# Does Culture Affect Unemploment?*

## Evidence from the *Barrière des Roestis*

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**Abstract**

This paper argues that cultural differences in tastes for leisure may affect unemployment. The analysis is based local comparisons across the language barrier in Switzerland. This *Barrière des Roestis* separates German speaking regions from regions that speak languages derived from Latin (i.e. French, Italian, and Romansh). We find that Latin-speaking barrier communities support work time limits much more strongly than their German-speaking neighbors. Job seekers living in Latin-speaking border communities take about 18 % longer to leave unemployment than their neighbors. Whereas the probability of leaving unemployment to a job located by the public employment service is the same across the border, Latin speakers locate jobs about 40 percentage points less likely than their neighbors living in German speaking communities. Cultural differences in tastes for leisure are economically as important as changes to the benefit replacement rate or the benefit duration. There is a declining life cycle pattern in the effect of culture on unemployment.

**JEL classification:**

**Keywords:** culture, taste for leisure, unemployment duration, regional unemployment.

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# 1 Introduction

Anyone who travels notices that there are strong cultural differences in norms and tastes across countries and regions. For instance, Alexis de Tocqueville's (1848) account of his 1831/1832 voyage to the United States of America documents that he was fascinated with the differences in the core values that shape the ways democracies work. At a more mundane level, we are confronted with cultural differences in tastes for food or drink. For instance, Germans are fond of different types of beer, whereas the French are reputed for their *haute cuisine*. Economists have long been trained that *de gustibus non est disputandum* and have also been sceptical with regard to culture – the set of norms and tastes shared within groups with separate identities.[1] After all, tastes are difficult to measure and even if we could measure them we can't change them. Instead, economics has almost exclusively focused on how constraints shape behavior.

This can be illustrated with research on the causes of unemployment. Perhaps 9 out of 10 papers study the role of benefits, taxes, unions, and other labor market policies or institutions. This research is faced with a puzzle. There exist strong and persistent regional differences in unemployment within jurisdictions that share the same legal structure (OECD 2000). Research that focuses exclusively on how institutions affect unemployment limits the scope of the analysis in an important extent.

In this paper, we study how differences in culture within a narrowly defined geographic area are affecting job search behavior. The focus of our analysis is Switzerland, a small country that is divided into two culturally distinct regions: "Latin-speaking" (i.e. French-, Italian-, or Romansh-speaking) regions and "German-speaking" region. The most striking feature of this border is that it does not coincide with the borders of political jurisdictions, i.e. cantons. This allows us to separate the effects of culture on unemployment from the effects of labor market policy on unemployment.

The second striking feature that distinguishes the Latin speaking from the German speaking region in Switzerland are stark and persistent differences in unemployment. Since the mid 1990s, when unemployment became a significant problem in Switzerland, unemployment rates in the Latin-Swiss regions have been between 1.5 and 2 times as high as in the German-speaking parts of the country. For instance, in 1997 when the unemployment rate was at its highest level, this rate was 7.0 percent in Latin-speaking cantons (= states) whereas it was only 4.5 percent in German-speaking cantons. Furthermore, this difference in unemployment rates is, to a large

[1] Research in economics has become increasingly aware of the potentially important role of culture on economic outcomes (Guiso et al., 2006, Tabellini, 2006, Fernandez, 2007, and others). While this emerging literature has focused on a variety of issues, none of them has focused on a potential role of culture for unemployment.

part, driven by differences in unemployment durations. Policy makers are increasingly puzzled about these large and persistent differences across language regions. In particular, there are no institutional differences and/or differences in (macro-)economic conditions that would obvious candidate explanations.

In this paper, we explore to which extent these observed differences in unemployment durations are caused by cultural differences. The idea is simple. We argue that regional differences in culturally shaped tastes for leisure may be important determinants of unemployment. Tastes for leisure determine the amount of effort that employed workers are willing to put into the work process. Similarly, tastes for leisure determine that willingness to unemployed workers to search hard for a new job. Job searchers who enjoy leisure more will put less effort into searching for appropriate jobs and may end up unemployed longer than job searchers who enjoy leisure less.

Clearly, providing empirical evidence on such culturally shaped causes of unemployment is challenging for two reasons. First, tastes must be measured which is not at all an easy task. Second, tastes must vary in a fashion that is unrelated to unemployment. Our empirical strategy addresses these twin problems as follows. We first exploit results from referenda of the Swiss direct democratic system to construct a measure for tastes for leisure (TFL). In particular, we use results (at the highly disaggregated community level) of six national referenda on working time regulations that were held in Switzerland since 1980. Three of these votes were related to working time at the intensive margin (maximum weekly hours, paid vacations) and the three were related the extensive margin (early retirement ages). These voting results provide us with direct measures of the taste for leisure. Exploiting highly disaggregated voting results (at the community level) we show that there is a discontinuous increase in TFL upon crossing the language border.[2]

Second, we study in detail how other factors that are related with labor market success are changing at the language border. In particular, we look at differences in the composition of the work force (education, age, family size, ...), other community characteristics (size, agglomeration, etc.), labor demand indicators (number of firms, workplaces, immigration, industry structure, structural change, etc) and differences in the implementation of the nation-wide labor market policies (assignment rates to active labor market policies, sanction rates, etc.). This in-depth analysis show that TFL is by far the most important change that happens when crossing the barrier. We therefore interpret the language border variation in TFL as a quasi-experiment allowing us to assess the effects of culture on unemployment.

[2]In Switzerland, this border is called the "Röstigraben" or "Barrière des Roestis", a term which derives from the German-Swiss way to prepare potatoes – "Roesti". Incidentally, German Swiss regard Roesti as a Swiss national dish whereas French Swiss and Italian Swiss would rather opt for Fondue or Polenta.

In a third step, we therefore analyze language border differentials in unemployment duration and unemployment rates. These analyzes are based on very large and informative data sets. The core of our empirical study is based on unemployment register data from Switzerland (AVAM database). The available data comprise of the universe of the unemployment inflow in Switzerland over the period 1998-2003 of which we focus on Swiss males in the age group 25-60. Our empirical analysis is based on more than 170,000 unemployment spells. A second main data set is the Swiss population census that gives us information, on an individual basis, for the universe of Swiss citizens in the years 1990 and 2000. Our empirical analysis will look at unemployment incidence of Swiss males aged 25-60 in the year 2000. Notice that population census data are survey-based data set. Hence unemployment register data and census data are completely independent data sets and allow us to do rigorous sensitivity analyzes.

Our findings indicate that there is a substantial difference in unemployment duration at the language barrier. Individuals living in Latin speaking border communities – facing observationally identical labor markets – tend to leave unemployment 5 to 6 weeks later than their neighbors living in German speaking communities. Excess duration arises because Latin speaking job seekers do not leave unemployment for jobs that they find themselves as quickly as their German speaking neighbors; rates of leaving unemployment to jobs located by the caseworker do not differ across the border. This pattern of evidence is consistent with a culture based explanation rather than market or policy based explanations.

While the core of our analysis speaks about a small part of the world, we believe that our work contributes to a general body of research investigating the role of preferences in shaping market outcomes in at least three dimensions. First, we outline the kind of data needed to study the role of culture in explaining economically relevant phenomena. In particular, we propose to rely on community voting results as proxies for the local culture. Combining these proxies for culture with individual data on unemployment allows us to speak to the issue. Second, we outline the kind of empirical design needed to identify the cultural contribution to equilibrium outcomes on a market. We believe that these kinds of set-ups are rather ubiquitous and will be exploited in the future (Belgium, former Yugoslavia, etc.). Third, our results speak to a burgeoning recent literature on the nature of the differences in hours worked between the U.S. and Europe in a clean quasi-experimental design rather than using poor cross country data.

The remainder of this paper is organized as follows. In the next section we provide a brief review of the emerging recent literature on cultural effects on economic outcomes. Section 3 provides some background on the Swiss labor market and the differences in labor market outcomes across Latin-speaking and German-speaking regions. Section 4 describes the various

data sources that we use in the empirical analysis. Section 5 details our empirical strategy to assess the impact of culture on unemployment. Section 6 presents our main empirical results and provides sensitivity analyses. Section 7 concludes.

## 2 Related literature

Our paper contributes to an increasing literature that tries to identify whether and to which extent economic outcomes are shaped by individuals' cultural background. This literature has tried to come up with convincing instruments showing that culture can be studied rigorously and, in particular, that it is possible to separate the influence of culture from institutions and standard economic variables. For instance, Guiso, Sapienza and Zingales (2003) show that religious beliefs and religious denomination is associated with trust in others, the demand for redistribution, views of working women and the importance of thrift. Guiso, Sapienza and Zingales (2006) show that these attitudes, aggregated at the country level, are correlated with cross-country aggregate outcomes (for example, self-employment, savings, and preferences for redistribution). Tabellini (2005) studies to which extent culture affects economic development across European regions. He instruments responses from the World Value Surveys on questions related to trust, respect for others and views on the link between individual effort and economic success with historical variables (literacy rates, political institutions). He finds that the proxies for culture are quantitatively significant determinants of per capita GDP levels and growth rates across regions.[3]

A number of studies have focused more closely on the link between culture and labor market outcomes. Alesina, Glaeser and Sacerdot (2005) investigate why Americans work so much more than Europeans. They argue that European labor market regulations explain the bulk of the difference between the U.S. and Europe that these policies in turn influenced leisure patterns and created a "leisure culture" through a social multiplier (the returns to leisure are higher when more people are taking longer vacations). They find that a model based on such complementarities in leisure performs better in explaining US-European differences in working hours than a model that is based on differences in taxation (Prescott 2004). Fernández and Fogli (2005; 2006) find that work (and fertility) behaviour of married second-generation American women is significantly affected by the country of heritage consistent with the hypothesis that culture of their parents' country of origin is intergenerationally transmitted. Using questions from the World Value

[3] A theoretical literature has studied the dynamics of cultural values focusing on the transmission of values from parents to children. See e.g. Bisin and Verdier (2000, 2001, 2004) on marriage and religion, Hauk and Saez Marti (2005) on corruption, Doepke and Zilibotti (2007) on class-specific preferences and the industrial revolution.

Survey Fernández (2007a) shows that attitudes in the country of ancestry wards women's market work and housework has explanatory power for the work. The particular role of "family culture" on labor market outcomes are investigated in Algin and Cahuc (2005) and Alesina and Giuliano (2007). 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. They find that, besides sorting and group-interaction effect, cultural backgrounds of individuals are a major determinant of shirking behaviors.

Other related studies have focused on the impact of culture on the emergence of labor market institutions. Algan and Cahuc (2006) argue that cultural differences ("public-spiritedness" as measured by World Value Survey questions) can explain why some countries implement labor market policies that favor high employment rates. Michaud (2008) studies theoretically the interaction between unemployment insurance and cultural transmission. Workers are heterogeneous with respect to work norms, where some individuals choose to live off unemployment benefits whereas others do not. This leads to a joint determination of cultural values and unemployment insurance. This will lead to a correlation of unemployment durations and the fraction of individuals with a low work-ethic. Lindbeck et al. (2003) and Lindbeck and Nyberg (2006) consider the dynamics of work norms and how this may explain why the disincentive effects on work of generous welfare state arrangements seem to materialize only with a substantial time-lag. In their model unemployment insurance rules are endogenous, hence unemployment rates and the adoption of norms and value are correlated.

Clark (2003) shows that psychologic well-being is typically negatively correlated with others' unemployment. However, while the well-being of the employed is often lower when the unemployment rate of others is higher, the unemployed report *higher* levels of well-being as others' unemployment rises. The psychological experience of unemployment is tempered by the labour market status of those with whom the individual is in close contact, as models of comparisons or norms would imply. Kolm (2005) shows in the context of a standard search and matching framework that such a situation (i.e. unemployment is less harmful to the individual workers when many other individuals around are also unemployed) may generate multiple equilibria with a low-unemployment region and a high-unemployment region co-exist.

The paper that is closest to ours is Stutzer and Lalive (2004) who analyze the role of the social norm to live off one's own income in explaining unemployment duration in Switzerland. The paper uses voting results that reflect support for this norm and measure the correlation between individual unemployment durations and voting results conditional on unemployment rates as proxies for shocks to local labor markets. Results indicate that this norm is economically

important.

These studies are by and large consistent with the hypothesis that economic outcomes in general and labor market outcomes in particular are affected by individuals' cultural background and that this effect can be quite substantial. This paper goes beyond the existing literature in several respects. First, this paper identifies truly exogenous variation in culture. Second, this paper studies the role of culture for unemployment duration and level. Third, the empirical analysis is based on much richer samples.

# 3 Background

## 3.1 The Roesti Barrier

Switzerland is a small densely populated country. It has 7.5 million inhabitants populating an area of 41,300 sq km (15,900 sq mi) with implies a population density of 180 residents per sq km (480 residents per sq mi). The country is divided into language regions. Figure 1 displays a map shaded according to the main language used in the areas of the country.

Figure 1: Language regions in Switzerland

The map shows the four language regions. The North East of Switzerland speaks Swiss German, the West speaks French, the South East speaks Italian, and part of the East speaks Romansh. According to the population census 2000, 72.5 percent of Swiss citizens speak German, 21.0 percent speak French, 4.3 percent speak Italien, 0.6 percent speak Romansh and 1.6 percent speak other languages (Lüdi and Werlen, 2005).[4] It is worth noting that the language is not a geographical border that separates the country for at least three reasons. First, the (public) transportation system of Switzerland is very efficient. Second, a large part of the language border runs from North to South (the border between French-speaking and German-speaking regions) whereas the main geographical barrier, the Alps, are in East-West direction. Third, important segments of this border do not coincide with borders between cantons (dark lines). Thus, people living on different sides of the language border actually face predominantly the same regional set of policies and institutions. The one large exception to this rule is income taxes and taxes on firms. We will analyze later on whether differences in taxes are salient at the language border.

One crucial fact, puzzling policy makers and researchers alike, are large and persistent differences in unemployment rates between the German-speaking and the Latin-speaking parts

[4]The numbers in the text refer to the Swiss citizens. Roughly 20 percent of residents are immigrants of which 62.3 percent speak either German, French, Italian or Romansh and 37.7 percent have some other first language.

of the country. Figure 2a shows the evolution of unemployment rates in German-Swiss versus Latin-Swiss cantons during the period 1997-2006. In all years displayed in the Figure unemployment rates were between 1.5 and 2 times as large in Latin-Swiss as compared to German-Swiss cantons. Figure 2b shows that this difference is to a large extent driven by differences in the duration of unemployment between language regions. The percentage long-term unemployed – the fraction of individuals being in the unemployment pool since more than a year – is always 1.5 times larger in Latin-speaking cantons. This suggests that explaining differences in unemployment durations may be key to understand differences in unemployment outcomes between language regions in Switzerland.

Figure 2a: Unemployment rates in Latin- and German-speaking cantons

Figure 2b: Percentage long-term unemployed in Latin- and German-speaking cantons

This paper tries to understand whether and to which extent these differences are driven by cultural differences between language regions, in particular by differences in tastes for leisure. It is widely recognized that Swiss language areas are associated with specific cultural traits and that the country is divided by an important cultural border: *Röstigraben* (*barrière des roesti / fossato dei roesti*). The term *Röstigraben*, (referring to the German-Swiss way to prepare potatoes) has become a metaphor for the general cultural divide within the country.[5] The cliché is that German-Swiss are hard working, historically used to spartan living conditions, being proud of their indepence and deriving their identity from the founding myth of the Swiss federation. In contrast, Latin-Swiss are bon-vivants enjoying the fruits of their temparate climate and, being a minority in the own country, are much more outward-oriented (towards France and Italy, and the EU as a whole).[6]

The key argument of this paper is that, due to their different cultural backgrounds, individuals have have developed different tastes for leisure because they adopted different languages. *First*, language is important in delineating ethnicity. Language is a key source of social identity (Tijfel and Turner, 1979). Moreover, language determines the sources of information. For instance, the French Swiss watch different TV channels than their Swiss German neighbors even

[5]Many commentators have written about the differences between these two cultural areas and speculated about the implications of this cultural divide for the political and socio-economic stability of the country. For an interesting recent contribution summarizing and taking stock of the debate, see Büchi (2003).

[6]Historically, Switzerland was founded by German-speaking cantons Schwyz, Uri and Nidwalden, located in the center of the county and was successively enlarged by the entrance of Berne, Zurich, Luzerne and other cities of the German speaking part. Until the French invasion at the turn of the 19th century large parts of French Switzerland were ruled by a German-speaking elites of Berne and Fribourg. In 1848, the new constitution with 26 cantons (of which 4 French speaking, 1 Italan speaking, 3 bilingual cantons, and 18 German-speaking cantons).

though they may live as close as 5 km apart. *Second*, the Latin Swiss identity is different from the German Swiss identity. Large parts of French-speaking Switzerland have been dominated by the German Swiss oppressors from Berne during 250 years creating a desire for the French Swiss to distinguish themselves from the ruling German elites and their cultural heritage. Moreover, the French Swiss live in a climate that has always been very forthcoming. In contrast, the German Swiss nourish the founding myth of the mountain peasant working hard to survive in remote areas of the Alps. The Latin Swiss lean towards their large neighbors whereas the German Swiss emphasize neutrality and independence.[7]

Uniting distinct ethnic groups is difficult. Switzerland addresses these difficulties using legal measures and education policy. Similar to the USA, the CH grants cantons a great deal of autonomy that ranges from independent tax authority to full authority in setting up an education system. Yet, Switzerland pays particular care to the fact that all federal laws are translated in all four languages (thus creating a few jobs for translators). Bilingual cantons (Fribourg, Valais, Berne) provide all state laws in both French and German. Politicians speak their mother tongue but they are expected to understand any of the other languages. The second pillar supporting Swiss multilingual situation is education. Children learn to speak another "Swiss" language as their second language before they can opt for English. (This has changed recently, however. While this has been understood as key to holding the Swiss confederation together, English has started to become the first foreign language in many schools in the German speaking part of Switzerland).

The Swiss direct democratic system provides us with the possibility to test the hypothesis that in Latin-speaking parts of the country individuals have different taste for leisure than in the German-speaking parts of the country. Voter initiatives are a crucial part of the political system and have a long tradition in Switzerland. Basically, anyone who collects more than 100,000 signatures can force the parliament to subject her or his change to the constitution to the popular vote. Over the last years, various voter initiatives – related to working time regulations (the "intensive" margin) – were held at the national level. In 1985, the all Swiss nationals aged 18 years or older – the voting age population – was asked to vote on whether to increase vacations to a minimum of 4 weeks; in 1988 whether to reduce regular weekly working time to 40 hours; and in 2002 whether to reduce weekly working time to 36 hours. Moreover, there were three referenda related to lifetime work regulations (the "extensive" margin): in 1988 the population had to vote 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

[7]This pattern is clearly evident in the voting decisions in a referendum on joining the European Economic Area (1992). Whereas the French Swiss overwhelmingly supported integration, the German Swiss did not.

to all workers; and in another vote in 2000 whether to leave the statutory retirement age for women at age 62 (rather than increasing it to 65 years). Table 1 displays the voting results of these six votes, separately for German-speaking and for Latin-speaking cantons.

Table 1: Voting results by language regions of six votes on working time regulations

Table 1 shows that there are strong differences in voting results between the two language regions and that the Latin-speaking cantons are consistently much more in favor of regulations that allows workers to enjoy more leisure. For instance, the 1985 referendum 44.4 percent of the population in Latin-speaking cantons voted in favor of longer vacations whereas only 31.4 percent were in favor of such a regulation in the German speaking cantons. The 1988 and 2002 votes on weekly working time reductions show very similar differences. The same picture emerges when we look at differences in voting behavior on issues related to (early) retirement rules. Over all six referenda, the percentage yes-votes is between 1.4 and 1.7 times as large in the Latin-speaking regions as opposed to the German-speaking regions. We consider this as first evidence consistent with a higher prevalence of a "leisure-culture" in Latin-speaking regions as opposed to more "workaholic-prone" attitudes in German-speaking regions.

### 3.2 Unemployment benefits in Switzerland

Job seekers are entitled to unemployment benefits if they meet two requirements. First, the unemployed must have paid unemployment insurance taxes for at least six months in the two years prior to registering at the public employment service (PES). The contribution period is extended to 12 months for those individuals who have been registered at least once in the three previous years. Individuals entering from non-employment who are looking for work are exempted from the contribution requirement if they have been in school, in prison, employed outside of Switzerland or have been taking care of children. Second, job seekers must possess the capability to fulfill the requirements of a regular job - they must be 'employable'. If a job seeker is found not to be employable there is the possibility to collect social assistance. Social assistance is means tested and relatively generous. For instance, social assistance is roughly 76% of unemployment benefits for a single job seeker with no other sources of income (OECD, 1999).

The potential duration of unemployment benefits is 2 years for individuals who meet the contribution and employability requirement. After this period of two years unemployed have to rely on social assistance. The marginal replacement ratio is 80% for previous income up to Sfr 4030; 70 % for income between Sfr 4030 and Sfr 8100; and 0 % for income beyond 8100. For job seekers with children, the marginal replacement ratio is 80 % for income up to Sfr 8100; and

0 % thereafter. Job seekers have to pay all income and social insurance taxes except for the unemployment insurance contribution.

The entitlement criteria during the unemployment spell concern job search requirements and participation in active labor market programs. Job seekers are obliged to make a minimum number of applications to 'suitable' jobs each month. A suitable job has to meet four criteria: (i) the travel time from home to job must not exceed two hours, (ii) the new job contract can not specify longer hours of availability than are actually paid, (iii) the new job must not be in a firm which lays off and re-hires for lower wages, and (iv) the new job must pay at least 68% of previous monthly earnings. Potential job offers are supplied by the public vacancy information system of the PES, from private temporary help firms or from the job seeker's own pool of potential jobs. Setting the minimum number of job applications is largely at the discretion of the caseworker at the PES.

The second on-going obligation concerns participation in active labor market programs during the unemployment spell. The exact nature and scope of the participation requirement is determined at the beginning of the unemployment spell and in monthly meetings with the caseworker (see Gerfin and Lechner 2002 or Lalive et al 2008 for evaluations and further details on the Swiss ALMP system).

Compliance with the job search and program participation requirements is monitored by roughly 2500 caseworkers at 150 PES offices. When individuals register at the PES office they are assigned to a caseworker on the basis of either previous industry, previous occupation, place of residence, alphabetically or the caseworker's availability. Job seekers have to meet at least once a month with the caseworker. Compliance with the job search requirements is enforced by way of communication with the human resources department of the potential employer. Participation in a labor market program is monitored by the caseworker as well as the program staff. Non-compliance with any of these obligations is sanctioned by complete withdrawal of benefits for a period that can last up to 30 work days (see Lalive et al 2005 for details on the Swiss sanction system).

In sum, the Swiss system is characterized by a universal law applying to all regions but a potentially locally very different implementation of this law. We will therefore investigate later on whether and how the implementation of the same rules might differ across the language border.

# 4 Methodology: spatial regression discontinuity

While the above comparison of Latin-speaking versus German-speaking cantons is suggestive for a potential impact of tastes for leisure on unemployment, we cannot interpret this as a causal impact. While tastes for leisure appear to differ between ethnic groups delineated by language in Switzerland, a simple comparison of these groups is unlikely to be informative on the effects of culture on unemployment. Regional differences in industry structure, education, or shocks to labor demand are clear confounders. To assess whether observed differences in unemployment durations and incidence are causally affected by differences in tastes for leisure we propose spatial regression discontinuity approach.

The key idea is that geographic proximity ensures contiguity of norms and markets while preserving local differences in culture. The purpose of this section is to outline the requirements to an empirical design that ensures identification of the effects of culture on unemployment. Let $Y_i$ be the outcome (unemployment duration, unemployed) associated with individual $i$. Let $D_i$ denote the taste for leisure of that individual. The canonical regression relating TFL to unemployment is therefore

$$Y_i = \alpha + \beta D_i + \nu_i \tag{1}$$

Clearly, regressing $Y_i$ on $D_i$ suffers from omitted variables bias and reverse causation. Panel identification will not work since tastes change only slowly.[8]

This paper proposes to use information on the language region of the community where the job seeker resides. Let $Z_c = 1$ if job seeker $i$ resides in a community $c$ that is predominantly Latin speaking, and $Z_c = 0$ otherwise. Clearly, $Z_c$ is not an instrument because Swiss language regions differ tremendously. Suppose, however, that we are moving closer to the language border. Let $S_c$ denote the distance of community $c$ to the language border with respect to some metric (and supposing for now that this distance is unique). The spatial RDD requires $Z_c|S_c$ to be like an instrument in $S_c = 0$, i.e. at the language border. Define the limit from the left of the average taste for leisure $\lim_{\epsilon\to 0} E(D_i|Z_c = 0, S_c = 0 - \epsilon) \equiv D^-$ and the corresponding limit from the right $\lim_{\epsilon\to 0} E(D_i|Z_c = 1, S_c = 0 + \epsilon) \equiv D^+$. Moreover, define the limit from the left of the average residual $\lim_{\epsilon\to 0} E(\nu_i|Z_c = 0, S_c = 0 - \epsilon) \equiv \nu^-$ and the corresponding limit from the right $\lim_{\epsilon\to 0} E(\nu_i|Z_c = 1, S_c = 0 + \epsilon) \equiv \nu^+$. The following conditions need to hold in order for a spatial RDD to identify the effect of culture on unemployment.

[8] Clearly, specification (1) imposes a homogeneity assumption on the treatment effect. Relaxing this assumption does not lead to fundamentally different conclusions regarding the conditions needed for identification but it does change the interpretation of the identified effects (Hahn et al 2001).

$$D^- \neq D^+ \tag{2}$$

$$\nu^- \neq \nu^+ \tag{3}$$

The first condition (2) requires there to be cultural variation in TFL. The second condition requires (3) that nothing else changes as we cross the Roesti barrier. While the first condition is quite likely to be satisfied (Table 1 and our analysis below) it is important to reflect on the second condition. The most important concerns with this assumption are regional differences in labor demand, and labor market policy. Both concerns are clearly substantiated at the regional level. The Latin regions are exhibiting weaker performance than the German regions and labor market policy implementation differs tremendously across Switzerland (Lalive et al 2005). However, spatial RDD requires only local invariance of labor demand and labor market policy. This invariance is ensured because geographic proximity also determines labor demand and labor market policy. Does the language barrier nevertheless cut through labor markets? We believe the answer is no. Recall that education policy forces Swiss to be bilingual which is especially true for individuals living close to the Roesti barrier. Moreover, we find that many individuals living on the Latin side of the border work on the German side and vice versa. This is evidence of strong integration of these labor markets.

The spatial RDD estimator of the effect of culture on unemployment is given by

$$\hat{\beta} = \frac{\hat{Y}^+ - \hat{Y}^-}{\hat{D}^+ - \hat{D}^-} \tag{4}$$

This estimator is a Wald (1940) type estimator – an IV estimator with one binary instrument. A two-step regression implementation of this estimator is

$$Y_i = \alpha_Y + \gamma_Y L_c + \delta_Y S_c + \mu_Y L_c S_c + \nu_Y \tag{5}$$

$$D_i = \alpha_D + \gamma_D L_c + \delta_D S_c + \mu_D L_c S_c + \nu_D \tag{6}$$

where $\hat{\gamma}_Y$ is an estimator of the numerator of the Wald estimator (4) and $\hat{\gamma}_D$ is an estimator of the denominator of the Wald estimator (4). Of course, this two step approach can be implemented in one step by standard IV regression.

# 5 Data

We use data on voting results to measure culture, unemployment register data to measure unemployment duration, and census data to measure unemployment. Data by the Swiss association

of truckers (ASTAG) is used to construct distance to the language border. Vacancy register data and data from the firm census is used to measure labor demand. Finally, we use unemployment register data to construct measures of the implementation of active labor market policy. This section describes these data sources, available information, and the sample selection.

Our measures of leisure culture is constructed using the federal administration on *voter initiatives*, published since 1980 in electronic form. This data contains community level information on the number of voters, the number of yes votes, the number of no votes, and the number of illegal votes. There are about 2700 communities in Switzerland. We combine information on all votes that deal with work limits into a measure of *leisure culture* in two steps. In the first step, we purge voting results by regressing each vote on demographic and educational structure of each community. In a second step, the resulting least squares errors are then averaged. This approach provides us with a leisure culture measure that reflect the extent to which each Swiss community's support for work limits differs from the Swiss average.

Data on unemployment duration and level is drawn from two sources. We use 1998-2003 *unemployment register* data that is generated at the local public employment service. Once a job job seeker files a claim for unemployment benefits, the case worker enters this claim into the so-called 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. Job seekers then regularly re-visit the caseworker who updates the information in the system. Job seekers leave the database either to a job or to an unknown destination. The data provide the interesting additional information whether, for exits to a new job, the unemployed worker has found this job by own initiative or by placement via the local labor office. Exits to an unknown destination occur for various reasons. Either the job seeker does not show up, has moved to a different region, or the job seeker exhausts unemployment benefits. It is important that unemployment register data provides data on covered unemployment spells rather than time between jobs (see Card et al. 2007a and 2007b). We use 2000 *census* data to construct a survey based measure of unemployment. In the decennial census, respondents are asked to provide information on their employment status. We can therefore re-construct a snapshot of the Swiss labor force in December 2000 – the (biblical) reference date for the census. Analyzing unemployment register data and census data is important. This allows us to assess the sensitivity of our results to using unemployment spell duration rather than time between jobs. Moreover, a comparison between the results for unemployment duration and unemployment levels is informative on the effects of culture on unemployment inflow rates.

The language barrier is a barrier that cuts Switzerland into pieces. Analyzing outcomes in

two dimensions is cumbersome. We organize the data in the following way: for each community, we calculate the distance to the language border as the the number of kilometers a truck needs to drive to get from this community to the closest community on the other side of the barrier (data provided by ASTAG). We then draw the community's location on the line that reflects the distance of this community to the language barrier. This distance measure reflects costs of commuting in an economically relevant manner. Moreover, this distance measure is not misled by the mountainous regions along parts of the language barrier. We code the distance measure negatively for communities in the German-speaking regions and positively for the Latin-speaking regions. For instance, Geneva – the Westernmost city – is located 150 km away from the barrier, St. Gallen – the largest city in the East – is 170 km away from the border. Zurich is 100 km away and Lausanne is 65 km away from the language barrier. Fribourg (on the Latin side) and Biel (on the German side) are two cities that are located exactly on the language barrier.

Our proxies for labor demand are drawn from two sources. We use 1998-2003 *vacancy register* data that is generated at the local unemployment office. These offices maintain close contacts with local business that may be looking for workers. However, since registering vacancy information is not mandatory, the vacancy register information is incomplete. Nevertheless, this information allows us to construct unique measures of local labor demand by relating the number of vacancies advertised per person in each community – the so-called vacancy rate. We link the month of entry community vacancy rate to each job seeker to control for labor demand. From the *firms census*, we get the number of jobs and the growth of the number of jobs and firms from 1998 to 2001.

Our proxies for local labor market policies are drawn from the *unemployment register* data. The AVAM/ASAL database records benefit sanctions and participation in active labor market programs. We aggregate the individual information to the community level sanction rate and rate of entry into various active labor market programs. This allows us to account for regional differences in how labor market policies are implemented.

In our analysis, we focus exclusively on men with Swiss citizenship. The focus on men allows us to disregard any potentially important interactions of family culture with labor supply affecting women. Voting data provides us with a measure of tastes for leisure for Swiss citizens. We also restrict attention to people in our sample that are registered as *full-time unemployed* who are *entitled to unemployment benefits*. This selection does not critically lower the number of unemployment spells in our sample but it does ensure a homogeneous sample. We further restrict our sample according to demographic variables. We keep only people that are *between 25 and 60 years old*. The lower age bound is set to ensure that the unemployed in our sample

have (mostly) finished their education. The higher bound is set to avoid any unemployment spells that allow for early retirement directly. The reason for this is, that people who receive unemployment benefits until they can enter into an early retirement plan are likely to behave differently from other unemployed (Lalive 2008).

# 6 A descriptive graphical analysis

In this section we use a graphical exposition to assess whether there exist significant discontinuities in leisure culture and unemployment durations at the language border. Findings indicate that this is the case so we ask whether the variables associated with four main arguments that are typically provided to explain differences in unemployment rates: (i) composition of the pool of unemployed workers (with respect to human capital and other characteristics), (ii) labor demand conditions (availability of jobs, vacancies), community characteristics (such as age structure and average education levels), and (iv) labor market policies (active labor market policies and sanction rates).

**The language border.** We start by characterizing the language border, i.e. the cultural barrier that separates the Latin-Swiss from the German-Swiss area. Figure 3 shows the percentage residents with Latin (i.e. French or Italian) mother tongue by distance to language border.

Figure 3 Percentage Latin-speakers (French or Italian) by distance to language border

Figure 3 shows that the language border is rather sharp. In the German-speaking parts of the country (negative distance measure) the percentage with main Latin language is (unsurprisingly) quite small, less than 10 percent. More importantly, this fraction does not show a clear trend when we approach the language border. At this border, there is sudden jump form about 10 percent Latin-speaker on the side of the German language area to more than 90 percent on the Latin-dominated side. Notice that this change occurs within a distance of 5 km, the grid adopted in the Figure. Hence we conclude that the language border sharply delineates the two language – and cultural – regions.

**Taste for leisure** The main aim of our empirical analysis is to investigate whether and to which extent cultural differences, and tastes for leisure in particular, can contribute to an explanation of differences in unemployment duration across culturally different regions. We have already seen that there exist significant differences in attitudes towards leisure between German-speaking and Latin-speaking Switzerland as measured by voting results of six referenda on working time regulations. Do these differences also show up at the language border? Figure 4 draws

these voting results, using disaggregated information at the community level by distance to the language border.

Figure 4: Voting results on 6 referenda, by distance to language border, Panels a)-f)

Panel a)-c) show average (weighted) community votes for the referenda on working-time regulations ("intensive margin"), respectively for the 1985 vote whether to increase vacation weeks (panel a); and the 1988 and 2002 votes on a reduction of regular weekly working hours (panels b and c). These graphs tells a consistent story: They do not only replicate the big differences between language regions (presented in Table 1 above), they do also clearly show that there exists a large discontinuity in voting behavior at the language border. The voting population with residence on the Latin-speaking side of the language border vote consistently more strongly in favor of longer leisure times than the voting population on the German-speaking side of the language border.

The situation is very similar when we look at voting results concerning lifetime-work regulations. In panels d)-e) we see the results on the community votes on the 1988 vote on the reduction of the statutory retirement age, the 2000 vote on easier access to early retirement and the 2000 vote on leaving the retirement age of women at the current level (rather than increasing it). In all cases, we see the same consistent picture. Residents on the Latin side of the language border are much in favor of lower lifetime working time than residents on the German-side of the border.

Figure 5 displays our taste-for-leisure index. As described in section 4 we construct this index as the average of the (weighted) community residuals of referenda-vote regressions that correct for community characteristics. This index is a summary measure of the propensity of a community to vote for regulations associated with more leisure – holding community characteristics constant. Figure 8 draws this index against the distance to language border. While this index has considerable variation by distance, two facts come out rather clearly. First, the index is on average much higher in Latin-speaking parts of the country. Second, and more importantly, there is a clear jump at the language border consistent with the hypothesis that attitudes of residents on the Latin-speaking side of the language border are much more leisure-oriented than attitudes on the German-speaking side of the language border.

Figure 5: The taste-for-leisure index, by distance to language border

**Unemployment durations at the language border.** Above we have seen that the German-speaking and the Latin-speaking cantons of the country are characterized by strongly different

unemployment outcomes. Obviously, if culture is a first-order determinant of these differences we should see a discontinuous change in unemployment not only between entire language areas, but also at the language border. In Figure 6, we draw the average durations of unemployment experienced by residents located at different distances from the language border. This graph clearly shows a strong discontinuity at the language border. On the German-speaking side average durations are on average somewhat lower than 30 weeks and they are exactly 30 weeks at the language border. On the Latin-speaking side average durations are somewhat more than 35 weeks and exactly 35 weeks at the language border. Notice that a 5 week difference in unemployment durations is a very large number. To see the quantitative significance of this difference let us compare it to the effects of unemployment insurance parameters on average durations of unemployment. According to estimates of Katz and Meyer (1990), the average duration of unemployment increases by one week if the maximum duration of unemployment is increased by 10 weeks. Extrapolating this effect linearly, a five-week differences in unemployment durations arises from increasing the maximum duration of unemployment benefits by a whole year! In sum, we conclude that the difference in unemployment durations *at the language border* is strikingly large. In what follows we look for whether there are obvious explanations for this big difference.

Figure 6: Average durations of unemployment, by distance to language border

**Composition effects, labor demand, and labor market policies** Clearly, this big difference in unemployment durations can arise from a variety of reasons. Obvious explanations are differences in labor supply, differences in labor demand, and differences in labor market policies. More precisely, it could be that the composition of the unemployment pool changes substantially at the language border. It could also be that the two regions are not perfectly integrated and the Latin region was subject to more severe negative labor demand shock. Finally, it could also be that there are differences in the implementation of labor market policies between the two regions.

The graphs in Figure 7 look at various indicators that characterize the *composition of the unemployment pool*. Panel a) looks at the percentage of unemployed workers with secondary education (for the majority some form of formal apprenticeship training). About 80 percent of all worker have completed secondary education, the percentage of educated workers is even somewhat higher on the Latin side suggesting a better rather than an worse labor market performance. Panel b) show the assessment of caseworkers about the potential problems to find a new job for the worker. The percentage workers for whom caseworkers report serious

problems is substantial on both sides of the language border but higher on German-speaking side of the language border.[9] Panel c) shows that percentage unemployed who have to care for dependents in the household –. the idea being that more responsibility for other household member makes unemployment a more serious problem and should induce an unemployed worker to search harder for a new job. We see that the average number of dependents is, if at all, slightly higher on Latin side suggesting shorter rather than longer unemployment durations on the Latin side. Finally, panel d) presents evidence that unemployed individuals on the Latin-speaking side are slightly younger than those on the German-speaking side. Since age is typically positively correlated with unemployment duration, also this indicator cannot be a main determinant of differences in unemployment durations at the language border. In sum, looking at several potentially important variables all of which are typically associated a significant determinants of unemployment durations do not suggest that unemployment durations should be higher on the Latin-speaking side. If there is a difference at all, we would rather expect shorter rather than longer duration on the Latin side of the language border.

Figure 7: Composition of the unemployment pool, by distance to language border

A second, equally important determinant of unemployment duration are *differences in labor market conditions*. To the extent that labor markets are separated, more severe labor demand shocks on one side of the language border should translate into differences in unemployment performance even for workers with similar individual characteristics. To shed light on this issue the graphs of Figure 8 display several labor demand indicators by distance to the language border. Panel a) looks at industry structure. It has been suggested that the labor market problems of many (European) countries originate in a small and too slowly expanding services sector (e.g. Rogerson 2007) suggesting the importance of differences in industry structure across language regions. Panel a) does not indicate substantial differences between language regions along this dimension. In particular, no discontinuity at the language border can be detected. (Furthermore, not shown in the graphs, deindustrialization – has been equally strong on the both sides of the language border suggesting that different speeds of structural change cannot account for differences in unemployment performance at the language border either.) Panels b) and c) look at the changes in the number of jobs and changes in the number of firms between the years 1998 and 2001, by distance to the language border. These variables take rather similar values on both sides of the language border and do not show any substantial discontinuity at the language border. Finally, Panel d) looks at the average number of vacancies (per working-age residents). Also this indicator is similar across language regions and does not display a noteworthy jump

[9]Some authors have argued that the caseworker's assessment variable on the unemployed workers' job prospects is a very valuable indicator to account for otherwise unobserved heterogeneity, see e.g. Gerfin and Lechner (2002).

at the border. In sum, our labor demand indicators do neither show substantial differences not any important discontinuity at the language border. We find this quite surprising, given that these indicators are measured at highly disaggregated community level (which should be helpful for our spatial regression discontinuity analysis).

Figure 8: Labor market conditions by distance to the language border, Panels a)-d)

A final candidate explanation for differences in labor market performances between language regions are *differences in labor market policy*. While there is a nation-wide unemployment insurance system that aligns passive labor market policies (level and duration of unemployment benefits) throughout the country, there is considerable discretion at the local level in terms of implementation of active labor market policies (ALMPs). Frölich and Lechner (2004) find that these differences in regional ALMP-treatment intensities translates into significant differences in labor market performance of the participating individuals. Lalive et al. (2005) have found that there are substantial regional differences in sanction rates for non-compliers with unemployment benefit rules. They find that higher regional sanction rates translate into higher unemployment exit rates. Hence looking at regional differences in ALMP treatment intensities could be potentially relevant for explaining the discontinuous change in unemployment durations at the language border. The various panels of Figure 6 look at, respectively, percentage days during an unemployment on a benefit sanction (panel a); percentage days during an unemployment spell in training programs (panel b), employment programs (panel c), and subsidized jobs (panel d).[10] There is some indication that sanction rates are higher in the German-speaking regions and that they discontinuously fall at the language border. Similarly, assignment rates to employment programs and subsidized jobs are somewhat higher on the German-speaking side as compared to the French-speaking side of the language border. In contrast, training programs are more heavily used on the French-speaking side. In sum, differences in ALMP-treatment intensities between language regions and at the language border could have some explanatory power in explaining the language-barrier effect in unemployment durations.

[10]Notice that there are various channels by which higher ALMP-treatment intensities could affect employment performances and the direction of the effect is not always clear. There could be a direct treatment effect leading to a higher job finding rates for participants; a locking-in effect because unemployed workers have to participate in ALMPs and have less time to search; a threat effect inducing unemployed worker who want to avoid program participation to exit more quickly from unemployment, etc.

# 7 Estimating the impact of leisure culture on unemployment

The above descriptive graphical analysis suggests a potentially strong impact of a cultural attitudes towards leisure on unemployment durations. However, this analysis does not control in detail for observed differences in individual characteristics and the environment, so it remains unclear whether and to which extent observed unemployment differentials can be explained by the different candidate explanations. In this section we now go one step further and apply regression analysis that control for observed characteristics. Using IV-estimation techniques we provide estimates for the causal impact of a leisure-culture on unemployment durations. Our empirical strategy proceeds as follows. We first present reduced-form estimates on the language barrier effect on unemployment durations. In particular, we investigate whether the barrier effects survives once we introduce, sequentially, various groups of variables that could potentially account for observed unemployment durations and undertake an extended sensitivity analysis to check the robustness of this effect. We finally provide IV-estimates that shed light on the causal impact of leisure culture on unemployment durations.

Table 2 shows the language barrier-effect. All regressions in Table 2 controls for inflow year, inflow quarter, and two education dummies, two dummies reporting the caseworkers' assessment the unemployed worker's job prospects, the worker's previous earnings, 5 dummies for the worker's previous industry, number of dependents, age, and family status. Moreover all regression control for canton (=state) dummies. This is important because cantonal borders are partly institutional borders and because they control for persistent differences across regions in labor market conditions.

Table 2: The language barrier effect in unemployment durations

Column 1 shows that, after controlling for the above set of variables, we find a change in unemployment durations at the language border of +.155. When crossing the language border unemployment durations increases average (log) unemployment duration by .192 log points (or 21.1 percent). Evaluated at the sample mean, roughly 31 weeks this is equivalent to a 6.5 weeks difference in average durations of unemployment at the language border. This means that, after controlling for a detailed set of characteristics, the estimate language barrier effect does even become somewhat larger than the raw differential observed at the language border in Figure 4 above. The language barrier effect is estimated using linear trends, separately for the distance on the Latin-speaking and the German-speaking side of the language border. It turns out that neither of these linear trends is significantly different from zero.

To check whether this result is robust, the remaining columns 4 of Table 2 introduce addi-

tional controls. Columns 2 controls for community characteristics (community education levels, demographic structure, community size, and a dummy that indicates whether the community belongs to suburbs of an urban center (agglomeration). Although most of these variables (in particular, age structure, education levels, and community size) have a statistically significant impact on unemployment durations, introducing these additional controls does not change the magnitude fo the language barrier effect. In contrast, the point estimate even increases slightly to .201. Column 3 of Table checks, for labor demand conditions within cantons (i.e. in addition to persistent differences in labor market conditions across canton that are captured by the cantonal dummies). We introduce detailed community indicators to capture local differences in labor demand. The number of the jobs available in the community (in the base year 2001); the increase in the number of jobs and the increase in the number of firms at the community level between the years 1998-2001; and the number of vacancies opened (and reported to the local labor office) in a community in a given quarter. Introducing these detailed labor market indicators does neither have a strong impact on the overall performance of the estimated equations; nor does it have an impact on the estimated language barrier effect on unemployment durations. It appears that differences in labor market conditions are well captured by the cantonal dummies. Column 4 includes indicators for differences in regional ALMP treatment intensities (sanction rates, ALMP assignment rates for training course, employment programs, and subsidized jobs). Consistent with other studies, these variables contribute to an explanation of variation in unemployment durations. However, controlling for regional differences in ALMPs does not contributed to an explanation of the observed difference in unemployment durations at the language barrier. The coefficient of our Latin-dummy remains at almost exactly the same level as before.

Table 3 provides further checks for the robustness of the language barrier effect by introducing the unemployed individuals main language and foreign language proficiency as an explanatory variables. Column 1 repeats the results of the preferred specification (column 3 of Table 2) to allow a comparison when additional controls are introduced. In column 2 we add a variable for the unemployed workers' main language. In Figure 2 above we have seen that the language barrier is rather sharp, yet clearly not perfect. A non-negligible number of individuals on the Latin-speaking side grew up with German as their main language and vice versa. This allows to distinguish a language-region effect from the unemployed worker' main language. It turns out that the language-barrier effect become slightly smaller +.164 when we introduce the unemployed worker's mother tongue (plus an interaction term with distance from the language border) as an additional control. Speaking a Latin language is associated with higher unemployment, the

coefficient being +.057. Notice that the sum of the two coefficients is very similar to the point estimate of our main specification. This suggests that the language area (rather than individuals' language) is the main channel by which language affect unemployment durations. Column of Table 3 introduces dummies for second language in the regressions. These variables should be considered as human capital variables that may have higher returns at the language border than in the rest of the country and thus potentially explaining the language barrier effect. While these variables (and their interaction effects with the distance variable) do in part play a role in explaining the observed variation in unemployment durations (coefficients are not shown in the Table) introducing these variables yields a point estimate of the language barrier effect of +.197, almost of identical size as before.

Table 3: The language barrier effect: main language and foreign languages

The analysis so far has focused on the number of days that individuals spend in registered unemployment. We did not ask whether individuals who left the register were taking up a new job or left the labor force. Therefore the observed differences in unemployment durations could not only arise because unemployed workers at the German-side of the language border search harder for a new job but also because they get more quickly discouraged and drop out of the register for other reasons. To shed light on the particular exit channels and the variation in the likelihood of particular exits at the language border, we exploit information in the unemployment register (AVAM) data on the termination of the unemployment spell (exit to job versus other). To study this issue we perform a standard competing risk analysis with three exit states: (i) a regular job found by the unemployed worker him- or herself; (ii) a regular job through placement by the local labor office; and (iii) other exit (dropping out of the labor force for other reasons).

Table 4 present the results from this competing risks analysis. Notice that now the dependent variable is not longer the duration of unemployment but the exit rate from unemployment to a particular exit channel meaning that the coefficients of Table 4 have a different interpretation than those in Tables 2 and 3. Controlling for the same variables as in our baseline specification (Table 4, column 1) we find that the (log) exit hazard rates at the language border is .317 log points lower on Latin-speaking side than on the German-speaking side of the language border. What explains this difference in the probability of leaving unemployment? The next three columns look at the rate at which unemployed workers find a new job on their own initiative (column 2), that rate at which a job is found through placement by the local labor office (column 3), and the rete at which job seekers leave the office without providing information on their whereabouts (column 4). There is no significant language barrier effect in job finding rates through placement by the local labor office and to unknown destinations, the barrier effect is

extremely high for job finding rates on the unemployed worker's own initiative. The exit hazard rate is .516 log points lower on the Latin-speaking side compared to the German-speaking side of the language border. This effect translates into a 40 percentage point reduction of the hazard of leaving unemployment to a job located by the job seeker. This effect is clearly consistent with the hypothesis that the language barrier effect is strongly driven by cultural differences in job search behaviors and cultural attitudes towards job search. Interestingly, we do not find any differences in exits from unemployment to other states. This means, the hypothesis that the language barrier effect is driven by differences in discouragement effects are unlikely to be driving our results.

Table 4: The importance of various exit channels at the language barrier
(competing risk analysis)

### 7.1 The causal effect of leisure-culture on unemployment

Table 5 reports the causal effect of cultural differences in TFL on log unemployment duration. The excluded instrument is the language region of the community where the job seeker lives – the Latin dummy. This community characteristic is an instrumental variable because TFL strongly changes across language groups (Figure 9) but language does not affect labor market chances (Table 3). Recall that the IV estimate of the effect of TFL on unemployment duration is the ratio of two reduced form effects. Column 1 shows the reduced form effect of Latin region on unemployment duration. This is the same as the baseline estimate in Table 2 last column.

Column 2 in Table 5 shows the reduced form effect of Latin region on culture. These results indicate that Latin speaking frontier communities were about 8 percentage points more strongly in favor of limits to work than their German speaking neighbors. This effect is statistically significant and also economically important. Moreover, Latin region is a strong instrument in the sense that the t-ratio clearly exceeds the rule of thumb limit of 3.4 (Angrist and Pischke 2008).

Table 5: The effect of culture on unemployment duration: IV results

Column 3 in Table 5 combines the two reduced form estimates to provide an IV estimate of the effect of TFL on culture. The point estimate of .025 suggests that a one percentage point increase in support for work time limits tends to increase unemployment duration by 2.5 percentage points. This estimate is statistically significant at the conventional levels. Moreover cultural differences in tastes for leisure appear to contribute to understanding unemployment to an important extent. For instance, Stutzer and Lalive (2005) report that raising the benefit

replacement ratio from 70 % to 80 % (of the previous wage) increases unemployment duration by 1.7 weeks or 5.5 percent (compared to a baseline of 30 weeks). Our estimates suggest that differences in tastes for leisure leading to a 2.2 percentage point increase in support for work time reductions will also lead to increasing spell durations by 1.7 weeks or 5.5 percent.

Table 6 reports results of alternative identification strategies: OLS and results using religion as an IV.[11] Clearly, both identification strategies fail relative to our language border identification strategy. Arguably, the main reason for these identification strategies to deliver such weak results is that they are affected by omitted variables, reverse causation and that rely on within canton differences in unemployment and culture. Since these within canton differences are meaningful only in a few cantons that are split by the language border resulting estimates are clearly downward biased.

Table 6: Alternative Identification Strategies

How much do differences in tastes for leisure contribute to explaining differences in unemployment? Table 7 provides linear probability estimates of the effects of culture on unemployment rates. Results in Column 1 indicate that there is a .66 percentage point difference in unemployment rates between Latin and German speaking barrier communities. Column 2 suggests that there is, again, a 8 percentage point differential in support for work time reductions between border communities. Taken together, these estimates translate into an increase of the unemployment rate by .1 percentage point if support for work time reductions increase by one percentage point.

Table 7: The effect of culture on unemployment: IV results

Is this in line with what one would expect if TFL only increased unemployment duration leaving unemployment inflow rates unchanged? A back of the envelope calculation suggests that the answer is affirmative. Recall that steady state unemployment is given by inflow rate times duration. The unemployment inflow rate is about .1 percent per week. Results indicate that unemployment duration increases by 0.75 weeks (2.5 percent of 30 weeks) due to a one percentage point increase in leisure culture (Table 5). Thus, the unemployment rate is expected to increase by .00075 (.001 individuals entering unemployment per week times 0.75 weeks change in unemployment duration) an effect that is very much in line with the result of a 0.0009 increase in the unemployment rate associated with a one percentage point change in culture (Table 7).

Are there any differences in the role of culture in explaining unemployment? We explore heterogeneity in the effects of culture on unemployment with respect to age. Age is perhaps the

[11] See Boppart et al (2008) for a recent account on how religion affects education production in Switzerland.

single most important predictor of long-term unemployment. A standard job search framework would rationalize this with the low arrival rate of job offers coupled with the short remaining horizon on the job. Both factors serve to decrease the marginal benefit to searching for new jobs substantially for older workers compared to younger workers. Interestingly, basic first order comparative statics then suggest that young workers should be more sensitive to differences in tastes for leisure than older workers.[12]

Table 8 therefore reports IV estimates of the effect of culture on unemployment in three age groups: 25-34, 35-49, 50-59. Panel A reports estimates of the effect of culture on log unemployment duration. Panel B reports results for unemployment rates. The overall pattern of results is that of a declining importance of cultural differences in explaining unemployment. Whereas young job searchers' unemployment duration and unemployment rate is sensitive to changes in support for work time reductions, older workers' durations and unemployment rates respond the least to changes in tastes for leisure. This is consistent with the profoundly different job search environment facing old and young workers.

Table 8: Life Cycle Heterogeneity in the Effect of Culture on Unemployment

# 8 Conclusions

This paper analyzes the role of culture in explaining unemployment. The idea is that individuals with strong tastes for leisure will search for regular jobs less intensively once unemployed. This idea is tested in three steps. We first collect data on national votes in Switzerland that limit work time. These are imperfect proxies of tastes for leisure. Second, we observe that there are striking differences in support for work limits at the Swiss *Roesti* barrier – the language barrier separating the German speaking from the Latin (i.e. French and Italian) speaking regions of Switzerland. The *Roesti* barrier lends itself to studying culture because important segments of that border do not coincide with the borders of Swiss states. Third, we use quasi-experimental variation in tastes for leisure at the language barrier to identify the role of culture in explaining unemployment.

Our findings indicate that there is a substantial difference in unemployment duration at

[12] A competing explanation for life cycle heterogeneity is that there are also be cohort differences in tastes for leisure. The idea here is that differences in tastes for leisure among the younger cohorts might have become more pronounced. We believe, however, that cohort differences are likely to contribute to explaining life cycle heterogeneity in the effects only to a minor extent. Regional difference in support for work time limits did not significantly change over a 12 year period (1988 to 2000) in our data. This is consistent with slow changes in culture.

the language barrier. Individuals living in Latin speaking border communities – facing observationally identical labor markets – tend to leave unemployment 5 to 6 weeks later than their neighbors living in German speaking communities. Excess duration arises because Latin speaking job seekers do not leave unemployment for jobs that they find themselves as quickly as their German speaking neighbors. This is consistent with a culture based explanation rather than market or policy based explanations.

Culture is a quantitatively important predictor of unemployment. Our baseline results suggest that decreasing the unemployment benefit replacement rate by 10 percentage point will reduce unemployment duration about as much as a 2.2 percentage point reduction in support of work time limits. Clearly, the "change culture" policy can not be mandated whereas the "change benefit replacement rate" policy can be. Does this mean that our results are irrelevant to economic policy? We believe that the answer is no for at least three reasons. First, our research sheds light on the reasons for the tremendous differences in regional unemployment rates that have puzzled policy makers and OECD experts for a long time. Second, having identified the role of cultural differences in explaining unemployment we can now start thinking about how economic policy interacts with culture. Third, cultural differences may also give rise to different policies. Understanding the reverse arrow of causation is a further topic of future research.

## References


[1] Alesina, Alberto, Edward Glaeser, and Bruce Sacerdote (2006), Work and Leisure in the U.S. and Europe. Why so Different? NBER Macroeconomics Annual (eds. M.Gertler and K.Rogoff)

[2] Alesina, Alberto and Paola Giuliano (2007), The Power of the Family, IZA Discussion Paper No 2750.

[3] Algan, Y. and P. Cahuc (2005a) "The Roots of Low European Employment: Family Culture?" NBER International Seminar on Macroeconomics, MIT Press (eds J. Frenkel and C. Pissarides).

[4] Algan Y. and P. Cahuc (2005b) "Civic Culture and the Design of Labor Market institutions" IZA Discussion paper.

[5] Angrist, J. and Pischke, J.-S. (2008). *Harmless Econometrics*. New Jersey: Princeton University Press.

[6] Boppart, T., Falkinger, J., Grossmann, V., and Woitek, U. (2008). Qualifying Religion: The Role of Plural Identities for Educational Production. Working paper, Zurich University.

[7] Bisin, A., Verdier, T., (2000), "'Beyond the Melting Pot': Cultural Transmission, Marriage and the Evolution of Ethnics and Religious Traits", Quarterly Journal of Economics, Vol. 115, No. 3, 955-988.

[8] Bisin, A., Verdier, T., (2001), "The Economics of Cultural Transmission and the Dynamics of Preferences", Journal of Economic Theory, 97, 298-319.

[9] Bisin, A., Topa, G., Verdier, T., (2004), "Religious Intermarriage and Socialization in the United States", Journal of Political Economy, Vol. 112, No. 3, 615-664.

[10] Büchi, Christophe (2003), Röstigraben. Das Verhältnis ziwschen deutscher und französischer Schweiz. Geschichte und Perspektiven, Verlag Neue Zürcher Zeitung.

[11] Card, D. E., Chetty, R., and Weber, A. (2007a). Cash-on-Hand and Competing Models of Intertemporal Behavior: New Evidence from the Labor Market. *Quarterly Journal of Economics*, **122**(4), 1511–1560.

[12] Card, D. E., Chetty, R., and Weber, A. (2007b). The Spike at Benefit Exhaustion: Leaving the Unemployment System or Starting a New Job? *American Economic Review*, **97**(2), 113–118.

[13] Clark, Andrew (2003). "Unemployment as a Social Norm: Psychological Evidence from Panel Data", Journal of Labor Economics, 21, pp.323-351.

[14] Doepke M. and F. Zilibotti (2007) "Occupational Choice and the Spirit of Capitalism", Quarterly Journal of Economics forthcoming.

[15] Fernández, R. (2007). Women, work, and culture. Journal of the European Economic Association (forthcoming).

[16] Fernández, R. and Fogli, A. (2005). Culture: an empirical investigation of beliefs, work and fertility. Working Paper No. 11268. Cambridge, MA: NBER.

[17] Fernández, R. and Fogli, A. (2006). Fertility: the role of culture and family experience. Journal of the European Economic Association 4, 552–61.

[18] Frölich, Markus and Lechner, Michael, 2004. "Regional Treatment Intensity as an Instrument for the Evaluation of Labour Market Policies," IZA Discussion Papers 1095.

[19] Gerfin Michael and Michael Lechner, 2002. "A Microeconometric Evaluation of the Active Labour Market Policy in Switzerland," Economic Journal 112: 854-893.

[20] Guiso, L., Sapienza, P. and Zingales, L. (2003). People's opium? Religion and Economic Attitudes. Journal of Monetary Economics 50, 225–82.

[21] Guiso, L., P. Sapienza and Zingales, L. (2005). Cultural biases in economic exchange. Working Paper No. 11005. Cambridge, MA: NBER.

[22] Guiso, L., Sapienza, P. and Zingales, L. (2006). Does culture affect economic outcomes? Journal of Economic Perspectives 20(2), 23–48.

[23] Hahn, J., Todd, P., and van der Klaauw, W. (2001). Identification and Estimation of Treatment Effects with a Regression-Discontinuity Design. *Econometrica*, **69**(1), 201–209.

[24] Hauk, Esther and Saez-Marti, Maria, 2002. "On the Cultural Transmission of Corruption," Journal of Economic Theory, 107(2), pages 311-335, December.

[25] Ichino, A. and G. Maggi (2000), "Work Environment and Individual Background: Explaining Regional Shirking Differentials in a Large Italian Firm," Quarterly Journal of Economics 115: 1057-1090.

[26] Kolm, Ann-Sofie (2005). "Work Norms and Unemployment", Economics Letters, vol. 88(3), 426-431.

[27] Lalive Rafael, Jan C. van Ours and Josef Zweimüller, 2005. "The Effect Of Benefit Sanctions On The Duration Of Unemployment," Journal of the European Economic Association 3: 1386-1417.

[28] Lalive, R., van Ours, J. C., and Zweimüller, J. (2008). The Impact of Active Labor Market Programs on the Duration of Unemployment. *The Economic Journal*, **118**(2008), 235–257.

[29] Lindbeck, Assar and Sten Nyberg (2006). "Raising Children to Work Hard: Altruism, Work Norms and Social Insurance", Quarterly Journal of Economics, 121: 1473-1503.

[30] Lindbeck, Assar, Sten Nyberg, and Jörgen Weibull (2003) "Social Norms and Welfare State Dynamics", Journal of the European Economic Association , 1(2-3), April-May 2003, 533-542.

[31] Lüdi Georges and Iwar Werlen (2005). Sprachenlandschaft in der Schweiz, Eidgenössische Volkszählung 2000, Bundesamt für Statistik, Neuchatel.

[32] OECD (2000). "Employment Outlook". OECD: Paris.

[33] Prescott E. C. (2004) "Why Do Americans Work So Much More Than Europeans?" Federal Reserve Bank of Minneapolis Quarterly Review, Vol. 28, No. 1, July 2004, pp.2–13.

[34] Richard Rogerson, 2007. "Structural Transformation and the Deterioration of European Labor Market Outcomes," NBER Working Paper No. 12889.

[Stutzer and Lalive(2004)Stutzer and Lalive] Stutzer, A. and Lalive, R. (2004). The Role of Social Norms in Job Searching and Subjective Well-Being. *Journal of the European Economic Association*, **2**(4), 696–719.

[35] de Tocqueville, Alexis (1848), "Democracy in America", reprinted in 1969 by Harper & Row Publishers: New York.

[36] Tabellini, G. (2005). Culture and institutions: economic development in the regions of Europe. Working Paper No. 1492, CESifo.

[37] Tajfel, H., and Turner, J. C. (1979). "An integrative theory of intergroup conflict", in W. G. Austin & S. Worchel (eds.), The social psychology of intergroup relations, Monterey, CA: Brooks-Cole, pp. 94-109.

[38] Wald, A. (1940). The Fitting of Straight Lines in Both Variables are Subject to Error. *Annals of Mathematical Statistics*, **11**(3), 284–300.