CULTURE, WORK ATTITUDES, AND JOB SEARCH: EVIDENCE FROM THE SWISS LANGUAGE BORDER

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Abstract
Unemployment varies across space and in time. Can attitudes toward work explain some of these differences? We study job search durations along the Swiss language border, sharply separating Romance language speakers from German speakers. According to surveys and voting results, the language border separates two social groups with different cultural background and attitudes toward work. Despite similar local labor markets and identical institutions, Romance language speakers search for work almost seven weeks (or 22%) longer than their German speaking neighbors. This is a quantitatively large effect, comparable to a large change in unemployment insurance generosity. (JEL: J21, J64, Z10)

1. Introduction

Unemployment varies a lot over time and across space in ways that are not explained by laws or markets. OECD (2005) documents strong differences in unemployment across countries even when differences in institutions have been accounted for.

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Similarly, different regions within the same country often experience large differences in unemployment despite facing the same institutions. The view that unemployment only follows incentives and markets is too narrow.

Social scientists and some evolutionary biologists have long argued that culture—the set of beliefs, norms, and preferences shared across social groups—is an important determinant of behavior. De Tocqueville (1966) was fascinated by the differences between the United States of America and France and Britain in terms of the core values that shape the ways democracies work. More recently, Boyd and Richerson (1985) discuss the process of cultural evolution from the perspective of evolutionary biology. Economists have put forth theoretical arguments why culture and identity might affect unemployment (Akerlof 1980; Lindbeck and Nyberg 2006). Yet there is very little empirical evidence showing that cultural differences are quantitatively important for explaining observed differences in unemployment. This is due to a key empirical challenge. Culture often coevolves with laws and institutions (Bénabou and Tirole 2006). Hence isolating the direct effects of culture from its indirect effects via laws and institutions is challenging.

This paper studies the effect of culture on unemployment by comparing job search behavior across language regions in Switzerland. Language areas are divided by a sharp geographical border, the *Rösti* border, which has become a metaphor for the general cultural divide within the country ("Rösti" refers to a popular potato dish in the German speaking part of Switzerland). The direct-democratic political system of Switzerland repeatedly reveals strong differences in political attitudes and preferences in national referenda. These differences are particularly striking in votes relating to work-time regulations: French or Italian (Romance language) speakers are consistently more supportive in votes demanding fewer weekly working hours, longer vacations, or less restrictive early retirement rules. Differences in values and work preferences become also very clear from survey data. In a 1997 survey, 77% of respondents from the German speaking part of Switzerland state that "I would enjoy having a paid job even if I did not need the money", yet only 52% of French or Italian speaking survey respondents agree with this statement.

To understand how culture might affect unemployment, our empirical analysis studies differences in unemployment durations at the *Rösti* border. Two features of this border are of particular interest in the present context. On the one hand, the dominant language spoken in a municipality changes sharply at the *Rösti* border. Within a geographical distance of less than 5 km, the fraction of native Romance language speakers falls from more than 80% to less than 20% (and vice versa, for native German speakers). On the other hand, important segments of the language border do not coincide with canton (state) borders: the language-border contrast *within* cantons holds laws and institutions constant, while exploiting differences in culture. Hence the *Rösti* border represents an empirical design that addresses a key empirical challenge in studying the role of culture.

Our empirical analysis uses data from the Swiss unemployment register covering the universe of individuals entering unemployment over the period 1998–2003 in Switzerland. We focus on Swiss men in the age group 25–59. Our data set provides

us with a large number of unemployment spells, allowing us to zoom in around the language border: limiting the sample of our main regressions to individuals living within 50 km of the language border still provides us with more than 60,000 unemployment spells.

Our empirical analysis establishes three main results. *First*, based on survey and voting evidence, we show that attitudes towards work change sharply at the *Rösti* border. Support for work-time regulations in national referenda is consistently higher among residents on the Romance language speaking side. Differences in voting outcomes are often strikingly large, not only on average, but also at the language border, indicating a strong discontinuity in work norms, values and preferences at the *Rösti* border. This is further supported by survey evidence suggesting that Romance language speaking individuals are much less likely to think that hard work leads to success, and much more likely to think that external forces shape what happens in your life.

Second, there is a robust difference in unemployment durations at the language border. Individuals living in Romance language speaking border communities leave unemployment seven weeks later than individuals living in German speaking communities. This amounts to about a 22% gap in the average duration of unemployment. This result is very robust and remains largely unchanged after controlling for canton dummies, individual controls, labor demand characteristics, municipality characteristics, and local active labor market policies.

Third, we study in detail whether differences in labor demand may account for the duration gap. We do not find differences in earnings, neither in preunemployment earnings nor in average wages of employed workers. We find that there is substantial commuting around the language border, suggesting that labor markets are fairly well integrated. We document that there is no significant discontinuity at the language border in variables reflecting labor demand conditions, including the job separation rate, unemployment inflow rate, vacancies per worker, growth in the number of jobs, and growth in the number of firms. We conclude that differences in labor demand indicators are too small to account for the large unemployment duration gap at the language border.

Cultural attitudes toward work may be due to religion (Basten and Betz 2013). Religion might be important in our context since the proportion of Catholics is significantly higher on the Romance language speaking side of the language border. We study whether the language border effect interacts with religion by comparing this effect within a protestant canton (Berne) and within two catholic cantons (Valais, Fribourg). We find that the language border effect is somewhat, but insignificantly, smaller in the Catholic cantons compared to the Protestant canton, suggesting that the language border effect is not driven by religion.

We find that longer unemployment durations arise mainly because Romance language speaking workers are less likely to find jobs on their own initiative. Although this may, to some extent, be driven by employer discrimination, we argue that this probably reflects mainly a lower intensity and/or efficiency of job search. This provides further support for the claim that unemployment duration differences are to a large extent driven by work attitudes.

Differences in language proficiency could also explain some of the gap in job search. We find that, indeed, Romance language speakers are less likely proficient in German than vice versa. Nevertheless, differences in language proficiency cannot explain the observed unemployment duration gap. This is because the duration gap is equally large among workers who speak the language of the other region than among workers who do not.

This paper is related to a rapidly expanding literature on the role of culture in various labor market outcomes. Alesina et al. (2006) investigate why Americans work so much more than Europeans. They argue that European labor market regulations influenced leisure patterns and created a "leisure culture" through a social multiplier (the returns to leisure are higher when more people take longer vacations). A model based on such complementarities in leisure performs better in explaining US-European differences in working hours than a model based on differences in taxation (Prescott 2004). Fernández and Fogli (2006) and Fernández and Fogli (2009) find that the country of heritage significantly affects the work (and fertility) behavior of married second-generation immigrant women. This is consistent with the hypothesis that the culture of the country of origin affects current economic outcomes. Fernández (2007) shows that attitudes in the country of ancestry towards women's market work and housework have explanatory power for current labor market participation. Algan and Cahuc (2007) and Alesina and Giuliano (2010) investigate the particular role of family ties in labor market outcomes. These studies find that strong family ties reduce labor force participation. Ichino and Maggi (2000) study cultural differences in the propensity to shirk (absenteeism and misconduct) using data from a large Italian bank. Clark (2003), Stutzer and Lalive (2004), and Kolm (2005) study the role of social work norms for how people perceive unemployment. Basten and Betz (2013) study how adhering to Protestantism, rather than Catholicism, affects preferences for leisure, redistribution, and intervention along a spatial discontinuity in religion in Western Switzerland. A further related strand of the literature has focused on the emergence of and support for labor market institutions such as the unemployment insurance system. Algan and Cahuc (2009) argue that cultural differences can explain why some countries implement a different mix of employment protection and unemployment insurance. Lindbeck, Nyberg and Weibull (2003) and Lindbeck and Nyberg (2006) consider the dynamics of work ethics and how these dynamics interact with the evolution of welfare state provisions.[1]

1. Three further strands of the literature are related. First, a theoretical strand considers the transmission of cultural values from parents to children. See, for example, Bisin and Verdier (2000, 2001), and Bisin et al. (2004) on marriage and religion, Hauk and Saez-Marti (2002) on corruption, Doepke and Zilibotti (2008) on class-specific preferences and the industrial revolution. Second, other studies have looked at the role of culture in explaining the demand for redistribution (Alesina and Fuchs-Schündeln 2007; Eugster, Lalive, Steinhauer and Zweimüller 2011; Eugster and Parchet 2013), economic performance (Tabellini 2010), or trade (Guiso, Sapienza and Zingales 2009). The third strand argues that economic institutions may shape important elements of a group's culture. See Maystre, Olivier, Thoenig and Verdier (2014) for a recent study of the effect of trade on cultural diversity and Bowles (1998) for a survey on the effects of markets on preferences.

This paper contributes to this literature in at least two respects. *First*, previous literature has looked into the role of elements of culture, such as social work norms or family ties, that might eventually affect job search behavior. Our paper adds to that literature by focusing directly on unemployment durations as an outcome. Moreover, we provide evidence how the combination of the above elements of culture matters for job search outcomes. *Second*, it applies a novel empirical design combined with informative register data to establish that culture is important for unemployment durations. Limiting the analysis to a narrowly defined geographic area helps separating the cultural component from other relevant explanations. Moreover, large register data that are informative on workers' search behavior (including the information on how individuals find new jobs: either on their own or mediated through the employment office) allow us zooming in around the language border and establish that individual search effort is a major driver of the language-border effect in unemployment.

The outline of the paper is as follows. Section 2 discusses Swiss labor market institutions, language regions, and associated differences in work attitudes (using survey evidence and voting results from national referenda). Section 3 discusses the main data sources used in the empirical analysis and Section 4 presents our empirical strategy. Section 5 presents our main results and investigates channels and competing explanations. Section 6 concludes.

2. Background

In this section we discuss the specific context of Switzerland that is relevant for our empirical analysis. We first present some facts on languages and language regions before we discuss labor market policies and other particular institutions that might have an impact on unemployment outcomes. Then we provide survey evidence and voting evidence from national referenda showing that there are substantial differences between language regions in beliefs, norms, and values related to work and unemployment.

2.1. Languages

Switzerland became multilingual in 1481, when German speaking reeves conquered French speaking territory. The Swiss-German language was imposed on the initially French speaking territory that shifted the language border westward. In the 18th century, bilingualism and the French language were accepted more and more, and at the end of the 18th century, the two languages were seen as equal. Since then, the language border has been very stable (for more details on the history of the Swiss language regions, see Büchi 2000).

Switzerland has four official languages. According to the 2000 census, German is spoken by 75% of the population, French by 20%, Italian by 4%, and Romansh by 1%.[2] Three cantons—Valais, Fribourg, and Berne—are bilingual (French, German);

2. Calculated from the 2000 census data set among Swiss citizens age 18+ born in Switzerland.

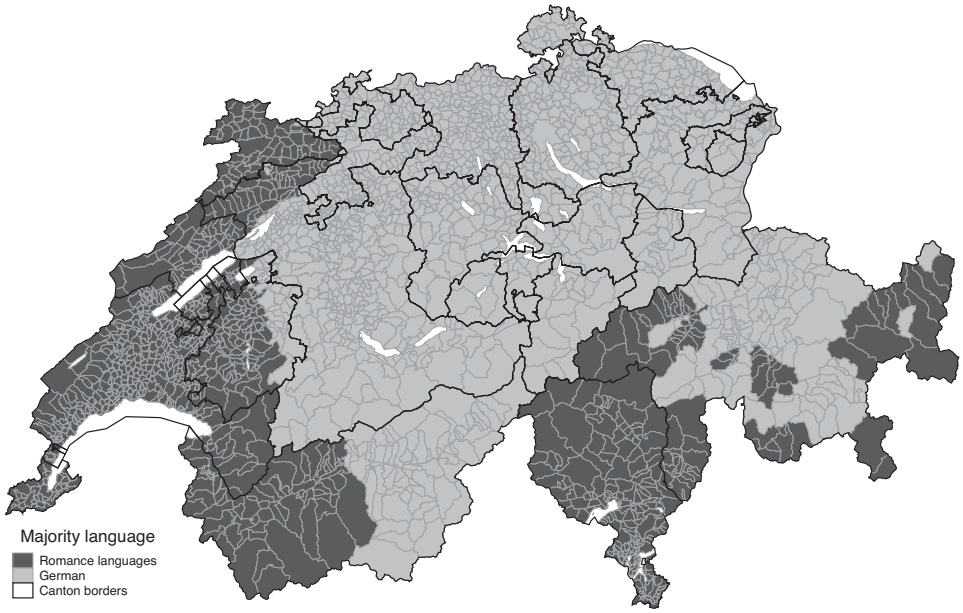

FIGURE 1. Language regions in Switzerland. Dark-shaded areas indicate a majority of Romance language speakers (French in the West, Italian in the South, and Romansh in the East). Light-shaded areas indicate a majority of German speakers. Dark-shaded (light-shaded) lines indicate canton (municipality) borders. White areas identify lakes. Source: Swiss Census 2000, Federal Statistical Office (FSO), Neuchâtel, and Swissboundaries3d geo data, Swiss Federal Office of Topography.

one canton—Graubünden—is officially trilingual (German, Romansh, Italian). The remaining cantons are unilingual, with 17 German speaking and four French speaking.[3]

In what follows, we group the various regions of the country into two main language areas, German speaking and "Romance language" speaking (French, Italian, Romansh). We discuss below that these two broad regions feature quite strong differences in norms and values, including preferences for and attitudes toward work. Figure 1 displays a map of Switzerland where each of the roughly 2,600 Swiss municipalities is shaded according to the language spoken by a majority of its residents as of the 2000 census. Light-shaded areas indicate a majority of native German speakers in the municipality. Dark-shaded areas indicate a majority of native speakers of French, Italian, or Romansh.

The language border separates the dark shaded regions from the light shaded regions. Figure 1 shows that large segments of the language border are *within* (bilingual) cantons (black lines are canton borders). This is important for our analysis as there are many individuals exposed to the same policies and institutions, but living in different

3. Multilingual cantons exist for historical reasons. The border of the canton Valais traces the ancient border of the Roman-catholic diocese of Sion. The border of the cantons Fribourg and Berne trace the territories acquired by their capitals in the Middle Ages. The border of the canton Graubünden traces the borders of the ancient Roman province of Rhaetia.

language areas and therefore exposed to different cultures. We also note that, for the most part, the language border is not a geographical barrier. The largest segment of the language border runs from North to South whereas the main geographical barrier, the Alps, is in East-West direction.[4]

The distance of a municipality to the language border is a key empirical concept in this paper. We construct distance to language border in four steps. First, we allocate every municipality to a language region based on the language spoken by the majority of its Swiss residents, 18 years or older, in the Swiss Census 2000.[5] Each municipality belongs either to the German speaking or the Romance language speaking region. Second, we determine the distance of a municipality to the language border as the shortest road distance between this municipality and the nearest municipality in the other language region, in kilometers.[6] Third, we construct a set of language border municipalities, located at distance = 0 km, which (i) have been assigned to the Romance language region, and (ii) have a nearest neighbor that is in the German speaking region.[7] Fourth, distance of municipality to the language border is the road distance to the closest language-border municipality, in kilometers, setting distance negative for German speaking municipalities, and positive for Romance language speaking municipalities.

Figure 2 shows the percentage of Romance language speaking Swiss residents by distance to the language border. The figure clearly demonstrates that the *Rösti* border is a sharp language barrier. Coming from the German speaking side, the fraction of Romance language speakers jumps from about 20% to more than 85% within a distance of less than 5 (!) km. We conclude that the language border delineates the two regions very sharply.

Even though Switzerland is a multilingual country, education policy aims to enhance integration. Children are taught one of the other official languages as their first foreign language from grade 5 or 6 onwards. Children in the German speaking region learn French as their first foreign language, whereas children in the French speaking region learn German as their first foreign language. Children in the Italian region can choose between French or German. This translates into good proficiency of at least one language spoken in other parts of the country. Around 73% of Swiss residents of

4. The language border is determined by the majority language and can, in principle, change over time. Yet only Courgevaux, a municipality in Western Switzerland, moved from Romance language speaking in 1970 to German speaking in 2000 (Steinhauer 2013).

5. Language of each resident is based on the question in the census survey that asked for the language "in which you think and which you command best".

6. We use a distance matrix provided by the online route planner "search.ch", which reports the travel distance (in kilometers) by car from each municipality midpoint to the midpoints of all other municipalities. Municipality midpoints are usually the economic/political center of the municipality.

7. Being nearest neighbor to a municipality in the German speaking region means the following. Take the municipalities in the German speaking region and calculate the distances to all municipalities in the Romance language region. The Romance language municipality with the shortest distance is the nearest neighbor, an "entry point" into the Romance language region. We regard these entry-point municipalities—which are entry points for at least one German speaking municipality—as constituting the language border.

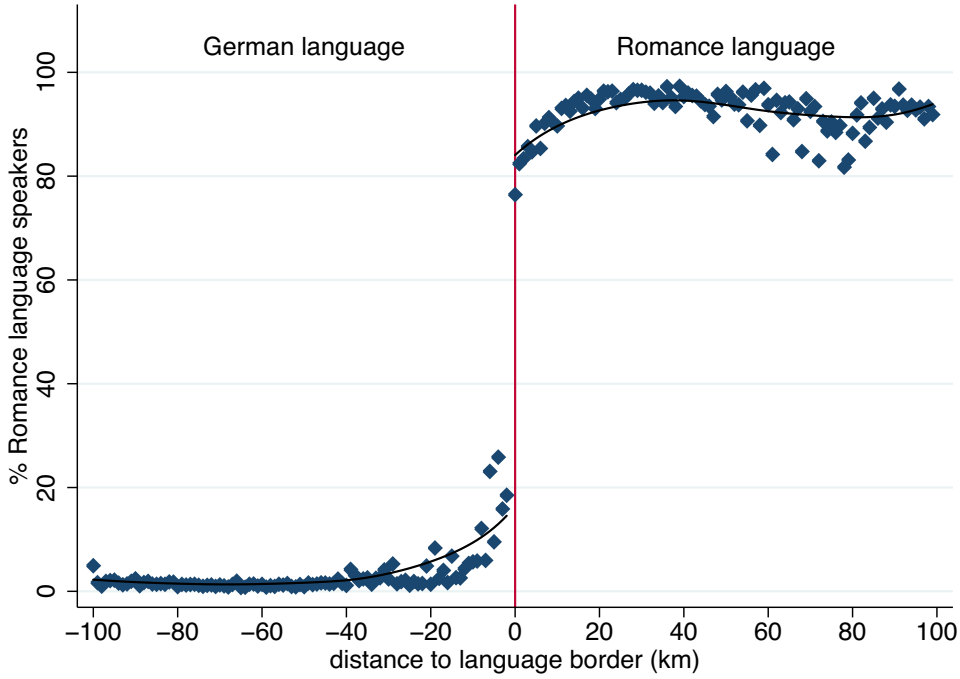

FIGURE 2. Percentage Romance language speakers, by distance to language border. Negative distance = German language speaking municipalities; positive distance = Romance language speaking municipalities. Each dot is the 1 km (population weighted) average of share Romance language speakers among German and Romance language speakers (among Swiss residents age 18+). Distance to language border is shortest travel distance by car to the language border. See Section 2.1 for details on construction of language border and distance. Lines are locally weighted regression estimates (bandwidth = 0.8). Source: Swiss Census 2000, Federal Statistical Office (FSO), Neuchâtel. Distances from search.ch.

the French speaking region and 92% in the German speaking region speak a second official Swiss language (Werlen et al., 2011).

2.2. Policies

The ruling constitution gives cantons considerable discretion in political decision making (i.e., in taxation, education, etc.) leading to a situation where legal rules differ strongly across cantons. However, this is not the case for labor legislation in general and unemployment insurance in particular. These policies are determined at the federal level. Unemployment benefit rules are relatively generous. At the time of our analysis, maximum benefit duration is two years, and the marginal replacement rate is 70% or 80% of previous earnings, depending on the presence of dependent family members and previous income. Job seekers are entitled to benefits if they had paid unemployment insurance contributions for at least six months in the two years prior to registering at the public employment service (PES) and if they are able to work.

Entitlement criteria to unemployment benefits also include compliance with job-search requirements and participation in active labor market programs. Potential job offers stem from the public vacancy information system of the PES, private temporary help firms, or the job seeker's own pool of potential jobs. Noncompliance with any of these obligations is sanctioned by complete withdrawal of benefits for a period that can last up to 30 work days (Lalive et al., 2005). This means that differences in benefit duration and level cannot explain differences in regional unemployment. However, since regions have an important role in implementing counseling and monitoring practices, these can potentially contribute to regional differences in unemployment (Lalive et al., 2005; Gerfin and Lechner 2002; Frölich and Lechner 2010). Below, we present robustness checks controlling for differences in active labor market policy.

In Switzerland, municipalities choose a local income tax rate that generates about 30% of total income tax revenues. Eugster and Parchet (2013) show that local income tax rates are the same on either side of the language border, as is the local income distribution. This finding suggests that local tax revenues are balanced at the language border, and local income taxes do not drive labor supply.

Education policy is important in shaping labor supply because it determines the level of skill of the work force. Although school systems and school curricula vary considerably across cantons, they are homogeneous within cantons. Municipalities set school quality, financed by the local budget. Since taxes are the same on either side of the language border, school quality should be similar on both sides of the language border. Indeed, PISA-test results for scientific literacy reported in the Swiss Education Report (2010) do not point to any systematic differences in outcomes within cantons. Romance language speaking Valais does slightly better than German speaking Valais and German speaking Berne does somewhat better than French speaking Berne. French speaking Fribourg performs about as well as Valais, but the report does not provide numbers for German speaking Fribourg.

2.3. Work Attitudes

Swiss language regions are associated with substantial differences in beliefs, norms, and values. Survey evidence from the International Social Survey Program (ISSP) reveals striking differences in response to questions related to work attitudes. Table 1 reports answers to the question whether we agree with the statement "I would enjoy having a paid job even if I did not need the money." It shows that respondents from the German speaking part of Switzerland indicate much stronger support for this statement than respondents from the Romance language speaking part, with differences being substantially higher in 1997 (a recession year) than in 2005 (a boom).[8]

8. We think it is natural that surveys would be affected by the general economic environment. We see them as capturing culturally driven attitudes, but also other aspects related to the respondent's life. The Swiss module of the ISSP provides information on the importance of work (ISSP 1997 and 2005).

TABLE 1. Importance of work across language groups.

	Year	*N*	Romance l. cantons	German l. cantons	Difference
ISSP question: "I would enjoy having a paid job even if I did not need the money."					
Share agrees/strongly agrees	1997	2,354	0.517	0.773	−0.257***
			(0.019)	(0.010)	(0.022)
Share agrees/strongly agrees	2005	1,062	0.614	0.789	−0.175***
			(0.028)	(0.015)	(0.031)

Notes: Numbers shown are share that agrees or strongly agrees with the statement (survey weights used). Separation into language regions by majority language in the canton of residence of the respondent. Standard errors in parentheses. ***$p < 0.01$. Source: ISSP 1997 and 2005.

The Swiss political system of direct democracy provides an interesting source of information on differences in work attitudes between language regions at a very fine regional level. In national referenda, the population votes regularly on all kinds of issues.[9] Here, we focus on referenda where voters revealed their preferences in votes concerning work-time regulations. Since 1980, three referenda on laws regulating weekly or yearly working time were held at the national level. In 1985, citizens voted on a proposal whether to guarantee at least 4 weeks of paid vacation to everyone, and 5 weeks to anyone aged 40 years or older; in 1988 whether to reduce regular weekly working time to 40 h; and in 2002 whether to reduce weekly working time to 36 h. Moreover, there were three referenda related to lifetime work: in 1988, the population voted on whether to reduce the statutory retirement age from 65 to 62 for men and from 62 to 60 for women; in 2000 whether to make early retirement more attractive to all workers; and also in 2000 whether to leave the statutory retirement age for women at age 62 (rather than to increase it to age 65).

Figure 3 uses information on voting results at the municipality level by distance to the language border. Panels (a)–(c) show the proportion favoring working-time regulations for the "intensive margin". These graphs tell a consistent story: voters on the Romance language speaking side of the language border are consistently more in favor of work-time reductions than voters on the German speaking side and there is a large discontinuity at the border. The picture is very similar when we look at voting results concerning lifetime-work regulations in panels (d)–(f).[10] In sum, the

9. Voter initiatives are a crucial part of the Swiss political system. Voter initiatives are proposals to modify the constitution. Voter initiatives are held when at least 100,000 citizens provide their signature as a sign of support.

10. Eugster et al. (2011) also analyze the three votes regarding the retirement age and discuss whether different labor markets could cause the gap in voting (reverse causality). Controlling for the state of the labor market, the gap in voting remains significant and sizeable suggesting that reverse causality is not the dominant explanation.

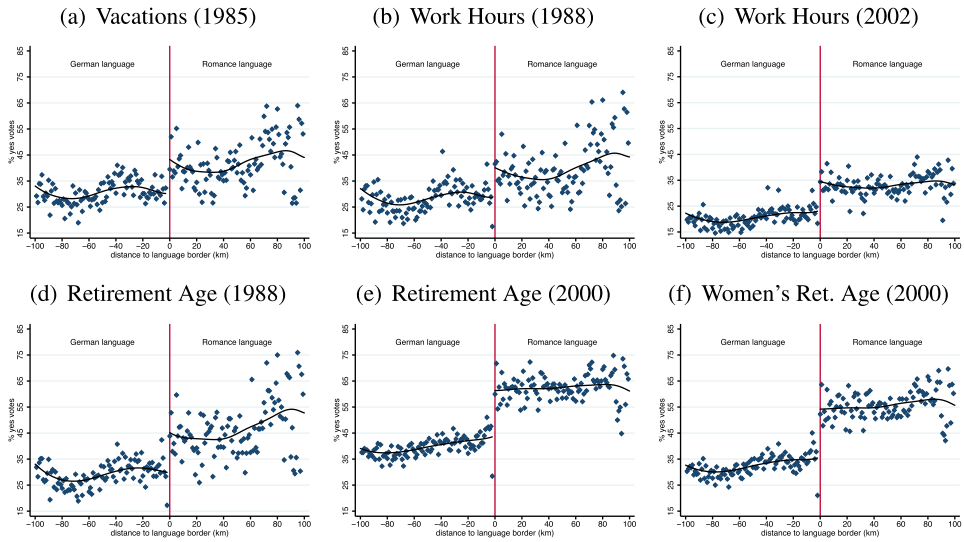

FIGURE 3. Voting results on six referenda, by distance to language border. Negative distance = German language speaking municipalities; positive distance = Romance language speaking municipalities. This figure reports percentage of yes votes in national referenda or voter initiatives, averaged at municipality level and in 1 km distance bins (population weighted). Lines are locally weighted regressions (bandwidth = 0.8). See Section 2.1 for details on how the distance measure is constructed. Source: Data from Federal Statistical Office (FSO), Neuchâtel. Distances from search.ch.

language border shows a clear and very consistent gap in political support for work-time regulations.[11]

Culture may affect unemployment not only through attitudes towards work but also via other channels such as the role of the family and an individual's network. By insuring the individual better against economic shocks, strong ties to the family may prolong the duration of unemployment. In contrast, "weak ties" (acquaintances other than close friends and family members) may speed up job finding, because they provide access to information from more distant parts of the social system (Granovetter 1995). Survey data from the Swiss Household Panel Survey and the World Value Survey suggest that Romance language speaking Swiss individuals have fewer weak ties and stronger family ties. The data set reports how many colleagues and friends an individual meets on a regular basis, which we take as a proxy for an individual's weak ties.[12]

11. The votes on vacations, in 1985, work hours, in 1988, and the retirement age, in 1988, in Figure 3 show polarization—spikes in opposite directions—at the language border. The more recent votes, from the early 2000s, show less polarization. Voting outcomes might reflect day to day discussion, in addition to slow-moving cultural aspects. We assessed whether these spikes are statistically significant using our baseline empirical specification. The slope coefficient on the Romance language speaking side is statistically significant in panel (a) and panel (e), at the 5% and 10% level, respectively. The slope coefficient on the German speaking side is statistically significant in panel (c), at the 5% level.

12. See Voorpostel et al. (2012) for a description of the Swiss Household Panel Survey.

TABLE 2. Cultural determinants of job search.

	(1) Question	(2) No. obs.	(3) Mean answer[a] Romance l.	(4) Mean answer[a] German l.	(5) Difference	(6) Controlled diff.[b]
Panel A: Social and family networks						
(1)	Number of weak ties (neighbors and colleagues)[c]: SHP 1999–2008					
		16,486	9.553	11.638	−2.085***	−1.768***
			(0.149)	(0.167)	(0.223)	(0.605)
(2)	Family ties (values from 0 to 5, higher values mean stronger ties)[d]: WVS 1996					
		1,012	4.404	4.012	0.392***	0.366***
			(0.038)	(0.045)	(0.059)	(0.067)
Panel B: Beliefs						
(1)	Freedom of choice and control over the way your life turns out (values from 1 to 10, higher values mean more freedom of choice): WVS 1996					
		1,190	6.833	7.475	−0.642***	−0.627***
			(0.087)	(0.076)	(0.116)	(0.130)
(2)	Success is due to hard work (1) versus a matter of luck and connections (10): WVS 1996					
		1,150	5.028	3.898	1.130***	1.131***
			(0.126)	(0.105)	(0.164)	(0.181)
Panel C: Religion						
(1)	Religion (percentage Catholics in municipality): Swiss Census 2000					
		1,147	54.892	30.661	24.231***	9.013***
			(1.227)	(0.892)	(1.517)	(3.958)

Notes: Standard errors in parentheses. $^{***}p < 0.01$. [a]Table entries are the mean response in the scale from 1 to 10 for items (1) and (2) in Panel B. [b]Panels A and C: difference at the language border, from regression including distance (linear), canton, and year (Panel A) dummies. Only respondents within 50 km of the language border included. Panel B: estimate on Romance language coefficient in regression of response on age, sex, education (low, medium, high). Separation into language regions by ethnicity (Romance l. = Swiss French/Italian, German l. = Swiss German). [c]See Eugster et al. (2011) for details on the construction of the number of weak ties. [d]See Alesina and Giuliano (2010) for details on the construction of family ties. We inverted the measure, such that higher values mean stronger ties. Panel C uses municipality averages of share catholics, regression weighted by population. Source: Data from Swiss Household Panel (SHP) carried out in 1999–2008 (individuals are surveyed repeatedly); Swiss Census 2000, Federal Statistical Office (FSO), CH-2010 Neuchâtel; World Values Survey (WVS) carried out in 1996. Distances from search.ch.

Table 2 Panel A shows that German speaking individuals have, on average, 11.6 neighbors and colleagues (column (4)), the corresponding number for Romance language speaking individuals is only 9.5 (column (3)). The gap reduces to 1.77 at the language border (column (6)), but it remains significantly different from zero.[13] The second item in Panel A of Table 2 looks at differences in the strength of family ties among Romance language speaking and German speaking individuals in Switzerland using data from the World Value Survey 1996. The indicator of the strength of family

13. The gap is even more pronounced among the unemployed. The German speaking unemployed have 11.3 neighbors or former colleagues, whereas the Romance language speaking unemployed have on average have 8.3 neighbors or former colleagues.

ties is based on three items that capture the strength of family ties in the World Values Survey. We follow Alesina and Giuliano (2010) in constructing a composite index by summing up the responses on this item. Our indicator takes on values between 0 and 5, with 0 indicating the weakest family ties, and 5 indicating the strongest family ties.[14] It turns out that family ties are somewhat stronger in the Romance language speaking region.

Panel B of Table 2 provides complementary evidence for Switzerland from the World Value Survey on values and beliefs concerning freedom of choice, control over life, and the sources of economic success. It turns out that Romance language speakers perceive that they have less freedom of choice and less control over their lives and they believe much less in the idea of hard work being the main source of economic success. Taken together, the evidence suggests differences in beliefs and values that are potentially important for the motivation to search hard for a new job.[15]

Panel C of Table 2 discusses the role of religion. As religion is unlikely to change over an individual's lifetime, recent work on the role of culture has used religion as an instrumental variable (Guiso et al., 2006; Basten and Betz 2013). According to Max Webers "protestant ethics" (the pursuit of economic success as a duty) a higher prevalence of individuals with Protestant denomination may determine attitudes toward work and higher efforts when searching for a new job. The evidence in Table 2, based on data from the Swiss Census 2000, indeed indicates a significantly higher fraction of Catholics in the municipalities in Romance language speaking regions. We will discuss below how religion interacts with language in determining job search outcomes.

We conclude that both survey evidence and voting results support the idea of substantial differences in attitudes toward work between Romance language speaking and German speaking regions. Voting results suggests that there is a sudden change in work attitudes at the language border.

3. Data

Our main data source is unemployment register data from the years 1998–2003, collected by the local PESs. A job seeker is included in this data as soon as she files a claim for unemployment benefits, and the case worker enters this claim into the so-called unemployment register (AVAM/ASAL) system of the ministry of labor. This system registers the date the claim starts as well as a wealth of information on the individual. A job seeker leaves the database either when she finds a new job or for "unknown reasons" (does not show up anymore; has moved to a different region; or has exhausted unemployment benefits).

14. The original indicator by Alesina and Giuliano (2010) was defined over the range 3–8, with 3 indicating the strongest family ties, and 8 indicating the weakest family ties.

15. For instance, Caliendo et al. (2015) show that people who have an internal locus of control—with a strong belief in freedom of choice and control over their lives—search for jobs more intensively than individuals with an external locus of control.

Our main dependent variable is unemployment duration. Unemployment duration measures the time between the start and the end date of an unemployment insurance claim. About 5.2% of all unemployment spells are still in progress at the end of our observation period. We measure unemployment duration as the time between starting the claim and our last observation date for that person. Our main analysis focuses on modeling average unemployment duration because average unemployment is a useful summary of job search over the unemployment spell (Lalive et al., 2006). Although average durations can be biased due to right censoring, the small fraction of right-censored spells suggests that the bias will be small. Sensitivity analyses excluding right-censored spells lead to very similar results.

The main sample of job seekers we extracted for our analysis are Swiss men aged 25–59 who are not concurrently claiming disability benefits, are recorded to be full-time unemployed and eligible for unemployment benefits, and with recorded mother tongue German, French, or Italian. This selection does not critically lower the number of unemployment spells but ensures a homogeneous sample. The lower age bound ensures that an unemployed worker in our sample has (mostly) finished education. The upper bound excludes unemployment spells that flow directly into early retirement. For our main empirical estimation we limit the sample to individuals living within a 50 km distance to the language border. We further exclude job seekers in the bilingual cities Fribourg and Biel/Bienne. We exclude women because both differences in work culture and family culture may affect female labor supply (Steinhauer 2013).

The data contain information on job seekers' socioeconomic background as well as information on the municipality of residence. We supplement these data with information on the sociodemographic structure of the municipality of residence, labor demand variables, and variables describing local labor market policies. *Individual controls* include socioeconomic characteristics as reported in the AVAM/ASAL data base as well as information on previous employment: age, marital status, number of dependent family members, willingness to commute or move, qualification, the sector of previous employment (agriculture, manufacturing, construction, services, tourism, other), previous insured monthly earnings, replacement rate (unemployment benefits divided by previous earnings), potential benefit duration, and the assessment of the caseworker with respect to the ease of finding a suitable job. These are measured at the beginning of the unemployment spell. *Municipality controls* are from the Swiss population census 2000 (carried out in December 2000). We use information on the structure of the resident population/economy: five-year age groups, four education groups based on the census classification of highest education achieved, and the share working in each of the three sectors as well as the percentage of men living in the respective municipality, the share speaking languages other than German, French, or Italian, the total number of inhabitants, and whether the municipality belongs to an agglomeration area or not. *Labor demand controls* are measured at the municipality level and include the average monthly vacancies recorded by the PES offices between 1998 and 2003, divided by the labor force according to our main sample demographic as of the 2000 census, the number of jobs in 2001 from the enterprise census (carried out in September 2001), the 1998–2001 changes in both the number of jobs and the

number of firms (both from the enterprise census), and the median hourly wage in each municipality, calculated from the Swiss Labor Force Surveys 1991–2009. *Labor market policy* variables are average number of job seekers in a municipality assigned to each of the following measures: sanctions, training programs, employment programs, and subsidized employment. These are calculated from the unemployment register over the period 1998–2003.

Summary statistics for our individual and municipality variables are given in Tables 3 and A.2. Details on definitions/sources are listed in Table A.1 in the Appendix. Our final sample consists of 60,713 job seekers in 1,147 municipalities.

4. Empirical Strategy

We start with a simple reduced-form equation to explain unemployment durations. Let y_{icg} denote the number of weeks job seeker i remains unemployed in municipality c that belongs to society g where g takes on two values, R and G:

$$y_{icg} = z'_{ig}\beta + x'_i\gamma + w'_c\delta + \theta_i + \psi_c + v_{icg}. \tag{1}$$

The vector z_{ig} refers to culturally shaped determinants of y (related to cost and efficiency of job search, the number of weak ties, social norms, work attitudes, etc.) that vary at the individual or the society level. The vectors x_i and w_c refer to observable characteristics that influence the duration of unemployment that vary at the individual or municipality level. The terms θ_i and ψ_c refer to unobserved determinants of y that vary at the individual or municipality level. Finally, v_{icg} is a classical regression error term.

Our main objective is to assess whether β contains nonzero elements. Simply estimating equation (1) will not be helpful in this endeavor because elements of z could be correlated with unobserved individual or group level heterogeneity. Controlling for θ_i in a panel setting is challenging since the duration of a spell at $t-1$ affects the likelihood of observing a spell at t. Controlling for ψ_c in a panel setting could potentially work but only for job seekers who move between municipalities.

Our approach is to analyze the role of culture by contrasting unemployment durations at the *Rösti* border, to which we refer as the "Language Border Contrast" (LBC) in what follows. Let s_c be the distance to the language border, the road distance to language border towns, as we define it in Section 2.1. Let $E_R(y)$ denote the limit of the expectation of y on the Romance language speaking side of the language border, that is, $E_R(y) \equiv \lim_{\epsilon\to 0} E(Y|s_c = 0+\epsilon)$, and $E_G(y) \equiv \lim_{\epsilon\to 0} E(Y|s_c = 0-\epsilon)$ denotes the corresponding expectation when approaching the language border from the German speaking side. The border contrast in unemployment duration is

$$\begin{aligned} E_R[y_{icg}] - E_G[y_{icg}] = {} & [E_R(z_{ig}) - E_G(z_{ig})]'\beta \\ & + [E_R(x_i) - E_G(x_i)]'\gamma + [E_R(w_c) - E_G(w_c)]'\delta \\ & + E_R(\theta_i) - E_G(\theta_i) + E_R(\psi_c) - E_G(\psi_c). \end{aligned} \tag{2}$$

TABLE 3. Background characteristics.

	(1) All	(2) Romance l.	(3) German l.	(4) Difference	(5) Difference at border	
					All	Bilingual cantons
Qualification						
% low qualification	9.7	10.7	9.1	1.6**	1.7	0.4
% medium qualification	10.7	11.1	10.4	0.7	−4.5***	−4.5***
% high qualification	79.7	78.2	80.5	−2.3**	2.8	4.1*
Difficulty of placement (caseworker assessment)						
% easy to place	16.4	23.9	12.4	11.4***	7.5***	6.0***
% medium to place	63.8	63.2	64.2	−1.0	0.3	4.0*
% hard to place	18.1	10.9	21.9	−11.0***	−8.9***	−10.0***
Mobility						
% no mobility	0.3	0.4	0.3	0.1	−0.2	−0.2
% daily mobility (commuting)	90.3	85.3	93.0	−7.7***	−5.6***	−7.2***
% mobility: parts of CH	4.5	8.0	2.6	5.4***	3.5***	4.5***
% mobility: whole CH	3.6	4.4	3.1	1.2***	1.5**	1.8**
% mobility: abroad	1.3	1.9	0.9	1.0***	0.7	1.1**
Age and earnings						
Age	38.3	38.0	38.5	−0.5***	−0.1	0.0
Log insured earnings	8.4	8.4	8.5	−0.1***	−0.0	−0.0
Active labor market policies						
% days in sanction	5.8	4.2	6.6	−2.5***	−0.7**	−0.6
% days in training program	11.8	12.7	11.3	1.4***	2.6***	3.2***
% days in employment program	1.2	1.0	1.3	−0.3***	−0.2	−0.0
% days in subsidized employment	11.0	11.0	11.0	0.0	0.1	0.6
Unemployment insurance						
Potential benefit duration (days)	468.0	463.7	470.2	−6.5	−12.4***	−15.1***
Monthly benefits	3,668.9	3,549.6	3,732.6	−183.0	−70.2	−61.4
Observations	60,713	21,139	39,574	60,713	60,713	27,258

Notes: "All" means all job seekers according to our main sample definition and residents of municipalities within 50 km of the language border. Romance l. = majority in municipality speaks a Romance language, German l. = majority in municipality speaks German. Column (4) shows the difference (in means) between columns (2) and (3). Column (5) shows the difference at the language border, estimated using our baseline specification controlling for canton, city, and time fixed effects (see notes to Table 4). Column (6) shows the same for job seekers in the bilingual cantons Bern, Valais, and Fribourg only. Significance tests based on robust standard errors, clustered on municipality level. There are 1,147 municipalities in our data set, 514 of which are in bilingual cantons. See Table A.2 in the Appendix for additional individual and municipality characteristics. Note that active labor market policy variables are municipality averages (see Table A.1 in the Appendix for all variable sources/definitions). $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$. Source: Data from unemployment register (AVAM/ASAL) 1998–2003. Distances from search.ch.

The first line of the LBC informs on the joint role of individual and group level components of culture if the language border is a cultural border, that is, the distribution of z_{ig} differs across the two language regions. The second line shows that the contrast will also be driven by observable compositional differences (the x difference) or by

group level observed factors (the w difference). The final line of the LBC shows the key identification challenge. Any unobserved individual or group level factor that varies across social groups at the border will confound estimates of the importance of cultural factors (first line). In sum, the LBC will provide point identification if the cultural determinants captured in z are discontinuous at the border whereas the unobserved compositional differences θ_i and unobserved municipality level determinants ψ_c are continuous.

We now assess to what extent characteristics of individuals and municipalities are balanced at the language border. Table 3 provides a discontinuity analysis for a number of potentially relevant background characteristics, to provide information on individual background, job search attributes, and labor market policy.[16] The table reports, for each variable, the sample average of a particular characteristic (column (1)), the mean for job seekers who live in Romance language-speaking regions (column (2)), the mean for job seekers in German-speaking regions (column (3)), and the difference between the two (column (4)). Column (5) display the difference *at the language border* and column (6) provides the difference at the language border within the three bilingual cantons (Berne, Fribourg, Valais). We see that many of the individual characteristics we observe are not perfectly balanced at the *Rösti* border and point to lower rather than higher unemployment durations on the Romance language speaking side of the language border. For instance, as indicated in column (6) of the table, education levels are higher, placement problems (as assessed by the caseworker) lower, and the willingness to move is higher among job seekers in the Romance language speaking region.

Table 3 also looks at unemployment benefit generosity and incidence of active labor market policies. Benefit levels are well balanced at the language border, but potential benefit durations are about 12–15 days shorter on the Romance side. Note that unemployment insurance rules are set at the national level, but the level and duration of unemployment benefits to which job seekers are eligible depend on their characteristics. Hence any differences in benefit generosity reflect compositional differences in job seekers' characteristics. Our empirical analysis below condition will control for benefit level (replacement rate) and potential benefit duration in all regressions. The incidence of active labor market policies is slightly higher in the Romance speaking region, whereas other active labor market programs are balanced. Notice that longer training programs may prolong unemployment through a mechanical effect (enrolment and the desire to complete a training program may keep workers from searching for a new job or delay the start of a new job). However, the way that labor market policies are implemented may itself reflect an impact of norms and values related to work and unemployment through choices made by caseworkers at the employment office.

Note that the LBC is related to, but not identical to, the spatial regression discontinuity design (S-RDD). The key difference between the LBC and an S-RDD

16. Our main analysis includes more control variables. We provide summary statistics for additional individual and municipality characteristics in Table A.2 in the Appendix.

is that distance to border can be manipulated by individuals. Indeed, job seekers will choose to live in the language region that maximizes their discounted future utility. Moreover, Table 3 shows that job seekers on the Romance speaking side have different characteristics than job seekers on the German speaking side. Although the direction of the difference is not uniform, an important predictor of job search success, placement difficulty, signals more favorable prospects for Romance jobs seekers. We will assess below how our estimates change once we condition on these observed characteristics.

The term in equation (2) can be measured in the context of the following regression, which resembles the spatial discontinuity regression (Lee and Lemieux 2010). Let $R_c = 1$ if municipality c is located in the Swiss Romance language region, and $R_c = 0$ if municipality c is located in the German speaking region. Consider the following linear regression:

$$y_{icg} = \pi_0 + \pi_1 R_c + \pi_2 S_c + \pi_3 R_c S_c + \tilde{\nu}_{ic}, \tag{3}$$

where the terms in S_c and $R_c S_c$ capture a two sided linear trend between unemployment duration and distance to language border. The parameter estimate for π_1 is a consistent estimate of $[E_R(z_{ig}) - E_G(z_{ig})]'\beta$, the key cultural component of (2), provided that the specification captures differences in unemployment duration across regions appropriately. This is a restrictive assumption as our discussion in Section 4 shows. We probe the sensitivity of our results by including observed determinants of unemployment duration in our regressions below.[17]

5. Culture and Unemployment Durations

We are now ready to discuss the role of culture for unemployment durations. After showing descriptive evidence, we present the basic results from our econometric model, check the robustness of the results, and discuss alternative explanations that might contribute to the empirically observed relationship (religion, language skills, and job search channels).

Our claim is that differences in unemployment durations are mainly driven by differences in search behavior of workers, whereas differences in labor demand are either nonexistent or too weak to explain the observed duration gap. To establish this claim, the second part of this section investigates in detail to what extent the most important labor demand indicators vary at the language border and whether this might contribute to observed unemployment outcomes.

17. Equation (3) is reminiscent of a reduced form fuzzy regression discontinuity (RDD) specification. In the standard fuzzy RDD setting, individuals are subject to treatment, treatment assignment depends on a running variable that cannot be manipulated by the individual, and there is noncompliance. Our setting departs from this setting in two important ways. First, job seekers can manipulate distance to border, the running variable. Second, culture is a treatment at both the individual and municipality level. Fuzzy RDD estimates are about 40%–45% larger than LBC estimates since there is imperfect compliance at the language border, the percentage Romance language speakers increases by 70%, rather than 100%.

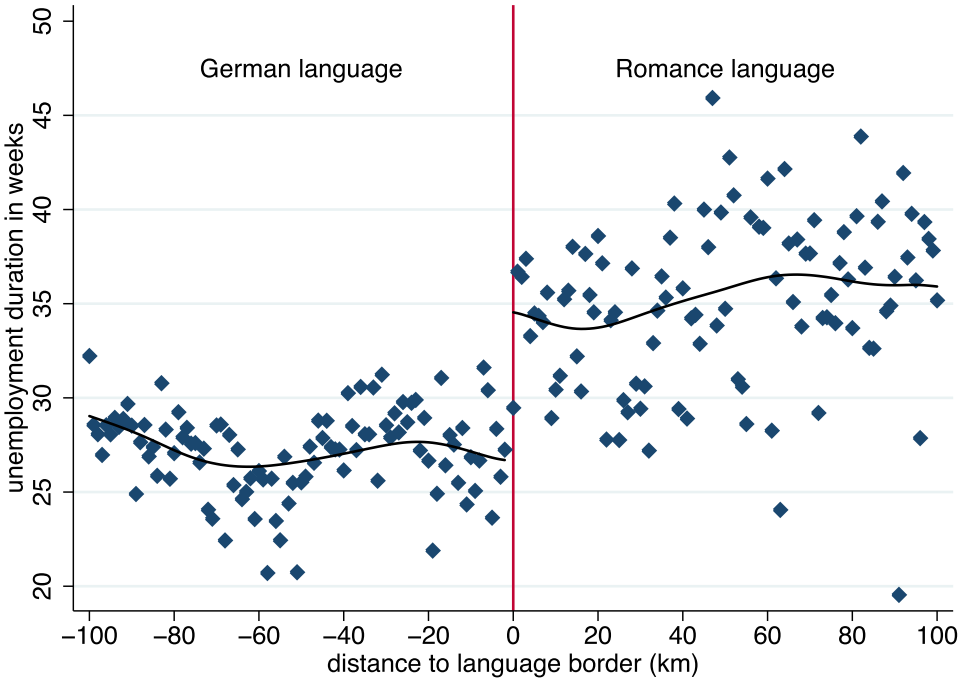

FIGURE 4. Average duration of unemployment, by distance to language border. Negative distance = job seekers in German speaking municipalities; positive distance = job seekers in Romance language speaking municipalities. Points show 1 km averages in unemployment duration. Lines are locally weighted regression estimates (bandwidth = 0.8). See Section 2.1 for details on how the distance measure is constructed. Source: Unemployment register 1998–2003. Distances from search.ch.

5.1. The LBC for Unemployment Durations

Figure 4 plots average weeks of unemployment experienced by residents located at different distances from the language border.[18] Positive (negative) distances indicate locations on the Romance language (German) speaking side. The figure reveals a very clear discontinuity in average unemployment durations at the language border. The duration gap is quantitatively large: the average duration of unemployment on the German speaking side is 28 weeks and the corresponding duration on the Romance language speaking side is 34 weeks. Despite the fine distance grid of 1 km used in this graph, the majority of data points displayed on the Romance language speaking side are above the highest data point on the German speaking side. Moreover, there is no strong trend by distance from the border in the German speaking regions, and durations only slightly increase with distance on the Romance language speaking side.

18. Note that all figures plotting outcomes against distance to language border are unconditional, that is, we do not control for anything. The language border differences that are visible in these figures are thus based both on within- and between-canton variation. In our empirical specifications below we add canton fixed effects (and other control variables) and thus exploit within canton variation.

TABLE 4. Culture and unemployment: LBC.

	(1)	(2)	(3)	(4) Baseline	(5)
Dependent variable in all columns: Log unemployment duration					
Romance language	0.1829***	0.2222***	0.1992***	0.1962***	0.1794***
	(0.0450)	(0.0444)	(0.0373)	(0.0372)	(0.0364)
Distance (100 km)	−0.1035	−0.1915**	−0.1166	−0.0876	−0.1198
	(0.0814)	(0.0862)	(0.0798)	(0.0786)	(0.0785)
Distance · Romance l.	0.2412*	0.3302***	0.2597**	0.2145*	0.2436**
	(0.1237)	(0.1264)	(0.1169)	(0.1151)	(0.1127)
Constant	4.4542***	2.1562***	1.7739***	1.8080***	1.8961***
	(0.0532)	(0.1646)	(0.3224)	(0.3389)	(0.3380)
Fixed effects	Yes	Yes	Yes	Yes	Yes
Individual controls	No	Yes	Yes	Yes	Yes
Municipality characteristics	No	No	Yes	Yes	Yes
Labor demand	No	No	No	Yes	Yes
Labor market policy	No	No	No	No	Yes
Observations	60,713	60,713	60,713	60,713	60,713
R-squared	0.0443	0.0968	0.1014	0.1016	0.1019

Notes: Robust standard errors in parentheses, clustered on municipality level. Romance l. = majority in job seeker's municipality of residence speaks a Romance language. Distance = road distance to language border. See Section 2.1 for details on how the distance measure is constructed. All regressions are limited to job seekers in municipalities within 50 km of the language border. Fixed effects include canton, year and quarter of inflow FE, as well as FE for large cities. Individual controls: sector of last job, qualification, and employment prospects (assessed by caseworker), previous earnings, family background, willingness to move to another region, replacement rate, and potential benefit duration. Municipality characteristics: education levels, demographic structure, (log) population, and agglomeration dummy. Labor demand controls (municipality level): (log) available jobs in 2001, growth in jobs, and firms between 1998 and 2001, monthly vacancies (1998–2003) divided by the labor force, and the median hourly wage. Labor market policy (municipality level): avg. number of job seekers assigned to: sanctions, training programs, employment programs, subsidized employment. See Table A.1 in the Appendix for detailed description of variables. $^{***}p<0.01$, $^{**}p<0.05$, $^{*}p<0.1$. Source: Data from unemployment register 1998–2003; Swiss Census 2000, Swiss enterprise census 1998/2001, Swiss Labor Force Survey 1991–2009, Federal Statistical Office (FSO), CH-2010 Neuchâtel. Distances from search.ch.

Figure 4 provides some first descriptive evidence that unemployment spells last longer on the Romance language speaking side of the *Rösti* border. There are several potential explanations for this finding. One explanation is that differential weaker work attitudes materialize in less intensive/efficient search. Alternatively, differences in composition of the job seeker pool and/or differences in labor demand could give rise to observed outcomes. We investigate the relevance of these alternative explanations below.

Table 4 presents estimates of the gap in log unemployment duration at the language border based on equation (3).[19] All regressions in Table 4 focus on job seekers living no

19. In Table 7 we present estimates using the cumulative distribution of spells (with duration longer than x months) as a dependent variable. This variable is not affected by right censoring. Results in Table 7 are consistent with the main results in Table 4.

farther than 50 km from the language border and include canton (=state) fixed effects, inflow year and quarter fixed effects, and fixed effects for large cities. Introducing canton fixed effects is of particular importance in the present context as canton borders are also institutional borders and cantons might differ in terms of labor market conditions. Moreover, controlling for large urban centers is important because they may drive the distance-to-border effects in the regressions. Standard errors account for clustering at municipality level.[20]

Column (1) of Table 4 provides a first estimate for the LBC in unemployment durations that includes only the fixed effects. Estimates indicate that unemployment durations are, on average, 0.183 log points longer on the Romance language speaking side of the language border. This estimate is both quantitatively important and statistically highly significant. Column (2) adds individual characteristics to the regression, which slightly increase the difference in durations to 0.222 log points. The remaining columns of Table 4 introduce additional controls. Column (3) controls for municipality characteristics. Although most of these variables (in particular, age structure, education levels, and municipality size) have a statistically significant impact on unemployment durations, introducing these additional controls does not change the magnitude of the estimated LBC. The point estimate decreases slightly to 0.199.

Column (4) in Table 4 checks for labor market conditions within cantons by introducing indicators for labor demand conditions in addition to persistent differences in labor markets across cantons (recall that all regressions control for canton fixed effects). Introducing these indicators has no effect on the estimated LBC in unemployment durations. It appears that canton fixed effects pick up labor market conditions quite well. Our baseline estimate indicates that unemployment duration lasts for 0.196 log points longer on the Romance language speaking side. Evaluated at the sample mean unemployment duration of 31 weeks, this translates into an effect of almost 7 additional weeks of unemployment ($=31 \times (\exp(0.196) - 1)$).

Column (5) in Table 4 additionally controls for measures of active labor market policy. This is potentially relevant as regional public employment offices have some discretion as to how to implement active labor market policies. Differences in active labor market policies lead to a slightly smaller estimated coefficient, although the border difference in unemployment durations still amounts to 0.179 log points.

In sum, Table 4 shows that the LBC in unemployment durations is not particularly sensitive to adding controls. Above, we showed that a number of background characteristics remain unbalanced in ways that favor job seekers on the Romance language speaking side. For instance, Romance language speaking job seekers are slightly better qualified, easier to place, and more mobile. To shed further light on this issue we regress log unemployment duration on individual, municipality, and labor demand controls based on job seekers in the German speaking region. We then predict unemployment durations of individuals living in the Romance language

20. We are using municipality level distance to border with individual data. We cluster at the municipality level also to address a specification error that arises if distance of a job seekers home to the border matters. Card and Lee (2008) show that clustering deals with this type of specification error.

speaking region (using parameters obtained from the German region regression and characteristics from the Romance language region sample)—and vice versa for the German speaking region.[21] This allows assessing the overall contribution of imbalances in background characteristics to the language border unemployment duration differential.

Figure 5 shows average actual log unemployment duration (solid lines) as well as average predicted log unemployment duration (dashed lines) for both language regions. Although there are some differences in terms of the composition of the job seeker pool, these differences are not very large. The top dashed line is substantially higher than the top solid line at the border, suggesting that residents of German speaking municipalities have characteristics that would lead them to be unemployed even longer than their neighbors on the Romance language speaking side. Conversely, the bottom solid line is as high as the bottom dashed line suggesting no relevant compositional differences. Taken together, this indicates that observed heterogeneity in the unemployment pool cannot account for the observed unemployment duration gap. If at all, the LBC in unemployment durations is even somewhat higher when background characteristics are controlled for. Provided that unobserved characteristics of job seekers follow the same pattern of imbalance as observed ones, our results identify a lower bound of the true LBC in unemployment durations.

In a next step, we assess the robustness of the estimated effect by looking at different border segments (Table 5). Column (1) repeats the estimate of column (4) in Table 4 for ease of comparison. Results in columns (2) and (3) discuss sensitivity of the main result to functional form of the distance-to-border trends. Column (2) limits the sample to job seekers living no farther than 25 km from the border. This can be understood as a local linear estimate of the unemployment differential. Local linear estimates indicate that the border difference in log duration is 0.165 log points. This estimate is slightly (though insignificantly) smaller than the baseline estimate. Row 3 presents estimates that add squared terms in distance adopting a polynomial approximation to the underlying distance to border function. Again, adding higher order terms allows assessing sensitivity to functional form. Estimates that are based on a two-sided quadratic estimate of distance to language border are very much in line with the baseline estimates. We conclude from evidence in columns (2) and (3) that sensitivity to functional form is not an issue.

Bilingual cantons are essential in the identification of the LBC. Column (4) in Table 5 reports estimates that focus on job seekers who live in one of the three bilingual cantons: Berne, Fribourg, and Valais. Estimates from this subsample are very

21. Specifically, we discuss composition effects as follows. We first run regressions with separate parameters in each language region, that is, $y_{ij} = x'_{ij}\beta_j + \epsilon_{ij}$ where $j \in \{R, G\}$. We then calculate expected duration of unemployment of job seekers in the German speaking region as predicted with the Romance language parameters, that is, $\bar{x}_G\hat{\beta}_R$, and expected duration of unemployment of job seekers in the Romance language speaking region as predicted with German parameters, that is, $\bar{x}_R\hat{\beta}_G$. Figure 5 reports these counterfactual predictions using dashed lines. Contrasting the dashed line on one side of the border with the corresponding solid line on the other side informs on the extent of imbalance in terms of observed characteristics.

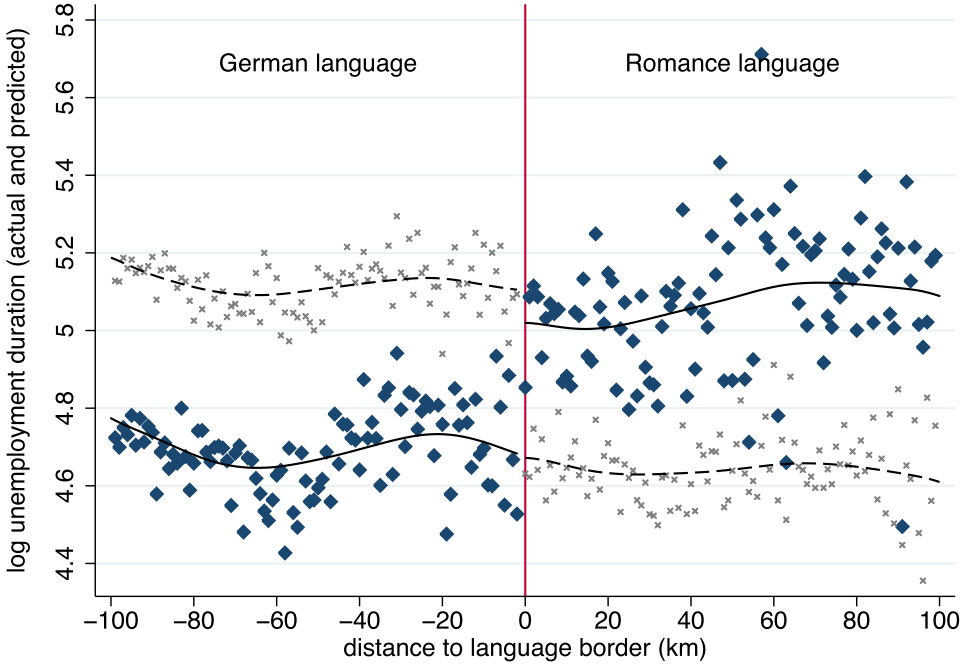

FIGURE 5. Predicted and actual log unemployment duration. Negative distance = job seekers in German language speaking municipalities; positive distance = job seekers in Romance language speaking municipalities. Solid lines show actual log unemployment duration. Dashed lines show predicted unemployment duration using data from the German speaking part of Switzerland to (linearly) predict duration in the Romance language speaking part and vice versa. Only data within 50 km of the language border used for prediction. Regressions control for individual and municipality characteristics as well as labor demand variables. We do not include fixed effects in these regressions. Lines are locally weighted regressions (bandwidth = 0.8). Source: Data from unemployment register 1998–2003; Swiss Census 2000, Swiss enterprise census 1998/2001, Swiss Labor Force Survey 1991–2009, Federal Statistical Office (FSO), CH-2010 Neuchâtel. Distances from search.ch.

much in line with baseline estimates. This suggests that misspecification of the model outside the bilingual cantons is not an issue. Column (5) reports estimates based on the segment between the German and the French speaking parts of Switzerland. Results indicate that the unemployment differential is on the order of 0.208 log points, that is, very similar to the baseline estimate.[22] Finally, column (6) adds PES fixed effects to the

22. We also contrast the Italian and German speaking parts of the country (results are not shown). For the Italian–German language border, the point estimate is somewhat larger than the baseline estimate, but not statistically significant. Notice, however, that the high standard error is due to the low within canton variance that can be used to identify the effect. Identification is based on a few municipalities with a majority of the Italian speaking residents in the canton Graubünden. The only cantons where there are Italian speaking municipalities are the canton Ticino and the canton Graubünden, located in the South and the South-East, respectively. The canton Ticino consists entirely of Italian speaking municipalities. In Graubünden, some municipalities are Italian, but the vast majority speaks Swiss German.

TABLE 5. Language barrier effect: Robustness.

	(1)	(2)	(3)	(4)	(5)	(6)
	Baseline			Bilingual cantons	French-German border	PES fixed effects[a]
	Linear 50 km	Linear 25 km	Quadratic 50 km	linear 50 km	linear 50 km	linear 50 km
Dependent variable in all columns: Log unemployment duration						
Romance language	0.1962***	0.1652***	0.1953***	0.1993***	0.2084***	0.2023***
	(0.0372)	(0.0480)	(0.0369)	(0.0436)	(0.0389)	(0.0642)
Distance (100 km)	−0.0876	0.1945	−0.1119	−0.1483	−0.1183	−0.1203
	(0.0786)	(0.2672)	(0.0964)	(0.1022)	(0.0824)	(0.1200)
Distance · Romance l.	0.2145*	0.3867	0.4172***	0.3540**	0.2167*	0.2052
	(0.1151)	(0.3373)	(0.1476)	(0.1572)	(0.1195)	(0.1720)
Constant	1.8080***	0.8686	1.7348***	0.7335	1.7220***	2.3788***
	(0.3389)	(0.7421)	(0.3402)	(0.5247)	(0.3551)	(0.3191)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	60,713	22,996	60,713	27,258	55,935	60,713
Identifying observations	30,216	13,426	30,216	27,258	27,258	30,216
R-squared	0.1016	0.1056	0.1017	0.1047	0.1019	0.1127

Notes: Robust standard errors in parentheses, clustered on municipality level. Romance l. = majority in job seeker's municipality of residence speaks a Romance language. Distance = road distance to language border. See Section 2.1 for details on how the distance measure is constructed. All regressions are limited to job seekers in municipalities within 50 km of the language border. Squared distance = regression includes a squared term in distance and an interaction term Romance l. · distance squared. Bilingual cantons = canton of Berne, Valais, Fribourg (German/French cantons). French–German border: German speaking municipalities that have as nearest Romance language neighbor a French speaking municipality. Identifying observations are job seekers in multilingual cantons (cantons of BE, FR, VS, GR). Regressions in all columns include our baseline controls (as in column (4) of Table 4). $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. [a]Column (6) adds fixed effects for PES office where job seeker is registered. There are 168 PES offices in our sample. Source: Data from unemployment register 1998–2003; Swiss Census 2000, Swiss enterprise census 1998/2001, Swiss Labor Force Survey 1991–2009, Federal Statistical Office (FSO), CH-2010 Neuchâtel. Distances from search.ch.

regression. Romance language speakers remain unemployed longer than their German speaking counterparts, despite being registered at the same public employment service office. The duration gap at the language border is not due to unobservable aspects of labor market policy.

5.2. Channels and Alternative Explanations

Language: Human Capital versus Proxy for Culture. We first take a closer look at the argument that an individual's language might just reflect an individual's human capital rather than cultural norms and values. As long as the Romance language is as valuable in the Romance language region as is the German language in the German region, an individual's own language per se should not generate any differences in

TABLE 6. Language skills and unemployment durations.

	(1)	(2)	(3)
		log unemployment duration	
Dependent variable	Knows other language	Know other language	Do not know other language
Romance language	−0.2010***	0.2131***	0.2270***
	(0.0347)	(0.0437)	(0.0514)
Distance (100 km)	0.6683***	−0.0509	−0.1748
	(0.0789)	(0.1053)	(0.1092)
Distance · Romance l.	−1.1487***	0.3386**	0.2858*
	(0.1033)	(0.1720)	(0.1540)
Constant	−0.4213	1.1605**	2.1952***
	(0.2646)	(0.5257)	(0.4168)
Individual controls	Yes	Yes	Yes
Municipality controls	Yes	Yes	Yes
Observations	60,713	25,935	34,778
R-squared	0.1059	0.1066	0.1017

Notes: Know other language means: know German if living in Romance language part, know French/Italian if living in German speaking part. Robust standard errors in parentheses, clustered on municipality level. Romance l. = majority in job seeker's municipality of residence speaks a Romance language. Distance = road distance to language border. See Section 2.1 for details on how the distance measure is constructed. All regressions are limited to job seekers in municipalities within 50 km of the language border. Regressions in all columns include our baseline controls (as in column (4) of Table 4). $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Source: Data from unemployment register 1998–2003; Swiss Census 2000, Swiss enterprise census 1998/2001, Swiss Labor Force Survey 1991–2009, Federal Statistical Office (FSO), CH-2010 Neuchâtel. Distances from search.ch.

labor market outcomes. However, it could still be that Romance language speakers are less proficient in the German language than are Germans in the relevant Romance language (or vice versa). This is potentially important in the present context, as the Romance language effect is identified at the border. Individuals living close to the border might face worse job opportunities if they do not speak the other language. The Romance language gap could just reflect differences in human capital rather than differences in attitudes towards work and job search.

Column 1 of Table 6 measures language proficiency of *Rösti* border residents. Results indicate Romance language speakers are less proficient in German than vice versa. The percentage who knows the language spoken just across the border is 20 percentage points lower on the Romance side compared to the German side. This is a sizeable gap in language proficiency. To see whether this difference can account for the observed differences in unemployment durations, we split the sample according to language proficiency, shown in columns (2) and (3). The LBC is of the same magnitude, independently of the job seekers' language proficiency.

TABLE 7. Exit channels: Linear probability model.

	(1) All exits	(2) Self	(3) PES	(4) Other
Dependent variable in all columns: Binary indicator for exit from unemployment before respective duration.				
1 month				
Romance language	−0.0222***	−0.0245***	0.0051**	−0.0027
	(0.0084)	(0.0060)	(0.0025)	(0.0047)
	[0.0802]	[0.0473]	[0.0081]	[0.0249]
3 months				
Romance language	−0.0528***	−0.0572***	0.0134**	−0.0090
	(0.0147)	(0.0118)	(0.0067)	(0.0081)
	[0.3404]	[0.2212]	[0.0427]	[0.0765]
6 months				
Romance language	−0.0805***	−0.0909***	0.0307***	−0.0203**
	(0.0131)	(0.0138)	(0.0104)	(0.0095)
	[0.6034]	[0.3682]	[0.0868]	[0.1485]
12 months				
Romance language	−0.0508***	−0.0894***	0.0474***	−0.0088
	(0.0102)	(0.0152)	(0.0129)	(0.0110)
	[0.7970]	[0.4468]	[0.1237]	[0.2264]
Observations	60,713	60,713	60,713	60,713

Notes: Exit rates estimated using a linear probability model. Share exiting in squared brackets. Robust standard errors in parentheses, clustered on municipality level. Romance l. = majority in job seeker's municipality of residence speaks a Romance language. All regressions are limited to municipalities within 50 km of the language border and estimated as in the baseline model. Regressions in all columns include our baseline controls (as in column (4) of Table 4). $^{***}p < 0.01$; $^{**}p < 0.05$. Source: Data from unemployment register 1998–2003; Swiss Census 2000, Swiss enterprise census 1998/2001, Swiss Labor Force Survey 1991–2009, Federal Statistical Office (FSO), CH-2010 Neuchâtel. Distances from search.ch.

Search Effectiveness and Intensity. To shed further light on the importance of the search channel, we exploit additional information in the unemployment register data on how a new job was found: (i) whether the unemployed worker found the job on his own, (ii) whether the caseworker at the local labor office mediated the new job, or (iii) whether exit from the register was due to other reasons.

Table 7 presents the coefficients of the LBC in unemployment durations by exit channels at various durations of unemployment. More precisely, the table provides estimates of the cumulative distribution function of spell durations, that is, simple linear probability models with the dependent variable indicating whether the unemployment spell lasted less than x months (where $x = 1, 3, 6, 12$), separately for each exit channel. Regressions include the full set of controls as in our preferred unemployment duration model (see Table 4, column (4)).

Column (1) does not distinguish between exit channels, that is, the coefficients report the LBC in the probability that the unemployment spell is shorter than x months (numbers in parentheses below the coefficient are standard errors, and numbers in

brackets give the mean of the dependent variable). Consistent with our basic findings in Table 4, the coefficients indicate that the probability of leaving the unemployment register within one month is 2.22 percentage points lower in the Romance language speaking regions, and the gap widens to 8.05 percentage points within six months duration and stays at 5.08 percentage points after a duration of twelve months. The language border gap in leaving unemployment builds up early in the spell and stays constant throughout.

Columns (2)–(4) of Table 7 report the corresponding estimates from regressions that are run separately for three exit states: jobs found on own-initiative (column (2)); caseworker-mediated jobs (column (3)); and other exits (column (4)). The coefficients of column (2) indicate that job seekers on the Romance language speaking side are significantly less likely to find jobs on their own. The LBC to this exit state is even larger than the overall gap in column (1). In contrast, unemployed individuals from the Romance language speaking side are significantly more likely to take up a job mediated by the local PES (column (3)). The LBC in other exits does not differ systematically and is mostly insignificant.

A lower probability of finding the job on one's own could indicate a lower search efficiency, a job seeker is less well connected through informal channels or has fewer weak ties, or a lower search intensity, a job seeker devotes less time effort to find a job, or higher selectivity in accepting job offers. This evidence speaks in favor of better access to search channels, a higher efficiency in job search, and/or higher motivation by unemployed individuals on the German speaking of the language border.[23]

Religion. Cultural attitudes toward work may not only be driven by language but may also reflect a different religious background. This is particularly relevant in the Swiss context where there are substantial regional differences in the prevalence of protestant or catholic denominations. Hence it could be that language is correlated with values and norms mediated by differential religious heritage across language regions.

We would like to apply the language border approach also to religion, similar to Basten and Betz (2013). Yet there is no religious border within cantons, hence the spatial border contrast could confound the effect of institutions with an effect of religion. We test whether the language border effect that we estimate in the data just

23. Employers might also discriminate against Romance language speakers and thereby reduce the rate of leaving unemployment on one's own account. Although we cannot rule out discrimination, we offer two arguments that are not consistent with outright discrimination. First, discrimination should affect exits to jobs mediated by the PES, since firms retain the final say on whom to hire. We find that Romance language speakers leave for jobs mediated by the PES more rapidly than their German speaking neighbors. This evidence is not consistent with discrimination affecting all jobs, even though we admit that firms' hands might be tied in hires mediated by the PES. Second, the pattern of job search at the language border we observe is, arguably, not entirely consistent with discriminatory behavior by employers. Discrimination is irrelevant for employers located far from the border as each employer has to hire job seekers from the own respective pool, so unemployment durations on either side of the border are similar. Approaching the border, employers can favor German job seekers over Romance job seekers, leading to a decrease in job search durations for job seekers on the German side, and an increase in job search durations on the Romance side. Instead, we observe a level shift in job search durations at the border.

TABLE 8. Unemployment duration and religion.

Sample	(1) Baseline	(2)	(3) Catholic municipalities	(4) Protestant municipalities
Romance language	0.1962***	0.1825***	0.1416***	0.2228***
	(0.0372)	(0.0371)	(0.0532)	(0.0649)
Distance (100 km)	−0.0876	−0.1239	0.1837	−0.2437**
	(0.0786)	(0.0826)	(0.1149)	(0.1085)
Distance · Romance l.	0.2145*	0.2742**	−0.1350	0.4524***
	(0.1151)	(0.1188)	(0.1562)	(0.1600)
Constant	1.8080***	1.9410***	2.1901***	2.4718***
	(0.3389)	(0.3943)	(0.5350)	(0.6519)
Baseline controls	Yes	Yes	Yes	Yes
Religious controls	No	Yes	No	No
Observations	60,713	60,713	20,355	40,358
R-squared	0.1016	0.1018	0.1023	0.1048

Notes: Religious controls are share catholics and share protestants in municipality, according to religious affiliation reported in 2000 census. Robust standard errors in parentheses, clustered on municipality level. Romance l. = majority in job seeker's municipality of residence speaks a Romance language. Distance = road distance to language border. See Section 2.1 for details on how the distance measure is constructed. All regressions are limited to job seekers in municipalities within 50 km of the language border. Regressions in all columns include our baseline controls (as in column (4) of Table 4). $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Source: Data from unemployment register 1998–2003; Swiss Census 2000, Swiss enterprise census 1998/2001, Swiss Labor Force Survey 1991–2009, Federal Statistical Office (FSO), CH-2010 Neuchâtel. Distances from search.ch.

reflects norms and values transmitted by religion rather than through language. We can compare the language border effect within a protestant canton (Berne) and within two catholic cantons (Valais, Fribourg). If religion rather than language drives the effect, the unemployment differential at the language border should then disappear.

In Table 8, we first reproduce our baseline LBC from Table 4. In column (2) we add two control variables for religion at the municipality level, the share catholics and protestants from the 2000 census (excluded is none/other). In columns (3) and (4) we split our sample into job seekers in municipalities where a higher share of the residents are catholics or protestants, respectively. Given that religious denominations in Switzerland mostly vary at the canton level, and the fact that the bilingual cantons are driving our identification, this essentially boils down to comparing the language border effect within a protestant canton (Berne) and within two catholic cantons (Valais, Fribourg).

The results in Table 8 show that the language border effect is still highly significant, whether we control for religious denominations or compare job seekers in regions with the same religious heritage, albeit it is somewhat smaller in catholic regions. These results show that religious affiliation (as we can measure it today) is not a first order factor and driving our LBC. However, we note that religion might still be one of the underlying (historical) reasons why norms and values between the Romance and

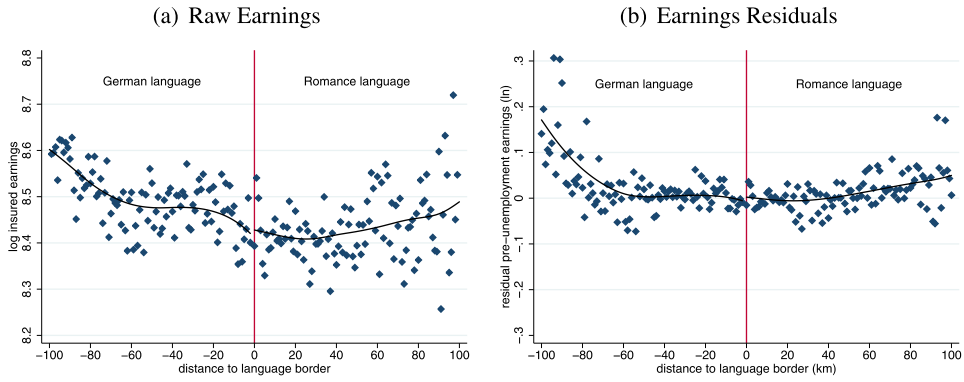

FIGURE 6. Are preunemployment earnings balanced? Negative distance = job seekers in German language speaking municipalities; positive distance = job seekers in Romance language speaking municipalities. Panel (a) shows the mean of insured preunemployment monthly earnings (logarithm). Panel (b) shows residuals after regressing (log) preunemployment earnings on our baseline controls. Both averaged in 1 km distance bins. Lines are locally weighted regression estimates (bandwidth = 0.8). See Section 2.1 for details on how the distance measure is constructed. Source: Unemployment register 1998–2003. Distances from search.ch.

German language groups differ in Switzerland. As we have shown in Table 2, Romance language speaking municipalities are overall more likely catholic.

5.3. The Role of Labor Demand

The evidence presented so far is consistent with the idea that weaker attitudes toward work translate into lower search intensity/efficiency and hence longer unemployment durations on the Romance language speaking side of the language border. Although all our estimates control both for canton fixed effects and detailed local labor market conditions within cantons, as well as individual and community characteristics, it could still be that labor markets differ, in which case a cultural interpretation of the unemployment gap is misleading. The purpose of this subsection is to explore this issue in more detail.

Labor Market Integration. Differential labor demand between the Romance language speaking and German speaking region may arise when labor markets are not integrated. The most straightforward way to study labor market integration is to examine whether wages equalize at the language border. Unfortunately, we do not observe hourly wages after the unemployment spell. Instead, Figure 6 looks at preunemployment earnings. The figure shows that preunemployment ("insured") earnings are slightly lower in the Romance language speaking region, though they equalize at the border. It should be noted that the unemployment register records total monthly earnings at the last job before unemployment, rather than hourly wages (the data do not report hours worked). This is important in the present context as labor supply responses could not only show

up in longer unemployment durations but also in lower hours among the employed in the regions with weaker work attitudes.[24] To the extent that the earnings measure is not confounded by differences in hours worked, the evidence in Figure 6 does not indicate any lack of labor market integration.

To explore the extent of labor market integration from another angle is to look at commuting patterns. We take advantage of information in the 2000 census that reports, for the universe of the Swiss workforce, both a worker's municipality of residence and the municipality of the workplace. This allows us to compare commuting patterns. Figure 7 plots mean commuting distance between municipality of residence and municipality of work in km, by distance of the municipality of residence to the language border. Only employed residents are included, and individuals working and living in the same municipality are coded with distance zero. Commuting times are somewhat longer for workers in the Romance speaking regions, but tend to approximate the commuting times of workers in the German speaking regions as one approaches the language border. We conclude that differences in commuting behavior are too small to give rise to the large differential in unemployment durations that we observe.

Other Labor Demand Factors. Although the evidence above is suggestive, it makes sense to look at more direct measures of labor markets and labor demand and whether we see discontinuities at the language border. Figure 8 shows the number of vacancies as a fraction of the labor force (panel a), the average yearly unemployment inflow per employed worker[25] (panel b) and the median wage of employed workers (panel c). Interestingly, the number of vacancies (normalized by the size of the labor force) seems slightly larger on the Romance language speaking side of the language border that should lead to shorter unemployment durations in that region.[26]

In contrast, the inflow into unemployment seems to be higher in the Romance language region, especially 50–60 km from the border, suggesting slightly higher separations risk for Romance language workers. But Romance region inflow into

24. When the data points in Figure 6 are weighted with their population share, regression results reveal a residual-earnings gap of 2.9%. This may indicate a border gap in unobserved skills. Note, that all regressions control for preunemployment earnings, hence the estimated border gap is conditional on preunemployment earnings (and any differences in unobserved skills reflected in this measure). However, we think it is more likely that the residual-earnings gap reflects lower employment (or lower hours) than lower hourly wages. This may be due to lower labor force participation (or shorter hours when employed) and longer unemployment durations. Indeed, Table 10 shows that labor force participation and hours are significantly lower in the Romance-speaking region.

25. To construct avg. yearly inflow we count how many job seekers in our main sample register per month in each municipality, calculate an average over the entire 1998–2003 period, and multiply by 12. We divide by the number of employed workers as of the 2000 census, selected according to our main sample demographics.

26. Notice that we normalize vacancies by the size of the labor force. Normalizing by the number of unemployed workers yields an indicator that is driven not only by labor demand but also by the search behavior of the unemployed workers. Normalizing by the labor force instead of unemployment avoids this. We reach a similar picture when vacancies are normalized by population size. See Table A.1 for details on how our vacancies and labor force measures are constructed.

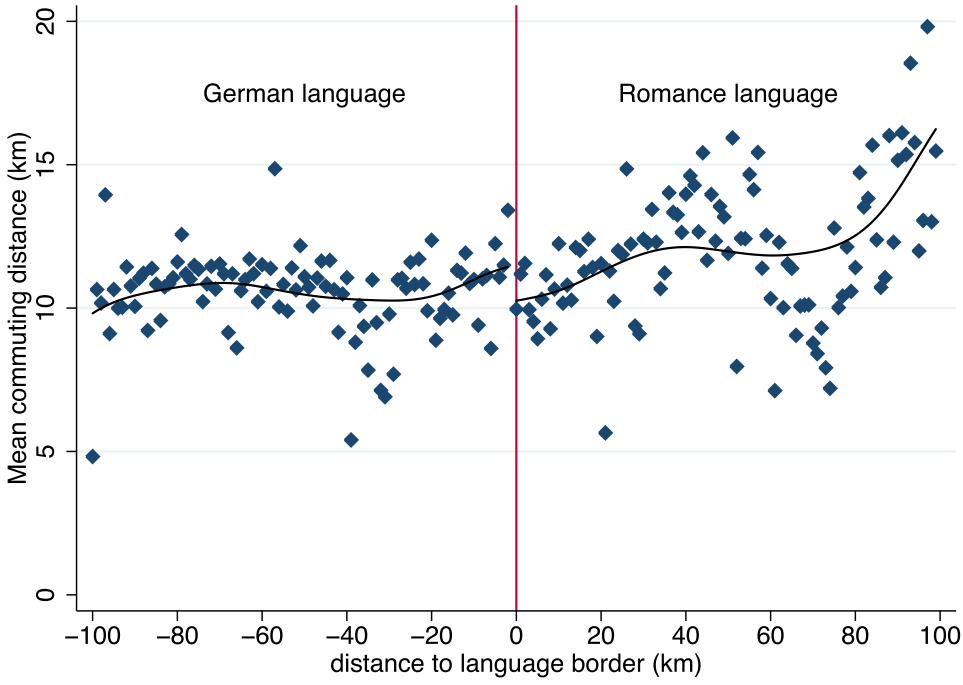

FIGURE 7. Commuting distance. Negative distance = workers in German language speaking municipalities; positive distance = workers in Romance language speaking municipalities. Figure shows mean commuting distance from municipality of residence to municipality of work (in km), calculated in 5 km distance bins by municipality of residence. See Section 2.1 for details on how the distance measure is constructed. Source: Swiss Census 2000, Federal Statistical Office (FSO), Neuchâtel. Distances from search.ch.

unemployment gradually converges to levels observed in the German speaking regions. Higher inflow could contribute to our earlier finding that job seekers have better qualifications on the Romance language speaking side of the language border (Table 3). Finally, panel c does not indicate a jump in median hourly wages among all employed workers (taken from the Swiss Labour Force Survey), which is in line with the observation of balanced preunemployment earnings for unemployed workers above.

To shed further light on these channels, Table 9 displays results from regressions (at the municipality level) of a set of labor demand indicators on the set of controls used to estimate the LBC in unemployment durations (excluding labor demand variables). It turns out that none of the coefficients is significantly different from zero.

To see whether the difference in unemployment inflow hinted at by Figure 8 above is robust, and as a final piece of evidence, Table 10 shows the LBC in inflow standardized by labor force and population, and the LBC in labor force participation as of the 2000 census (all constructed according to our main sample demographics) controlling for our baseline control variables. Irrespective of whether we normalize the

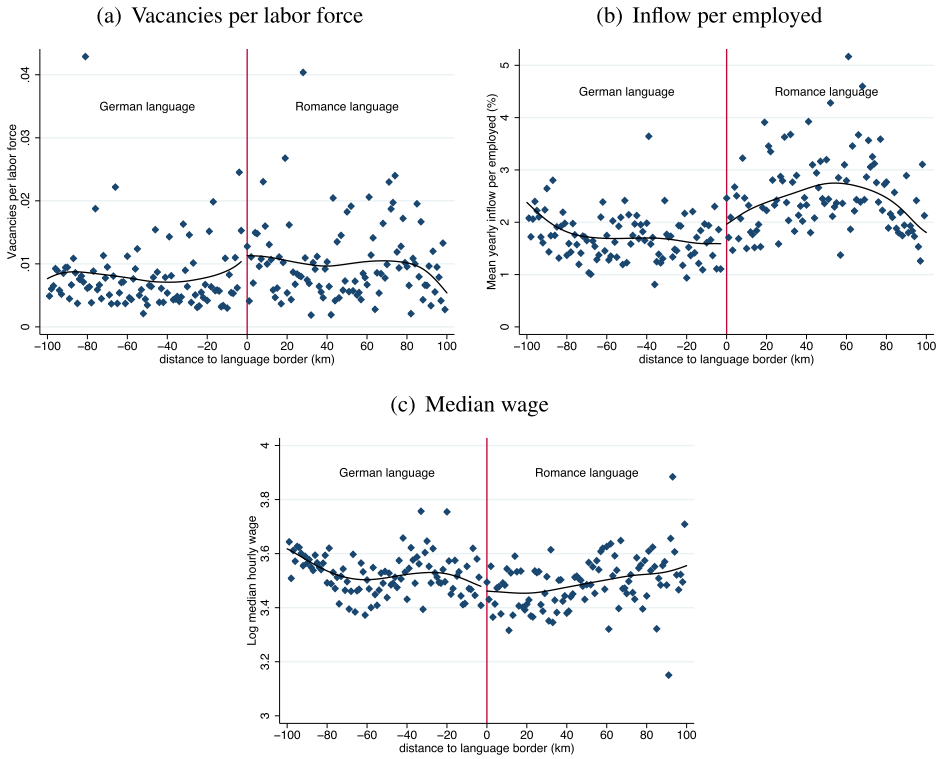

FIGURE 8. Labor markets and labor demand. Negative distance = German language speaking municipalities; positive distance = Romance language speaking municipalities. Panel (a) plots mean monthly vacancies over the period 1998–2003 divided by the labor force selected according to main sample demographic from the 2000 census, at the municipality level. Panel (b) plots mean yearly inflow into unemployment (of our main sample, 1998–2003) divided by the number of employed at the municipality level, computed from the Swiss Census 2000 according to our main sample demographic. Panel (c) plots log median hourly wage computed at the municipality level from the Swiss Labor Force Survey over the period 1991–2007. See Section 2.1 for details on how the distance measure is constructed. Source: Data from unemployment register 1998–2003; Swiss Census 2000, Swiss Labor Force Survey 1991–2009, Federal Statistical Office (FSO), CH-2010 Neuchâtel. Distances from search.ch.

inflow by the municipality population (column (1)) or by employment (column (2)), the difference in inflow is not statistically significant at the border.

Column (3) of Table 10 shows that labor force participation is significantly lower—by 0.79 percentage points—on the Romance language speaking side of the border, controlling for our labor demand indicators that include wages. Column (4) shows that the same holds for average number of hours worked per week, which is about 1 h less on the Romance language speaking side. Since labor force participation and hours worked are equilibrium outcomes and jointly determined both by labor supply and labor demand, a difference at the border does not imply lack of integrated labor markets. Given that we control for labor demand variables and wage levels, the more plausible

TABLE 9. Labor demand.

Dependent variable	(1) Monthly vacancies/ labor force	(2) Log median wage	(3) Log no. of firms	(4) Firms growth rate 1998–2001	(5) Log no. of work places	(6) Work places growth rate 1998–2001
Romance l.	0.0027	−0.0243	0.0250	−0.0128	0.0913	0.0272
	(0.0018)	(0.0285)	(0.0813)	(0.0127)	(0.1183)	(0.0247)
Distance (100 km)	0.0086**	−0.0468	0.0091	−0.0100	0.1420	−0.1125**
	(0.0041)	(0.0567)	(0.1869)	(0.0279)	(0.2733)	(0.0476)
Dist. · Romance l.	−0.0197***	0.1892**	−0.3086	0.0604	−0.7217*	0.1799**
	(0.0063)	(0.0954)	(0.2717)	(0.0508)	(0.3851)	(0.0766)
Constant	0.0741***	2.9084***	1.4309**	−0.4163***	4.3200***	−0.1185
	(0.0165)	(0.2376)	(0.7255)	(0.1391)	(1.2024)	(0.2164)
Controls	Baseline[a]	Baseline[a]	Baseline[a]	Baseline[a]	Baseline[a]	Baseline[a]
Observations	1,147	1,147	1,147	1,147	1,147	1,147
R-squared	0.5282	0.2103	0.9711	0.1218	0.9447	0.0546
Mean dep. var.	0.0098	3.5215	5.7029	0.0024	8.4989	0.0516

Notes: All regressions weighted by population. Monthly vacancies are available vacancies at municipality level as recorded by PES (available for each month in 1998–2003). We calculate mean monthly vacancies over the period 1998–2003. Labor force denominator calculated from 2000 census according to demographic of our main sample. Robust standard errors in parentheses, clustered on municipality level. Romance l. = majority in municipality speaks a Romance language. Distance = distance to language border (in 100 km road distance). See Section 2.1 for details on how the distance measure is constructed. All regressions are limited to municipalities within 50 km of the language border. [a]Regressions in all columns include our baseline municipality controls as in column (4) of Table 4, except for individual controls. We also exclude labor demand controls in this table. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Source: Data from unemployment register 1998–2003; Swiss Census 2000, Swiss enterprise census 1998/2001, Swiss Labor Force Survey 1991–2009, Federal Statistical Office (FSO), CH-2010 Neuchâtel. Distances from search.ch.

explanation would be differences in labor supply driven by culture or differences in attitudes toward work, consistent with our descriptive evidence and differences in unemployment duration.

In sum, no compelling evidence for important discontinuities in labor demand factors can be detected. We conclude that labor demand discontinuities at the language border are either nonexistent or too weak to account for a substantial part of the gap in unemployment durations.

5.4. Is Culture Quantitatively Important?

Our empirical analysis has documented a robust difference in unemployment durations at the border between Romance language speaking and German speaking regions. Job search lasts about seven weeks or about 22% longer on the Romance language side of the language border than on the German side of the border. How does this gap compare to the effects of unemployment insurance on unemployment? The classical reference is Katz and Meyer (1990) who find that increasing the potential duration

TABLE 10. Labor markets.

	(1) Avg. yearly inflow/ pop (%)	(2) Avg. yearly inflow/ employed (%)	(3) LFP (census) (%)	(4) Weekly hours (census)
Romance language	0.1180	0.1422	−0.7874**	−1.0060***
	(0.1343)	(0.1469)	(0.3244)	(0.1943)
Distance (100 km)	−0.3322	−0.2892	−1.2313*	0.0808
	(0.2451)	(0.2648)	(0.6542)	(0.4396)
Distance · Romance l.	0.3936	0.4721	−1.0334	(0.0279)
	(0.5391)	(0.5879)	(1.1004)	(0.8273)
Constant	7.7630***	8.4075***	95.0375***	40.6316***
	(1.2317)	(1.3729)	(3.4624)	(2.0383)
Controls	Baseline	Baseline	Baseline	Baseline
Observations	1,147	1,147	1,147	1,147
R-squared	0.7104	0.7304	0.6523	0.7545
Mean dep. var.	1.9583	2.1365	94.5950	44.5181

Notes: All regressions weighted by population. Avg. yearly inflow is from unemployment register only including our main sample. We calculate average monthly inflow at municipality level, multiply by 12, and divide by population and employed from 2000 census, respectively, also according to our main sample demographic. Robust standard errors in parentheses, clustered on municipality level. Romance l. = majority in municipality speaks a Romance language. Distance = distance to language border (in 100 km road distance). See Section 2.1 for details on how the distance measure is constructed. All regressions are limited to municipalities within 50 km of the language border. Regressions in all columns include our baseline municipality controls as in column (4) of Table 4, except for individual controls. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$. Source: Data from unemployment register 1998–2003; Swiss Census 2000, Swiss enterprise census 1998/2001, Swiss Labor Force Survey 1991–2009, Federal Statistical Office (FSO), CH-2010 Neuchâtel. Distances from search.ch.

of unemployment benefits by one week increases unemployment duration by 0.16 to 0.20 weeks. Card and Levine (2000) find somewhat smaller effects on registered unemployment for an exogenous temporary expansion of potential benefit duration in New Jersey.

Recent studies for Switzerland and other central European countries suggest somewhat smaller effects. Degen and Lalive (2015), using a Swiss reform that reduced the potential duration of benefits (PBD) from 24 to 18 months, find a reduction in unemployment durations of 0.6 months. Lalive et al. (2006) and Nekoei and Weber (2015) find that increasing PBD from 30 weeks to 39 weeks increases unemployment durations by 2–3 days for Austria. Schmieder et al. (2012) show that lengthening PBD from 12 to 18 months prolongs unemployment duration by 1 month in Germany. Le Barbanchon (2012) studies the effects of prolonging PBD from 7 to 15 months in France, and finds that unemployment duration increases by about 2.5 months.

Evidence for the effect of changes in the benefit level on durations is less prevalent. Røed and Zhang (2003) find that the elasticity of duration with respect to benefits is about 1 (also see Atkinson and Micklewright 1991 for a survey on the early literature). Eugster (2015) looks at the impact of changing the benefit level using the Swiss 2003 unemployment insurance reform and estimates that a 5 percentage point increase in

benefits lengthens unemployment spells by 3%, amounting to a duration elasticity of 0.5. Lalive et al. (2006) document a somewhat smaller elasticity of 0.2 for Austria.

We conclude that the Romance language gap in unemployment is equivalent to an increase in maximum duration of unemployment benefits of substantially more than one year, or an increase in the benefit level of more than 20%. These calculations show that the LBC in unemployment is quantitatively very large.

6. Conclusions

This paper studies the extent to which cultural differences in attitudes towards work and unemployment may help to explain regional unemployment differentials. We focus on the language border in Switzerland, the *Rösti* border, where strikingly large differences in unemployment durations are observed. We argue that the language border separates two social groups with different cultural background and attitudes towards work and unemployment. We find that culture and attitudes towards work are important to explain the gap in unemployment durations. Crossing the language border from the German to the Romance language speaking side is associated with an increase in the average duration of unemployment of more than six weeks. This effect is quantitatively large compared to the estimates obtained in empirical studies on unemployment durations. It is of an order of magnitude comparable to a drastic increase in the generosity of unemployment insurance, that is, of an increase in the potential benefit duration of more than one year, or an increase in the benefit level of more than 20%.

We examine other candidate explanations and conclude that language-border discontinuities in variables related to other explanations (labor market conditions, composition of the unemployment pool, etc.) are too small to account for the observed gap in unemployment durations. We conclude that longer job search durations for Romance language speakers are likely due to culture rather than markets or institutions.

Our analysis also highlights that economic and institutional forces do not automatically lead to cultural convergence. In the Swiss context, cultural differences arise among social groups that speak different languages but face very similar institutions and economic opportunities. This finding is important for scholars who study convergence among heterogeneous federations such as the European Union or the United States. Culture can be an important impediment to convergence that may sustain permanent differences in economic outcomes.

Appendix: Data and Supplementary Results

Table A.1 provides information on source and timing of the variables we use in our empirical analysis. All of the variables used at the individual level stem from the unemployment register (AVAM/ASAL), which we have for the years 1998–2003, and which are collected from local PESs. The unemployment register provides the postal code of the municipality of residence at the time of unemployment entry, which is

TABLE A.1. Description of variables.

Variable	Definition/construction of variable	Source	Time of measurement	Used at level of
Individual controls				
Age	Age at unemployment entry in years.	AVAM/ ASAL	At unemployment entry	Individual
Marital status	3 dummy variables for being single (base), married, divorced, widowed.	AVAM/ ASAL	At unemployment entry	Individual
No. of dependents	Number of dependent persons (wife and/or children).	AVAM/ ASAL	At unemployment entry	Individual
Mobility	Willingness to be mobile. 4 dummy variables for being not mobile (base), daily mobility (commuting), willing to move to parts of Switzerland, willing to move within whole Switzerland, willing to move abroad.	AVAM/ ASAL	At unemployment entry	Individual
Qualification	2 dummy variables for having low qualification (base), medium qualification, high qualification.	AVAM/ ASAL	At unemployment entry	Individual
Sector of last job	5 dummy variables for having worked in agriculture (base), construction, manufacturing, services, tourism, other sector.	AVAM/ ASAL	At unemployment entry	Individual
Previous earnings	Log of pre-unemployment insured monthly earnings (in Swiss Francs).	AVAM/ ASAL	At unemployment entry	Individual
Difficulty of placement	Caseworker assessment of employment prospects. 2 dummy variables for being easy to place (base), medium to place, hard to place.	AVAM/ ASAL	At unemployment entry	Individual
Municipality of residence	Postal codes; used to match job seekers to municipalities (and thus cantons).	AVAM/ ASAL	At unemployment entry	Individual

TABLE A.1. Continued.

Variable	Definition/construction of variable	Source	Time of measurement	Used at level of
Municipality controls				
Distance to language border	Shortest road distance in km to language border municipalities (see Section 2.1) constructed from search.ch distance matrix containing shortest distance between all municipality midpoints.	search.ch	2011	Municipality
Age structure	7 variables containing the share of residents (Swiss) aged 25 to 29, 30 to 34, 35 to 39, 40 to 44, 45 to 49, 50 to 54, 55 to 59 in the municipality.	Census	2000	Municipality
Education structure	3 variables containing the share of residents (Swiss, age 18+) with secondary education, tertiary education, no/other education. Primary education is base.	Census	2000	Municipality
Sectoral structure	2 variables containing the share of residents (Swiss, age 18+) employed in the secondary and tertiary sector in the municipality. Primary sector is base.	Census	2000	Municipality
% men	1 variable containing the share of men among residents (Swiss, age 18+) in the municipality.	Census	2000	Municipality
% other language	1 variable containing the share of residents (Swiss, age 18+) speaking no Swiss language.	Census	2000	Municipality
Log population	Log number of Swiss residents age 18+.	Census	2000	Municipality
Agglomeration	Dummy variable for whether a municipality belongs to an agglomeration of a large city.	Census	2000	Municipality

TABLE A.1. Continued.

Variable	Definition/construction of variable	Source	Time of measurement	Used at level of
Labor demand controls				
No. of available jobs	Log number of workers reported by firms	Enterprise Census	2001	Municipality
Increase in number of jobs	Growth rate in number of jobs between 1998 and 2001	Enterprise Census	1998, 2001	Municipality
Increase in number of firms	Growth rate in number of firms between 1998 and 2001	Enterprise Census	1998, 2001	Municipality
Vacancies per labor force	Average monthly vacancies recorded by the public employment service offices between 1998 and 2003, divided by the labor force according to our main sample demographic as of the 2000 census.	AVAM/ ASAL, Census	1998–2003, 2000	Municipality (plus time in duration model)
Median hourly wage	Real hourly wage in Swiss Francs (base 2000); median in municipality	Swiss Labor Force Survey	1991–2009	Municipality
Labor market policy controls				
% sanctions	Sum of sanction days assigned in municipality divided by total days in unemployment in municipality.	AVAM/ ASAL	1998–2003	Municipality
% training programs	Sum of days in training programs in municipality divided by total days in unemployment in municipality.	AVAM/ ASAL	1998–2003	Municipality
% employment programs	Sum of days in employment programs in municipality divided by total days in unemployment in municipality	AVAM/ ASAL	1998–2003	Municipality
% subsidized employment	Sum of days in subsidized employment in municipality divided by total days in unemployment in municipality	AVAM/ ASAL	1998–2003	Municipality

TABLE A.1. Continued.

Variable	Definition/construction of variable	Source	Time of measurement	Used at level of
Unemployment insurance controls				
Replacement rate	Unemployment benefits divided by preunemployment earnings	AVAM/ ASAL	1998–2003	Individual
Potential benefit duration	Duration eligibility (in days) for unemployment benefits. Before July 2003 this is 520 days. Afterward PBD is 260 days for a contribution period of 6–12 months, 400 and 520 days for contribution period over 12 months and individuals age <55 and ≥ 55, respectively.	AVAM/ ASAL	1998–2003	Individual
Other variables				
Unemployment duration	Number of days in unemployment, censored at 2 years.	AVAM/ ASAL	At end of unemployment	Individual
PES office	Public employment service office at which the job seeker has registered.	AVAM/ ASAL	At unemployment entry	Individual
Language skills	Which languages the job seeker is able to speak	AVAM/ ASAL	At unemployment entry	Individual
Exit channel	How the job seeker found a new job: by himself, mediated by the public employment service, "other" (does not show up anymore/has moved to a different region/has exhausted unemployment benefits)	AVAM/ ASAL	At end of unemployment	Individual
Share catholics/ protestants	The share of residents (Swiss, age 18+) reporting their religious denomination as catholic/protestant	Census	2000	Municipality
Municipality of work	The census reports both municipality of residence and—for the employed—the municipality of work.	Census	2000	Individual

TABLE A.1. Continued.

Variable	Definition/construction of variable	Source	Time of measurement	Used at level of
Avg. yearly inflow	Calculated from the unemployment register by summing the number of newly unemployed (by date of registration) of our main sample in each month and averaging by municipality, which is then multiplied by 12.	AVAM/ ASAL	1998–2003	Municipality

how we match job seekers to municipality characteristics. Most of the municipality-level variables are from the 2000 Swiss population census, which was carried out in December 2000 and covers the entire resident population of Switzerland. We also use data from the Swiss enterprise census 1998 and 2001. These are forms sent to all firms of the secondary and tertiary sector by the Swiss Federal Statistical Office (participation is mandatory). Reference day was the last working day in September. They cover the firm's location (municipality), industry, and the number of workers together with nationality, sex, and hours (in categories).

We use data from the public vacancy (OSTE) database of the PES to calculate the number of vacancies per month at the municipality level. These data contain the number of open vacancies for each municipality and month for the period 1998–2003. Information about vacancies is sent to the local PES office by employers. We also use a measure of local wages from the Swiss Labor Force Survey (SLFS/SAKE). For the years we have (1991–2009), the survey was carried out yearly in the second quarter and aimed to cover a representative sample of the population. It contains approximately 16,000 households in 1991–2001 and 35,000 households in 2002–2009, and provides detailed information on sociodemographics and labor market activity. It also contains the municipality of residence of the household at the time of the survey. As households are drawn from the phone book using stratified sampling, survey weights are provided (which we use) to calculate representative estimates.

To construct our distance to language border measure, we use data from the Swiss search engine search.ch, who operate a route planner similar to Google Maps. The data they provided us with consist of a matrix of (the shortest) road distances in km between all the municipality midpoints. Importantly for us, the midpoints are typically not the geographic midpoints but the economic/political centers, as this is what a route planner's users (and we) are interested in. See Section 2.1 for details on how we assign municipalities to language regions, define the language border, and construct distance to language border. We merge the distance measure to job seekers based on their municipality of residence at unemployment entry.

Table A.2 provides additional summary statistics at the individual and municipality levels. Column (1) provides means for all job seekers resident in municipalities within 50 km of the language border (Panel A), and means for all municipalities with at least 1 job seeker from our main sample within 50 km of the border. Columns (2) and (3) split these samples into job seekers/municipalities in the Romance and German language regions, respectively. Column (4) reports the difference in these two means, along with

TABLE A.2. Summary statistics.

	(1) All	(2) Romance l.	(3) German l.	(4) Difference	(5) Difference at border	
					All	Bilingual cantons
Panel A: Additional Individual characteristics						
Sector of last job						
% agriculture	3.2	4.2	2.7	1.5***	1.9***	2.4***
% construction	13.2	15.4	12.0	3.5***	−2.0	−1.7
% manufacturing	18.4	20.1	17.5	2.6**	3.9**	6.1***
% services	46.0	41.6	48.3	−6.7***	3.4	1.5
% tourism	6.1	6.0	6.1	−0.2	−0.2	1.2
% other sector	8.2	8.9	7.9	1.0**	1.2	1.8
Family characteristics						
No. of dependents	1.0	1.1	0.9	0.2***	0.0	0.1
% single	50.9	47.8	52.5	−4.8***	−0.5	−1.5
% married	37.9	41.6	36.0	5.6***	0.0	1.0
% divorced	10.8	10.2	11.1	−0.9**	0.4	0.5
% widowed	0.4	0.5	0.4	0.1	0.0	−0.0
Observations	60,713	21,139	39,574	60,713	60,713	27,258
Panel B: Municipality characteristics						
Education						
% primary education	23.1	27.1	21.4	5.7***	1.9*	1.3
% secondary education	51.3	47.4	53.0	−5.6***	−3.9***	−4.7***
% tertiary education	16.7	15.0	17.4	−2.4***	0.8	1.8
% none/other education	2.0	2.0	1.9	0.1	−0.4**	−0.3*
Sector						
% primary sector	2.5	3.2	2.2	1.0***	−0.4	−1.2*
% secondary sector	13.2	13.0	13.3	−0.3	−2.4***	−2.5**
% tertiary sector	37.4	34.4	38.7	−4.3***	−1.7	−1.6
Age structure						
% age 25–29	7.0	7.4	6.9	0.5***	0.2	0.2
% age 30–34	8.8	8.7	8.8	−0.1	−0.8***	−1.0***
% age 35–39	9.7	9.7	9.7	−0.1	−1.0***	−1.3***
% age 40–44	9.4	9.3	9.4	−0.1	−0.7***	−0.9***
% age 45–49	8.8	8.7	8.8	−0.1	−0.3	−0.4*
% age 50–54	9.0	9.0	9.0	0.0	−0.1	−0.3
% age 55–59	8.2	8.1	8.3	−0.2***	0.3	0.4

TABLE A.2. Continued.

	(1) All	(2) Romance l.	(3) German l.	(4) Difference	(5) Difference at border	(6)
					All	Bilingual cantons
Other						
% men	46.9	46.7	47.0	−0.3**	−0.5	−1.0*
% other language	1.0	0.8	1.1	−0.3***	0.1	0.2
Log no. of inhabitants	8.4	7.7	8.8	−1.0***	−0.2	0.2
% agglomeration	25.9	11.6	32.0	−20.5***	0.0	0.2
Observations	1,147	553	594	1,147	1,147	514

Notes: Romance l. = majority in municipality speaks French, Italian, or Romansh. "All" means all job seekers according to our main sample definition and residents of municipalities within 50 km of the language border. Column (3) shows the difference (in means) between columns (2) and (3). Column (4) shows the difference at the language border, estimated using our baseline specification controlling for canton, city, and time fixed effects. Column (6) shows the same for job seekers in the bilingual cantons Bern, Valais, and Fribourg only. Significance tests based on robust standard errors, clustered on municipality level. $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$. Source: Data from unemployment register 1998–2003; Swiss Census 2000, Federal Statistical Office (FSO), CH-2010 Neuchâtel. Distances from search.ch.

stars indicating whether the difference in means is statistically significantly different from zero. Columns (5) and (6) report the difference at the border (the "Romance language" dummy) for all job seekers/municipalities and those in bilingual cantons (Bern, Fribourg, Valais), respectively, including canton, city, and time fixed effects.

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Supplementary Data

Supplementary data are available at *JEEA* online.