

VALDEZ, S. (2014): "Visibility and votes: A spatial analysis of anti-immigrant voting in Sweden," *Migration Studies*, 2, 162–188.

VALENTINO, N. A., S. N. SOROKA, S. IYENGAR, T. AALBERG, R. DUCH, M. FRAILE, K. S. HAHN, K. M. HANSEN, A. HARELL, M. HELBLING, ET AL. (2017): "Economic and cultural drivers of immigrant support worldwide," *British Journal of Political Science*, 1–26.

WEISS, C. M. (2019): "Curing Prejudice through Representative Bureaucracies: Evidence From A Natural Experiment in Israeli Medical Clinics," *mimeo*.

WIDFELDT, A. (2008): "Party change as a necessity–the case of the Sweden Democrats," *Representation*, 44, 265–276.

Appendix

A   Descriptives

Table A1 presents descriptive statistics of the data used in the precinct-level analysis, and a few things are worth mentioning. First, the population is fairly concentrated around the average of 1,200 (adult) inhabitants (including both those eligible to vote and residents not eligible to vote). Second, on average almost 30 percent of the precinct population are non-working. This number is important to keep in mind since the variation in our main treatment will come only from individuals connected to a workplace, while the outcome – voting – is an aggregate outcome of all precinct voters. Third, around 6 percent of the precinct population are non-European immigrants, but the variation here is noticeable. In general a clear majority of the non-Europeans are citizens (% citizens of non-Europeans), and have some education longer than nine years (% low educ. non-Europeans in precinct) Fourth, while our mapping procedure creates more comparable units over time, a few peculiarities in the maximum and minimum values follows. For example, the least populated precinct has 3,46 inhabitants, and the precinct with the residents who have the most male co-workers, have more than 200 percent male co-workers. These are outliers and an issue in very few observations. As we show below, our results are not in any ways dependent or affected by the removal or addition of these precincts.

Who are the co-workers?

As an additional description we provide more detailed characteristics of the non-European co-workers in Table A2. The table shows the average percentage of co-workers with certain characteristics, for all residents in a given precinct.

As can be seen, an overwhelming majority are low-skilled migrants. On average, the working native population in a precinct has 3.5 percent low-skilled non-European co-workers, compared to the corresponding number for the share of any skill-level non-European co-workers of 4.2 percent. Also, separating by years since residence permit, the most common group are migrants with an extended period in the country. The numbers are suggestive of a long labor market integration period for many migrants, especially those

Table A1: Summary Stats full sample 2006-2014

	mean	sd	min	max	count
Outcome					
% votes for the SD	7.26	5.76	0.00	36.89	17508
Votes for the SD, Δ %-units	5.05	3.58	-1.37	24.10	11670
Treatment					
% non-European coworkers					
among native precinct residents	4.36	3.06	0.02	30.00	17508
Controls					
Population	1204	323	3.46	2489	17508
% low educated	13.12	6.74	0.44	39.18	17508
% non-working natives	27.63	8.53	2.28	66.88	17508
Log(Wage)	7.34	0.37	2.09	8.52	17508
# of unemployment benefit days	10.55	6.00	0.03	71.37	17508
% non-Europeans in precinct	6.28	9.36	0.00	77.26	17508
% citizens of non-Europeans	78.45	14.08	0.00	100	17465
% low educ. non-Europeans in precinct	15.46	11.11	0.00	100	17465
Wage of coworkers					
among precinct residents	2946	669	13.24	9571	17508
% males of coworkers					
among precinct residents	49.78	11.16	0.19	221	17508
% young of coworkers					
among precinct residents	19.91	4.70	0.08	66.65	17508

Notes: Descriptive statistics. Numbers aggregated on election precinct and election year level. Treatment represent the percent and number of non-European born co-workers among native workers staying in a given precinct and election year. Wages represent yearly wage gross income in hundreds of SEK.
Source: Data from Statistics Sweden.

from outside of Europe.

Last, we also separate by five regions of origin; Latin America, Middle East and North Africa (MENA), Other Asia, Other Africa and for completeness, we group migrants from Oceania with stateless individuals. The separation shows that all groups but the last category are present. Many are from the MENA countries or other Asian countries, which is expected given that some of the largest immigration groups in Sweden (for example Iraq, Iran, Afghanistan, Syria) belong to this category.

Table A2: Non-European co-workers and their characteristics

	mean	sd	min	max	count
% non-Eur. coworkers on natives' workplaces	4.17	2.90	0.02	27.55	17508
Separated by year in country					
≤5 years in country	0.51	0.39	0.00	6.28	17508
≤10 years, ≥5 years in country	0.55	0.42	0.00	4.94	17508
≤15 years, ≥10 years in country	0.56	0.44	0.00	5.51	17508
≥15 years in country	2.55	1.79	0.01	15.40	17508
Separated by skill level					
% high skilled	0.34	0.31	0.00	5.73	17508
% low skilled	3.54	2.36	0.02	22.96	17508
Separated by origin					
% Latin American	0.74	0.53	0.00	3.97	17508
% MENA	1.76	1.53	0.00	16.88	17508
% Other Asia	1.09	0.54	0.01	6.53	17508
% Other Africa	0.53	0.53	0.00	6.74	17508
% Oceania and Stateless	0.04	0.04	0.00	1.00	17508

Notes: Numbers aggregated on election precinct and election year level.
Source: Data from Statistics Sweden.

B Robustness checks

Table B1: Effect of imm-co-workers on votes for SD, dropping precincts with unusually large, small, increasing or decreasing populations

Dropping:	top 10 % in pop (1)	bott 10 % in pop (2)	top 10 % in Δpop (3)	bott 10 % in Δpop (4)
WP-contact with				
non-Europeans	-0.392***	-0.398***	-0.448***	-0.510***
	(0.104)	(0.102)	(0.116)	(0.106)
Observations	15714	15759	15710	15725
Model	FE	FE	FE	FE
Year FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Precinct FE	Yes	Yes	Yes	Yes
Labor market time trends	Yes	Yes	Yes	Yes

Notes: The effect of the precinct-level share of non-European co-workers among native-born workers on the vote share for the Sweden Democrats, excluding precincts with unusually large or small populations (increase) '***', '**' and '*' indicates statistical significance at 0.1%, 1% and 5% levels, based on clustered standard errors (on precinct level).

Table B2: Effect of imm-co-workers on votes for SD, matched and non-matched skill-level. dropping precincts with unusually large, small, increasing or decreasing populations

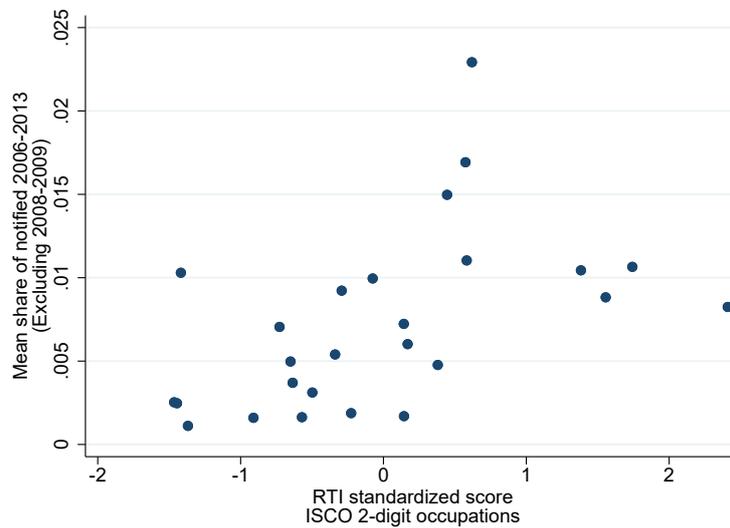| Dropping:	top 10 % in pop (1)	bott 10 % in pop (2)	top 10 % in Δpop (3)	bott 10 % in Δpop (4)
WP-contact with same				
skill non-Europeans	-0.380***	-0.312**	-0.375**	-0.468***
	(0.112)	(0.109)	(0.123)	(0.115)
WP-contact with opposite				
skill non-Europeans	0.124*	0.0408	0.0785	0.0958
	(0.0518)	(0.0499)	(0.0518)	(0.0579)
Observations	15714	15759	15710	15725
model	fe	fe	fe	fe
Model	FE	FE	FE	FE
Year FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Precinct FE	Yes	Yes	Yes	Yes
Labor market time trends	Yes	Yes	Yes	Yes

Notes: The effect of the precinct-level share of non-European co-workers among native-born workers on the vote share for the Sweden Democrats, considering matched and non-matched skill level among natives and immigrants. We exclude precincts with unusually large or small populations (increase) '***', '**' and '*' indicates statistical significance at 0.1%, 1% and 5% levels, based on clustered standard errors (on precinct level).

Table B3: Effect of non-European co-workers on SD-votes, placebo and industry sector fixed effects

	Placebo (lead) (1)	Placebo (# coworkers) (2)	Industry-FE (3)	Stayers (4)
WP-contact with non-Europeans	0.110 (0.0760)			
WP-contact with any coworkers		0.147 (0.189)		
Deviation from national sector			-0.654*** (0.0992)	
WP-contact with non-Europeans, stayers				-0.335*** (0.0382)
Observations	11645	17465	17465	16760
Model	FE	FE	FE	FE
Year FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Precinct FE	Yes	Yes	Yes	Yes
Labor market t. trends	Yes	Yes	Yes	Yes

Notes: In column (1) we show the effect of the precinct-level share of non-European co-workers among native-born workers in election year t on the vote share for the Sweden Democrats in election year $t-1$. In other words a placebo estimation. In Column (2) we measure the effect of number of coworkers, rather than share of non-European coworkers. In column (3) we use the same set-up as in the baseline effect in Column (3), Table 1, however, the share of non-European co-workers for each native-born worker is computed as the deviation from the industry-specific national average. For more information on exactly how this is done, see the text under 4.2. Column (3) again the set up in the baseline effect, only the treatment is calculated using only natives who remained in the same precinct over election year t and $t+1$. '***', '**' and '*' indicates statistical significance at 0.1%, 1% and 5% levels, based on clustered standard errors (on precinct level).

Figure B1: Correlation between notifications and RTI score