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ABSTRACT

Talking Business: New Evidence on How Language Shapes Economic Behaviour*

We provide a large scale within-country analysis of the effect of language future time reference (FTR) on the choice of being an entrepreneur using individual-level data from Switzerland, a country characterized by a unique long-standing multilingualism and a large share of immigrant population. We test the hypothesis that speakers of weak FTR languages may have a closer perception of future rewards and be more willing to become entrepreneurs, a choice that reflects future orientation. Our analysis consistently indicates that immigrants who speak weak FTR languages are around 2 percent more likely to be entrepreneurs compared to speakers of strong FTR languages, net of unobservable ancestral cultural traits, districts of destination's characteristics, linguistic features other than FTR, and whether individuals maintain their native language or switch to one of the four Swiss languages.

JEL Classification: D15, J24, J6, L26, Z1

Keywords: entrepreneurship, language, future time reference, culture, migration, Switzerland

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1 Introduction

The investigation of the relationship between language and economic behaviour is a recent addition to the economic literature. One aspect of languages has been put under particular scrutiny, namely the way time is encoded and the way predictions about future events are expressed.[1] Some languages prescribe to express predictions about future events by means of an explicit linguistic marker, either a periphrastic form (eg. English, *It will rain* or *It's going to rain*) or an inflectional form (e.g. French, *Il pleuvra*, tr. *It-will-rain*). In other languages, for example German, an explicit marking is not prescribed (*It will rain = Regnet es*, tr. *It-rains)*, although a future tense might be used in other contexts. In these languages, predictions of future events are expressed as present events.

The way languages express predictions may affect the cognitive domain and the way individuals perceive time. Speakers of *Futureless*-languages (Thieroff, 2000) could perceive that the divide between present and future events is blurred, and treat alike present and future events. Hence, they could resolve intertemporal trade-offs differently from the speakers of languages that make a sharp distinction between present and future events.

The link between language and human choices has been analyzed in the past by philosophers of language such as Sapir (1921) and Whorf (1956). The so-called Sapir-Whorf hypothesis consists in the idea that a language's structure may influence its speakers' cognition and their conceptualization of reality:

> "...the 'real world' is to a large extent unconsciously built upon the language habits of the group. [...] We see and hear and otherwise experience very largely as we do because the language habits of our community predispose certain choices of interpretation." -Sapir (1958:69)

> "We dissect nature along lines laid down by our native languages. [...] the world is presented in a kaleidoscopic flux of impressions which has to be organized by our minds - and this means largely by the linguistic systems in our minds." -Whorf

[1] We refer to predictions of events that are non intentional and do not depend on individuals willingness or action. Weather conditions are the typical example.

(1940:213)

Such hypothesis, also known as Linguistic Relativity hypothesis, has been at the center of a decades-long debate among linguists, with some authors criticizing its lack of cohesive formulation and rigorous proof that language influences human thought (Pinker, 1994). However, in more recent years the idea that language may influence human thought and behaviour has gained a renewed consideration among authors, because of the recent advances in cognitive psychology, and the debate shifted to the extent by which a language structure and its speakers' worldview are connected (Lakoff, 1987; Lucy, 1992; Gumperz and Levinson, 1996; Lucy, 1997; Boroditsky, 2001; Casasanto, 2015).[2]

Building on previous work in linguistics, Chen (2013) provides the first empirical investigation of the relationship between language and economic behaviour. Chen adopts the partition of languages, as in Thieroff (2000), between *Strong Future Time Reference* (strong FTR, henceforth) and *Weak Future Time Reference* (weak FTR, henceforth) languages, based, respectively, on whether a future (e.g. as in English, French and Italian) or a present tense (e.g. as in Dutch and German) is to be used to speak of future events in prediction-based contexts which are out of speaker's control, such as weather forecasts. His hypothesis is that speakers of weak FTR languages may perceive future rewards as closer and be more willing to undertake future-oriented behaviours, such as saving decisions, compared to speakers of strong FTR languages.[3] The empirical analysis, based on micro-data from the World Value Survey, reveals that speakers of weak FTR languages tend to save more and have higher propensity to healthy behaviours (not smoking, safer sex, lower obesity) than speakers of strong FTR languages. Chen's main analysis is cross-country and is supported by a small within-country estimation based on nine multilingual countries.[4]

[2]These new formulations of the Linguistic Relativity hypothesis delineate specific channels of influence of language categories on thought and behaviour that are not at odds with the generative linguists' idea that language is innate and universal and therefore all languages share a set of fundamental structural rules (Chomsky, 1957, 1968).

[3]Chen validates the linguistic distinction between weak and strong FTR languages by performing an on-the-web text-scraping analysis of weather forecasts in 39 languages, which represent one of the ideal cases of prediction-based context of future events. Using the percentage of grammatical markers of future tense used in weather forecast sentences, the author finds a strong correlation with the language classification defined by Thieroff (2000).

[4]The multilingual countries in Chen's analysis are: Belgium, Burkina Faso, Ethiopia, Estonia, The Democratic Republic of the Congo, Nigeria, Malaysia, Singapore and Switzerland.

Chen's work has attracted some scepticism among linguists. In particular, Dahl (2013) emphasizes a number of problematic aspects. The most important relates to the actual interpretation of the empirical correlation highlighted by the data. According to Dahl, Chen's analysis fails to solve one of the most important difficulties in the investigation of the effect of FTR on economic behaviour, i.e. the close connection of a language features with its speakers' culture of origin. For instance, most weak FTR languages are concentrated in Northern Europe, among those countries that Inglehart and Welzel (2010) define as Protestant Europe. While a within country approach would be preferable, Chen's small within-country estimation is based on nine multilingual countries where linguistic diversity is often related to the presence of disadvantaged or discriminated minorities and it is difficult to disentangle the effect of language from that of discrimination.

The purpose of our paper is that of extending and addressing some of the limitations of Chen's study by providing a large scale within-country analysis of the effect of language FTR on individual economic choices in an homogeneous socio-economic context. We focus on Switzerland and adopt an epidemiological approach, in the spirit of Fernandez (2011), on the individual-level data of the complete census of the population carried out in 2000. Switzerland represents an ideal case study because of its historically rooted multilingualism. In Switzerland there are four official languages, three of which are strong FTR (French, Italian and Romansh) and one is weak FTR (German).[5] Moreover, the country hosts a large share of immigrants (21.8% of its population according to 2000 Census) which further increases its linguistic variety.

We focus on one peculiar future oriented behaviour, the choice to become an entrepreneur. This is a decision that is eminently forward looking, as any entrepreneurial activity requires an initial investment, either in equipment, promotion and advertising, in the creation of a customer base, or in specific human capital, aimed to yield a future reward. We adopt a broad definition of entrepreneur which includes all those individuals that risk on their own, self-organize their work schedule, often manage dependent employees and are residual claimants on the revenues from their activity. Our definition spans from business leaders to self-employed professionals and small business owners. We are the first, to our knowledge, to investigate the link between language and entrepreneurship.

[5]See the discussion in Section 2 on the evolution and the characteristics of multilingualism in Switzerland.

Language itself, is an expression and a part of a people's culture and largely contributes to shaping a people's identity in terms of preferences, attitudes and beliefs. Hence, our analysis adds to the broader debate on the relationship between the culture shared within a social (e.g. religious, ethnic, national) group and socio-economic outcomes. A number of papers on the cultural determinants of entrepreneurship do exist and we refer to Nunziata and Rocco (2016) for a review.[6]

Several recent contributions are particularly relevant to us. Figlio et al. (2019) use data on second generation immigrant pupils in Florida and show that, within-school, their performance is related with *long term orientation*, one of the six cultural traits codified and measured by Hofstede et al. (2010). Galor et al. (2017) and Galor et al. (2020) argue that crop productivity in pre-industrial times determined the emergence of cultural traits which in turn were reflected in language characteristics. The latter played a pivotal role in making cultural traits persistent and have a permanent direct and independent effect on contemporary economic outcomes. Eugster et al. (2017) exploit the exogenous variation in culture (and in particular in attitudes towards work) that is generated by the linguistic border which separates German from Romance languages in Switzerland. They show that speakers of Romance languages tend to remain unemployed longer and search work significantly less intensively compared to their across-the-border German speakers counterpart.

Our approach differs from these previous contributions along several dimensions. Compared to Eugster et al., we isolate the effect of one particular cultural characteristic of language rather than the effect of a general notion of culture, broadly intended. Compared to the papers by Chen and Galor et al. that estimate the economic implications of language FTR, we exploit a geographical setting, Switzerland, that is ideal for this type of analysis, being very homogeneous in terms of institutional features and socio-economic conditions, and offering an ample variety of languages in a endemic multilingual context. The latter point is particularly relevant for the identification strategy. In particular, Galor et al., who provide a major step forward compared to

[6]For a broader review of the literature on the determinants of entrepreneurship, and in particular on the role played by innate entrepreneurial abilities, risk-aversion, individual wealth and financial constraints and social networks, see Parker et al. (2005). Other contributions in the psychological literature focus on the role of personality traits, such as the need for achievement, the desire for independence, self-confidence and the attitude toward risk (McClelland, 1967; Cuervo, 2005), risk tolerance and desire for independence (Douglas and Shepherd, 2002) and internal locus of control (Evans and Leighton, 1989).

the cross country analysis by Chen, distinguish between languages prescribing either inflectional forms (e.g. French and Italian) or periphrastic structures (e.g. English) to mark future tense.[7] They adopt an epidemiological approach and focus on immigrants in the US. In their setting, immigrants' culture of origin is captured by country of origin dummies and the effect of language FTR is identified by the variation, within country of origin, between those who switch to English as their main language of daily use (switchers), and those who maintain their mother tongue (stayers). All switchers speak English, a language with periphrastic future marking, while stayers can speak a language with either periphrastic or inflectional future marking (or future-less altogether). However, estimating the effect of weak FTR by comparing switchers and stayers may have some limitations. Switchers and stayers might not be fully comparable, as the former could be more integrated in the destination country than the latter, resulting in different opportunities in the labour market. In addition, switchers might have personality traits, such as openness and courage, which are supportive of entrepreneurship.

Thanks to Swiss multilingualism we can address this concern. Indeed, our data include immigrants who abandon their mother tongue as main language of daily use and switch to a *Swiss* weak FTR language, those who switch to a *Swiss* strong FTR language and those who maintain their mother tongue, either weak or strong FTR, for each given country of origin. For instance, an immigrant from Spain can switch to French, Italian or Romansh (a Swiss strong FTR language) or to German (a Swiss weak FTR language) or she can keep speaking Spanish as her main language. Therefore, we can condition on the immigrants' switcher/stayer status in the regressions aiming to uncover the effect of weak FTR, and our identification does not hinges on the comparison between switchers and stayers, as we observe multiple languages with different FTR within each status.

Our findings consistently indicate that speakers of weak FTR languages are around 2 percent more likely to be entrepreneurs compared to speakers of strong FTR languages, lending credit to the hypothesis that the absence of a clear marking of future tense in prediction-based contexts could make perceive future rewards as less distant and, therefore, provide stronger incentives to invest in an entrepreneurial activity.

The paper is organized as follows: Section 2 provides a description of Switzerland's history

[7] See Dahl (2000).

of multilingualism and its historical evolution; Section 3 describes the data; in Section 4 we present the research design and the empirical findings, including a number of robustness checks and further evidence on the heterogeneous effect of FTR across a number of socio-economic and demographic dimensions; finally Section 5 concludes.

2 The Swiss institutional and linguistic landscape

A distinctive characteristic of Switzerland is that its four native languages, German, French, Italian and Romansh have been spoken in the area for many centuries (Pap, 1990).[8] Today's languages are the heirs of Latin and German dialects and the multilingual nature of the country has been preserved over time as a result of the peculiar evolution of its political institutions, centred on cantons, i.e. mini-states jealous of their autonomy.[9]

This situation was eventually formalised and crystallised in the constitution of 1848, which established that German, French and Italian were the three official languages of the country, followed in 1938 by Romansh, spoken then by about 40,000 residents.[10]

The constitutional principle regulating multilingualism in Switzerland is the principle of territoriality (Grin, 1999) which states that the cantons, within their boundaries, have the right to

[8]The first people that inhabited the area which is now Switzerland were Celtic tribes, the Helvetians to the West and the Rhaetians to the East, in particular in the current canton of Graubünden. The Romans occupied the area in the early first century CE and divided it between the provinces of the Gallia Belgica and Rhaetia. In the former province Latin mixed with Celtic dialects while the latter adopted the vulgar Latin. In 260 CE German Alemanni tribes invaded Helvetia (the Northern and North-Western part of the country) and the Burgundians advanced to the West. While the Alemanni preserved their German language, the Burgundians adopted Latin. Among the Rhaetians the vulgar Latin slowly evolved into the current Romansh. After the Romans abandoned the area around 400 CE, the Romansh and German areas underwent some geographical alteration until they reached a stabilization of their western and southern frontiers around 1100. On the contrary, the German-Romansh language boundary continued to move south-eastward from the 11th to the 15th century and stabilized only in 1464 when Chur, the capital town of Graubünden, was germanized. Since then, Romansh has been spoken only in a number of linguistic islands in a German-speaking sea, and the number of speakers have continued to decline to this day (Rash, 2002).

[9]The initial three cantons that formed the Old Confederation in 1291 were all German. The additional 5 cantons that joined the confederation in 1353 were also German. In the following centuries other territories joined the league. Among the 13 original cantons that fought against the Emperor and won Swiss independence from the Empire in 1648, only Fribourg was French speaking. Overtime, a number of territories in the West and the South entered in the sphere of influence of the confederation and became either allies or subject territories. In these areas French and Italian languages were prevalent. Although German was the official language of the Old Confederation, each canton or territory was free to preserve its own traditional language (Pap, 1990).

[10]Nowadays, we count about 60,000 Romansh speakers

secure the extent and homogeneity of their language. In particular, each canton establishes its official language (in a few cases more than one, as we shall see below) to be used in all administrative affairs and in education. The stability of the language boundaries is also supported by the fact that Swiss media have a cantonal diffusion and adopt the canton's official language. This implies that, typically, immigrant residents tend to learn the canton's official language, although this does not necessarily entail abandoning their native tongue.[11]

Most cantons are monolingual, three are officially bilingual (German and French) - Fribourg, Valais and Bern - and one, Graubünden, is trilingual (German, Italian and Romansh). In the multilingual cantons citizens have the right of dealing with the cantonal authorities in each of the official languages. In Fribourg, Valais and Bern, the German and French zones are clearly separated. Hence education is offered in each zone's main language of use. In Graubünden, where the distribution of languages is more scattered, each municipality has the right to establish its own official language and the language of instruction (Grin and Korth, 2005).[12]

Typically, linguistic boundaries do not coincide with geographical, religious or cantonal boundaries. The Franco-German boundary, the so called *Rösti line*, follows geographical lines only in the Jura and in the Valais, while it develops in open and plain areas in the canton of Bern and Fribourg (Pap, 1990). Protestantism and Catholicism are largely present in both French and German areas and, according to Weiss (1947), the cultural boundaries do not coincide with the language boundary.[13]

Eventually, the preservation of the peculiar patchwork of small linguistic areas in Switzerland, was granted by the equilibrium reached among the different Swiss communities which stand side by side in a context otherwise homogenous as regards values, economic development

[11]The constitutional setting contributed to preserve the language boundaries' stability when internal and external migration have significantly increased in recent times (Kużelewska, 2016).

[12]In Fribourg four districts are French-speaking, one is German-speaking and two are mixed. In Valais, the western part is francophone and the eastern part is German-speaking. After the secession of the French-speaking canton of Jura (1979), only a small proportion of the remaining territory of the canton of Bern (8 percent) is inhabited by French-speakers.

[13]More specifically, Weiss remarks that a clear cultural separation can be observed along the Brünig-Napf-Reuss line, between 50 to 100 km east of the Franco-German language boundary. The Brünig-Napf-Reuss line separates for instance the type of cards used to play a popular card game (Jass), Christmas and New Year's customs, and the breeds of cattle raised in the countryside. This line corresponds to the frontier between Burgundy and Alemannia in the Lower Middle Ages and pre-dates the formation of the modern linguistic communities.

and political institutions.

2.1 Key features of Swiss culture and languages

More than two thirds of Swiss citizens speak German, one fifth speaks French, about 5 percent Italian and less than 1 percent Romansh.[14] The French language is highly reputed and it was considered the educated language also among the German elites in the past.[15] Moreover, while Swiss French and Italian are resilient to the influence of other languages and do not absorb vocabulary, structures or pronunciation, the Swiss German absorbs heavily, especially from French. For this reason, the German Swiss do not hold a majoritarian outlook vis-a-vis other linguistic communities (Schmid, 1981).

At the canton level, institutions promote language uniformity. It is possible to live by using the canton official language without needing to learn another national language. Hence, the proportion of Swiss that are bilingual is small, about 15 percent overall (Rash, 2002). The Swiss learn another national language at school, as a foreign language, but eventually a substantial proportion of Swiss do not speak a second language, and certainly not properly (Pap, 1990). Typically, the French Swiss learn German, and the German and the Italian Swiss learn French. Bilingualism partly depends on internal migration, with Germans being more likely to move to the French or Italian areas than vice versa (Pap, 1990). As a result, in the Francophone region over 10 percent of its inhabitants speak German, while in the German-speaking areas only 1.9 percent speak French. Despite this substantial internal migration, the Franco-German boundary is neat and corresponds to a boundary already established by 1100.[16]

[14] Swiss communities do not feel part of the mainland French, German or Italian nations (Grin, 1999). Actually, they were never part of these nations and developed quite independently from them (Grin and Korth, 2005). In particular, the French speakers have always stressed their independence from France and at the beginning of XIX century they started to use the word *romand* in order to emphasize Swiss dissimilarity from France and French culture (Kużelewska, 2016).

[15] This status is partly depending on the fact that while the French community speaks the standard French, both German and Italian communities speak local dialects, somehow different from the corresponding standard languages. These dialects are characterized by an oral form only and rest on the standard language for their written form (Grin and Korth, 2005).

[16] There are very few bilingual municipalities, the most important of which are Fribourg and Biel (canton of Bern). According to the official definition of bilingual municipalities adopted in a 1963 federal decree, the latter are characterized by a language minority which represents at least 30% of the community's total population. As a result, out of a total of about 3000 Swiss municipalities in 1970, only thirty-five were French-German bilingual (Pap, 1990).

2.2 Linguistic differences among Swiss languages

Using data drawn from the WALS - World Atlas of Language Structures (Dryer and Haspelmath, 2013) - that classifies languages over several structural, phonological and grammar dimensions, we review the main linguistic differences between weak FTR and strong FTR Swiss languages, i.e. we compare, respectively, German and French, and German and Italian.[17] Beyond differing in the coding of future tense, we observe that German and French are dissimilar over 38 linguistic features. More than half (27) pertain to the areas of phonology, morphology, order of words, simple clauses and complex sentences. Other differences regard the number of genders, the use of cases and other categories such as the coding of numerals and pronouns. None of these characteristics is related to the conceptualization of time. The only verbal category, besides future tense, on which the two languages differ, is the distinction between perfective and imperfective aspects.[18] Differently from French, German does not present a grammar marker for imperfective and relies on the perfective aspect to describe ongoing or habitual actions. Similarly, German and Italian differ for 28 linguistic features and only one, the use of prohibitive, attains to the verbal domain but it does not directly relate to the expression of events along the time dimension. As discussed below, we account for these differences in our estimations.

3 Data

We use micro-data from the complete Swiss Census collected in 2000 and in most of our analysis we focus on first generation immigrant residents[19] who are employed and aged between 25 (when education is typically completed), and 70 (to limit concerns of differential selective retirement between self-employed and dependent workers).[20] We define first generation immi-

[17] The complete list of linguistic differences, according to the WALS dataset, between German and French are displayed in Table A1 in the Appendix. Differences between German and Italian are presented in Table A2.

[18] Perfective aspect is used to describe an action that is concluded (e.g. *I went*), while imperfective is used for an ongoing or habitual action (e.g. *I used to go*).

[19] We also perform additional estimates considering the population of Swiss natives only, i.e. those individuals who are born in Switzerland and speak one of the four native Swiss languages. These estimates are reported in Appendix Table A8.

[20] Retirement age is established at 65, but it can be postponed, with a delay of 1 to 5 years, with significant payout advantages.

grants as those individuals who are born abroad but reside in Switzerland, regardless of their citizenship. In total, we can identify 37 areas of origin from the 2000 Swiss Census.[21] Our sample amounts to about 632,000 first generation immigrants.[22]

The 2000 Census reports the "main language spoken at home or at the workplace", i.e. the respondents' language of daily use which can be different from their mother tongue. We define the dummy *weak FTR*, which is equal to one if an individual speaks a language which does *not* require the use of future tense for expressing predictions of future events. In Table 1 we classify our sample of languages as weak and strong FTR. Overall, we are able to identify 15 strong FTR and 6 weak FTR languages.[23] German, French and Italian are the most used languages among immigrants, followed by Portuguese, Spanish and English. German is the only weak FTR language among Swiss languages, and it is the most spoken in the country. Among immigrants, weak FTR languages are German, Dutch, the Scandinavian languages, Finnish, Chinese and Japanese. About 13 percent of immigrants are self-employed. The distribution of self-employment is rather flat across languages, ranging between 11 and 17 percent, with the notable exceptions of Portuguese and Spanish speakers, among whom the proportion of self-employed is only 4 and 8 percent, respectively, and of Hebrew and Persian speakers who are more entrepreneurial than the average immigrant (22 and 19 percent, respectively).

As reported in Table 2, 38 percent of immigrants abandon their mother tongue (i.e. the official language in their country of birth) and adopt one of the Swiss languages as main language of daily use (we label them as *switchers*). The remaining part, 62 percent, keep speaking their mother tongue while in Switzerland (*stayers*). Of these, about 39 percent originate from France, Germany, Austria, Lichtenstein and Italy and live in areas where their mother tongue

[21] See Table A3 in the Appendix for the distribution of immigrants by area of origin.

[22] Census data do not provide information about parental area of birth and it is therefore not possible to fully identify the population of second generation immigrants, i.e. those individuals who are born in Switzerland from born-abroad parents. As a result, from the population of second generation immigrants, we can just track the children of recent immigrants who have not yet obtained the Swiss passport. In total, we can identify only about 80,000 second generation immigrants in the data who are unlikely to be representative of the total second generation immigrant population.

[23] In the case of German, French, Italian, Romansh, English, Spanish, Dutch, Hungarian, Greek and Czech, the main language of daily use is reported explicitly by the census. In the case of Portuguese, Finnish, Romanian, Turkish, Mandarin, Japanese, Arabic, Vietnamese, Persian, and Hebrew, the language is identified by matching the information on the country of birth with the reporting of "other languages" for daily use. Swedish speakers are identified as those speaking a Scandinavian language and born in Sweden. First generation immigrants who speak Danish or languages from former-Yugoslavia countries are excluded from the analysis since WALS linguistic features, other than FTR, are not available in the data.

is the main Swiss native language (*stayers of type 1*).[24] These stayers are fully integrated linguistically. About 22 percent of stayers originates from the same neighbouring countries and maintain their mother tongue in cantons where it is not the majority language (*stayers of type 2*).[25] The latter are not linguistically integrated in their local area of residence, but they speak one of the official Swiss languages. The remaining 39 percent is composed of stayers who speak a non-Swiss language (*stayers of type 3*).[26] These individuals are the least integrated linguistically among the stayers.[27]

Table 2 also reports the sample mean of some selected characteristics distinguishing between weak and strong FTR speakers. Among weak FTR speakers we observe a slightly higher prevalence of self-employed and a higher prevalence of switchers. Similarly, there are more stayers of type 1, but less stayers of type 2 and 3. Demographics and the proportion of immigrants who recently moved to Switzerland (less than 5 years) are rather comparable, while the proportion of individuals with more than upper secondary education (high skilled) and the proportion of Swiss citizens is larger among the weak FTR. As regards religion, Catholicism is relatively more frequent among strong FTR speakers while Protestantism and Atheism are relatively more common in the weak FTR group.

The distribution of native linguistic groups across the Swiss national territory is not homogeneous. Although all native languages are typically represented in all Swiss districts,[28] most cantons have a clearly identified linguistic majority. In order to provide a finer characterization of the geographical distribution of languages in Switzerland, we compute the proportions of Swiss native residents who speak the four Swiss languages by district and define monolingual cantons those where all districts display the same linguistic majority.[29] Hence, a monolingual canton does not imply that only one language is spoken by all residents, but only that there is one clear majority language that coexist with one or more minority languages.

[24] E.g. individuals born in Italy and living in the canton of Ticino, where Italian is the official language spoken by the vast majority of Swiss native residents.

[25] E.g. individuals born in France who speak French while living in Zürich, where about 90 percent of the residents speak German.

[26] E.g. individuals who are born in Spain and speak Spanish in Switzerland.

[27] For simplicity, we remove from the sample a negligible number of immigrants who switch to languages which are not Swiss native.

[28] The district (LAU-1) is the intermediate geographical level between canton (NUTS3) and municipality (LAU-2).

[29] By majority of the population we mean at least 60 percent of residents.

Symmetrically, we define as multilingual those cantons where the districts do not display the same linguistic majority. According to this definition, only 4 out of 26 cantons are multilingual: Bern, Fribourg and Valais have districts where the majority language is either German or French, and Graubünden includes districts with German, Italian and Romansh majorities. The rest of the cantons are linguistically earmarked, and most of them are predominantly German. Figure 1 shows the distribution of linguistic groups in Switzerland among natives and highlights the multilingual cantons. Only in one district in the Graubünden canton we do not observe a clear linguistic majority.

4 Research design and empirical findings

4.1 Research design

Similarly to Galor et al. (2020), we exploit the variation in the spoken language among immigrants within the same country of origin, and implement an epidemiological approach (Fernandez, 2011) where we distinguish the effect of language from that of the culture of origin, controlling simultaneously for the contextual effects related to the place of residence. Compared to Galor et al. (2020), we take advantage of Swiss multilingualism which allows to estimate the effect a language FTR conditioning on whether the immigrant switched to one of the official languages of the destination country (switcher) or she preserved her mother tongue (stayer). This is a key advantage in our setting, as switchers and stayers might not be fully comparable, since the former could be more integrated in the destination country and have personality traits, such as openness and courage, which are supportive of entrepreneurship.

We specify a linear probability model:

$$Entrepreneur_{idc} = \alpha + \beta_1 \, WeakFTR_{idc} + \beta_2 \, Switcher_{idc} + \boldsymbol{\gamma_1 X_{idc}} + \boldsymbol{\gamma_2 W_{idc}} + \upsilon_c + \mu_d + \varepsilon_{idc} \quad (1)$$

where the dependent variable *Entrepreneur*, a dummy equal to 1 if individual i living in district d and originating from country c is an entrepreneur, is regressed on the dummy *Weak FTR* which indicates whether individual i's language of daily use is weak FTR and the dummy

$Switcher_{idc}$ which indicates whether individual i is a switcher, i.e. whether she now speaks one of the four Swiss native languages, whereas none of these are the official language in her country of origin.[30] The vector $\boldsymbol{X_{idc}}$ includes a set of religious dummies and demographic controls such as: gender, age, age squared, household characteristics (marital status, number of children in household), a dummy equal to 1 for immigrants living in Switzerland for less than five years, a dummy for Swiss citizenship and a dummy for being a high-skilled immigrant (i.e. with more than secondary school - see Peri and Sparber 2009).

The vector $\boldsymbol{W_{idc}}$ includes four major languages' features other than FTR - the presence of: i) markers for past tense; ii) a gender-based system; iii) politeness distinctions; iv) present perfect tense.[31] The parameter μ_d accounts for Districts of residence (LAU-1 level) fixed effects. The District is the intermediate administrative level between Canton (NUTS-3) and Municipality (LAU-2).[32] Country of origin fixed effects are captured by the parameter υ_c. The latter allows to net out the effect of cultural background and other time invariant characteristics which pertain to the country of origin. Finally, standard errors are clustered at the country of origin by Swiss linguistic area level.[33]

We estimate the model over progressively more homogeneous areas. We start with the entire Switzerland, then we consider the three Franco-German bilingual cantons of Bern, Fribourg and Valais which are traversed by the Rösti line - i.e. the linguistic border - and, finally, we consider only the districts in multilingual cantons lying on the Rösti line.[34] In multilingual cantons the presence of more than one native linguistic group is rooted in history and each language is recognized as official. These cantons' particular feature provides the same status to each of the official languages and therefore immigrants may switch to any of the official languages (weak FTR German or strong FTR French) without incurring in any particular socio-economic

[30] As a robustness check, in section 4.3 we also distinguish among *stayers'* type.

[31] These features are codified by the World Atlas of Language Structures (WALS). To keep the model parsimonious, we omit two of the language features considered in (Galor et al., 2017), consonant inventories and consonant-vowel ratio, which refer to the acoustics of a language.

[32] According to the 2000's administrative classification, Switzerland is divided into 26 Cantons, 184 District, and 2896 Municipalities.

[33] Linguistic areas are defined on the basis of their municipality-level linguistic majority, considering Swiss natives only. We distinguish 4 linguistic areas (German, French, Italian and Romansh) and 37 countries of origin, resulting in a total of 148 clusters.

[34] The borders between German and non German areas are defined on the basis of the linguistic majorities at the district (LAU-1) level with a threshold of 60% of native speakers. Figure 2 displays the districts along the border used in the analysis.

advantage or penalty. In this case, however, the sample size is reduced to slightly more than 80,000 observations.[35] When we consider only those districts in multilingual cantons lying on the Rösti line the sample size is further reduced to about 30,000 observations.

4.2 Baseline empirical Findings

Our baseline estimates, reported in Table 3, show that after controlling for individual characteristics, switcher status, district of residence and country of origin fixed effects, and other linguistic features, speaking a Weak FTR language is associated with a statistically significant increase in the probability of being an entrepreneur. When we consider all Swiss cantons, as in column 1, a Weak FTR language speaker is found to be 1.8 percentage points more likely to be an entrepreneur. The point estimates remains stable as we focus on multilingual cantons and districts along the linguistic border only, with the increase in the probability to be an entrepreneur equal to, in both cases to 2 percentage points. Relatively to the share of entrepreneurs in the population of first-generation immigrants (13 percent), these effects are sizeable.

4.3 Robustness checks

We consider a number of variants to assess the robustness of our estimates. First, we account for the fact that certain immigrants are facilitated in their language integration. In order to do so, we further distinguish between three types of stayers: immigrants whose mother tongue is a Swiss language (e.g. foreign-born from France, Germany, Austria, Lichtenstein and Italy), who reside in a canton where their mother tongue is one of the official languages (type 1); immigrants who speak their mother tongue, which is a Swiss language, but live in a canton where their mother tongue is not the majority language (type 2); and immigrants who speak a non-Swiss language. This distinction is motivated by the fact that the degree of linguistic

[35] In Bern, Fribourg and Valais, the German and French areas are clearly separated. In Graubünden the distribution of languages is more irregular and each municipality decides its own official language (Grin and Korth, 2005). For consistency, we have therefore preferred to keep Graubünden out of the baseline analysis. Its inclusion, however, does not alter in any way the significance and direction of our findings (estimates are available upon request).

integration varies from complete (for type 1 stayers) to poor (for type 3 stayers). Estimates are reported in Table A4 in the Appendix. In all specifications the effect of FTR remains practically unchanged compared to the baseline, whereas the differences in the propensity to be entrepreneur between the three types of stayers are not systematic.

Second, in order to further increase the comparability between speakers of weak and strong FTR languages, we focus to the subset of individuals whose main language is one of the Swiss native languages. This test can be performed on our data since Switzerland is a unique multilingual country. Differently from the baseline, in this case we cannot control for the four language characteristics, as they do not vary across Swiss native languages. As reported in Table 4, our findings are remarkably stable compared to the baseline. The effect of *Weak FTR* ranges between 2.1 percentage points along the Linguistic Border and 2.7 percentage points when we consider multilingual cantons.

Third, we open the country of origin fixed effects' black box. We replace them with the more parsimonious vector of Hofstede's six country specific cultural dimensions (uncertainty avoidance, long term orientation, individualism, power distance, masculinity and indulgence - see Appendix Tables A5 to A7 for a full account).[36] These dimensions have also been considered by Galor et al. (2020) and Figlio et al. (2019) in order to account for the immigrants' cultural background. We also control for the share of self-employment in the country of origin to capture differential cultural propensities to entrepreneurship.[37] Compared to our baseline the estimates get somehow larger. The effect of speaking a weak FTR language on entrepreneurship ranges between 2.7 and 3.6 percentage points depending on the sample considered (Table 5). This suggests that the set of country of origin fixed effects is likely to capture more heterogeneity across countries than the one generated by differences in the six Hofstede's cultural dimensions and in entrepreneurial tradition, and this result justifies their inclusion. Another interesting implication is that the effect of language FTR is not a reflex of cultural differences and particularly of long term orientation. As suggested by Galor et al. (2017), long term orientation and language FTR play autonomous roles and have distinct effects.

[36] Our ancillary analysis in Appendix A shows that among the six Hofstede's cultural dimensions, the only one that correlates with FTR is, perhaps not surprisingly, long term orientation.

[37] Since Hofstede's cultural dimensions and the share of self-employment in the country of origin are not available for some countries of origin, the sample used in this analysis is about 20 percent smaller.

Fourth, we estimate the baseline model separately for switchers and types of stayers. We parametrically control for heterogeneity among countries of origin by adding Hofstede's cultural dimensions because, in the case of stayers, country fixed effects would be perfectly collinear with *Weak FTR*. For reference, Table 6's column 1 reports the estimates for the whole sample including both switchers and stayers. The estimates for switchers alone are presented in column 2 while those for all stayers in column 3. In column 4 we consider stayers net of those who are fully integrated linguistically (type 1), and in column 5 stayers of type 3 only, i.e. those stayers who are not integrated linguistically. The effect of weak FTR is always positive and significant. In particular, the largest effect is found for stayers of type 2 and 3 (columns 4 and 5). Comparing the effect among switchers and stayers is of particular interest because it suggests that the effect of FTR varies little if the language of daily use is recently learned (as for the switchers), or is the one inherited from parents (as for the stayers). In particular, the effect is positive, sizeable and significant both for switchers, who are linguistically assimilated, and stayers of type 3, whose usage of their non-Swiss mother tongue may signal a limited social integration.

Fifth, we exclude low skilled occupations to address the concern that self-employment may be the last resort for poorly integrated immigrant workers. According to ISCO classification, we remove categories 5 (service workers and shop and market sales workers) and 9 (elementary occupations). Results reported in Table 7 are very close to the baseline.

Finally, we further exploit Swiss multilingualism, by performing the same analysis on natives only, i.e. on residents who were born in Switzerland and speak one of the four Swiss native languages. In this case, the effect of speaking a weak-FTR language is identified through the comparison of German (weak-FTR) versus French, Italian and Romansh (strong-FTR). Our sample of natives is much larger, including about 2,200,000 observations. In addition to the usual controls, here we include district of birth fixed effects instead of country of origin fixed effects, on top of district of residence fixed effects, exploiting the substantial internal migration among natives and especially among German speakers who tend to move to French and Italian areas. As noted above, in this case we cannot control for other language features since the latter do not vary across native Swiss languages.[38] Our findings, reported in Table A8 in the

[38]More specifically, here we compare (i) stayers with ancestral origin in the district of residence and switchers

Appendix are very much in line with our previous results, as the increase in the probability to be an entrepreneur is estimated between 2.2 percentage points (when considering the whole Switzerland) and 3.5 (in multilingual cantons).[39]

4.4 Heterogeneous effects

As a further check, we investigate whether the effect of FTR on entrepreneurship varies by sector of activity, religion, education and demographics. Column 1 of Table 8 reports the estimates when we remove the employed in agriculture, which is a sector where entrepreneurship is traditionally over-represented. We find an effect which is comparable to the baseline.

All our models control for religion affiliation. Still, religion and, Protestantism in particular, has been shown to be a powerful cultural factor behind the propensity to be entrepreneur, mainly through its work ethic (see Nunziata and Rocco, 2016, 2017). We test whether religion and language FTR interact by analysing separately Catholics, Protestants, and Atheists - the three main categories as regards religion affiliation reported in the 2000 Census. Our findings (Table 8 columns 2 to 4) suggest that the effect of FTR is not significantly different when comparing Catholics, Protestants and Atheists, the point estimates being smallest for Catholics. Similarly, when we distinguish between low and high skilled immigrants (columns 7 to 8) we do not observe any appreciable difference.

Finally, in Table 9 we perform separate analysis by gender and age. We find that the point estimate of weak FTR is larger among men, and marginally larger among individuals aged over 40. Overall, our analysis reveals that the effect of FTR varies little with socio-economic and demographic characteristics. This finding is consistent with the evidence that language modifies the way we perceive reality by acting at the level of the brain cortex (Tan et al., 2008) so that the role of socio-economic mediators is limited.

coming from other districts who speak the district's language, with (ii) stayers coming from other districts who preserve their mother tongue.

[39] This result is in line with the findings of Sutter et al. (2015)'s intertemporal choice experiment in primary school which shows that, in a bilingual Northern Italian city, German-speaking children are more likely than Italian-speaking children to delay gratification.

5 Conclusions

This paper contributes to the recent and growing literature on the relationship between language and economic behaviour, by providing the first comprehensive empirical analysis of the link between the way languages encode future events and one of the most important forward-looking economic choices, the decision to become an entrepreneur. Our empirical strategy is based on an epidemiological approach which benefits from detailed Swiss census data. Switzerland is an ideal laboratory for such analysis, because it is characterized by a unique long-standing multilingualism and a large immigrant population living in a relatively small geographic area which is homogeneous as regards institutional features, socio-economic conditions and broad cultural features.

We test the hypothesis that speakers of weak FTR languages, who are not required to use a future tense in prediction-based contexts, may have a closer perception of future rewards and be more willing to undertake future-oriented behaviours, such as being an entrepreneur. We exploit the variation in the spoken language within immigrants originating from the same country, and distinguish the effect of language from that of cultural origins, controlling simultaneously for the contextual effects related to the place of residence, as well as for language features other than FTR. In addition, our data from a multilingual country, allow us to control for whether each immigrant switched to one of the languages spoken in the destination country (switcher) or she preserved her mother tongue (stayer), something that is not possible to do in Galor et al. (2020)'s analysis of US data. Since we observe multiple languages with different FTR within each status, our identification does not hinges on the comparison of switchers with stayers. This is a key advantage in our setting, as switchers and stayers might not be fully comparable, as they may differ along a series of unobservable traits possibly correlated with the propensity to be an entrepreneur, such as social integration and personality traits that may be supportive of entrepreneurship.

Our preferred specifications' findings consistently indicate that speakers of weak FTR languages are around 2 percent more likely to be entrepreneurs compared to speakers of strong FTR languages, lending credit to the hypothesis that the absence of a clear marking of future tense in prediction-based contexts could make perceive future rewards as less distant and

therefore provide stronger incentives to invest in an entrepreneurial activity whose returns are typically postponed.

This result is robust and remarkably stable across a battery of robustness tests, aiming to disentangle the effect of FTR from individual and contextual factors, such as the geographic clustering of the various languages in the Swiss territory, and cultural traits of origin. Results are also stable across a variety of population sub-groups, defined on the basis of occupation, religion and skills. We also find that the effect of FTR is stronger among men and marginally stronger among individuals aged over 40. Finally, we show that the effect of FTR varies little if the language of daily use is recently acquired or is the one inherited from parents.

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6 Figures

Figure 1: The geographical distribution of Swiss linguistic majorities (Census 2000).

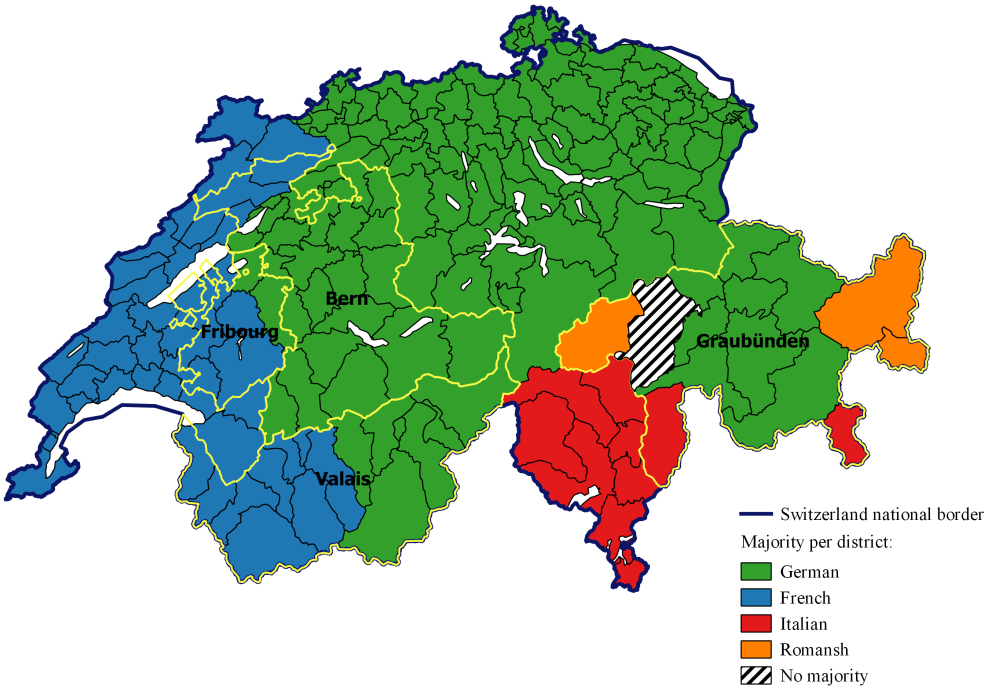
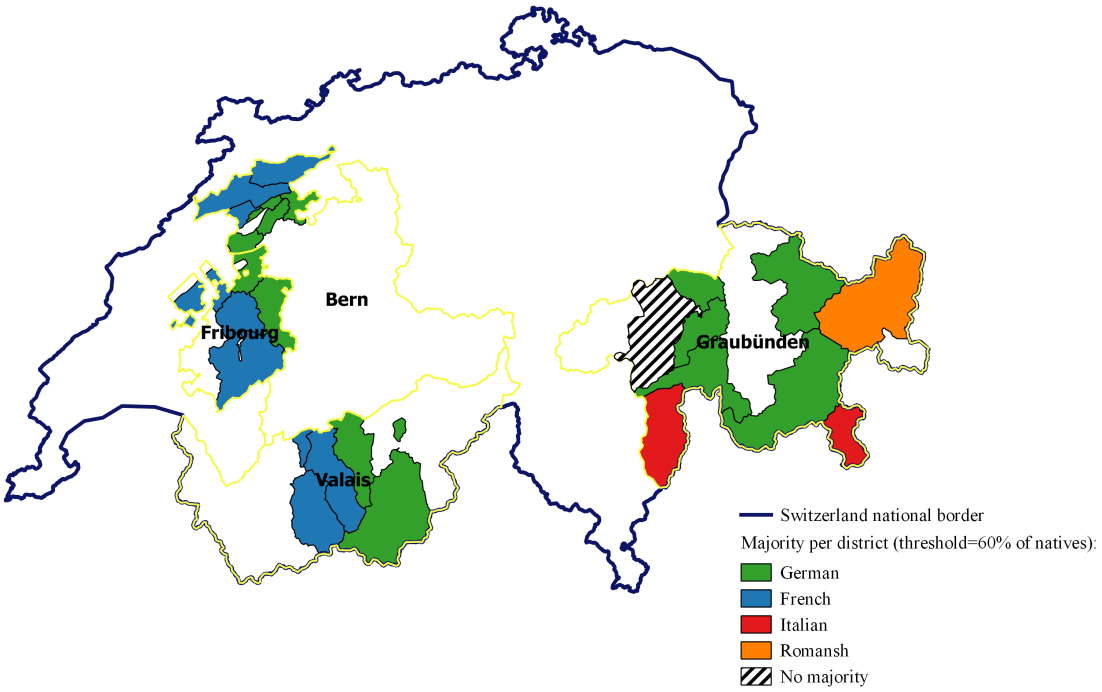


Figure 2: Multilingual cantons and the linguistic border (Census 2000).



7 Tables

Table 1: Future Time Reference (FTR) classification of Languages

Language	Freq.	Self-Employed
strong FTR		
Arabic	2,560	0.15
Czech	2,769	0.16
English	27,851	0.15
French	135,904	0.13
Greek	2,068	0.13
Hebrew	479	0.22
Hungarian	1,971	0.19
Italian	109,604	0.12
Persian	1,016	0.19
Portuguese	41,552	0.04
Romanian	1,036	0.11
Romansh	578	0.14
Spanish	37,215	0.08
Turkish	18,128	0.11
Vietnamese	2,201	0.12
weak FTR		
Dutch	5,835	0.16
Finnish	1,403	0.12
German	234,464	0.15
Japanese	1,372	0.15
Mandarin	2,095	0.13
Swedish	2,384	0.17
Total	632,485	0.13

[1] Frequencies of languages spoken by first generation immigrants in our sample, and corresponding self-employment rates by weak/strong FTR status.

Table 2: Summary statistics - by type of FTR

FTR	Self empl.	Switcher	Stayer type 1	Stayer type 2	Stayer type 3	Female	Age	
strong-FTR	0.11	0.26	0.18	0.21	0.36	0.41	42.75	
weak-FTR	0.15	0.57	0.34	0.04	0.05	0.47	43.14	
Total	0.13	0.38	0.24	0.14	0.24	0.43	42.91	
	Married	# children	High skilled	<5y in SWZ	Citizen	Catholic	Protestant	Atheist
strong-FTR	0.87	1.00	0.25	0.12	0.24	0.64	0.06	0.17
weak-FTR	0.80	0.82	0.41	0.13	0.42	0.36	0.24	0.23
Total	0.84	0.93	0.31	0.13	0.31	0.53	0.13	0.19

[1] Share of self-employed, language switchers (by type), females, married, high skilled (at least college degree), living in Switzerland for less than 5 years, Swiss citizens, Catholics, Protestants and atheists, plus mean age and number of children in the household, by weak/strong FTR status, among our sample of first generation immigrants.

Table 3: Baseline estimates

VARIABLES	(1) Switzerland	(2) Multilingual Cantons	(3) Linguistic Border
Weak FTR	0.0179***	0.0208***	0.0202**
	(0.00349)	(0.00551)	(0.00845)
Switcher	0.0317***	0.0210***	0.0169**
	(0.00522)	(0.00640)	(0.00714)
Observations	632,485	84,552	31,782
R-squared	0.040	0.047	0.054
Individual controls	YES	YES	YES
Religion dummies	YES	YES	YES
Linguistic features	YES	YES	YES
District FE	YES	YES	YES
Country of origin FE	YES	YES	YES

[1] Standard errors, clustered at the country of origin by Swiss linguistic area level, in parenthesis. *** p<0.01, ** p<0.05, * p<0.1

[2] The dependent variable in all specifications is *Entrepreneur*, a dummy equal to 1 if i reports to be entrepreneur.

[3] *Weak FTR* is a dummy equal to 1 if i's main spoken language does not prescribe the use of future tense in prediction-based contexts (see Dahl, 2000. and Thieroff, 2000).

[4] *Switcher* is a dummy equal to 1 if i abandoned his or her mother tongue to speak one of the four Swiss native languages.

[5] Individual controls: gender, age, marital status, number of children in household; residence in Switzerland for less than 5 years; Swiss citizenship and a dummy for higher than secondary education.

[6] Linguistic features: presence of i) markers for past tense, ii) gender-based system, iii) politeness distinctions, iv) present perfect tense.

Table 4: Speakers of Swiss Native languages only

VARIABLES	(1) Switzerland	(2) Multilingual Cantons	(3) Linguistic Border
Weak FTR	0.0262***	0.0268***	0.0210**
	(0.00428)	(0.00755)	(0.00899)
Switcher	0.0358***	0.00971	0.00507
	(0.00750)	(0.00699)	(0.0182)
Observations	480,550	51,469	19,657
R-squared	0.038	0.045	0.051
Individual controls	YES	YES	YES
Religion dummies	YES	YES	YES
Linguistic features	NO	NO	NO
District FE	YES	YES	YES
Country of origin FE	YES	YES	YES

[1] Standard errors, clustered at the country of origin by Swiss linguistic area level, in parenthesis. *** p<0.01, ** p<0.05, * p<0.1

[2] The dependent variable in all specifications is *Entrepreneur*, a dummy equal to 1 if i reports to be entrepreneur.

[3] *Weak FTR* is a dummy equal to 1 if i's main spoken language does not prescribe the use of future tense in prediction-based contexts (see Dahl, 2000, and Thieroff, 2000).

[4] *Switcher* is a dummy equal to 1 if i abandoned his or her mother tongue to speak one of the four Swiss native languages.

[5] Individual controls: gender, age, marital status, number of children in household; residence in Switzerland for less than 5 years, Swiss citizenship and a dummy for higher than secondary education.

[6] Linguistic features: presence of i) markers for past tense, ii) gender-based system, iii) politeness distinctions, iv) present perfect tense.

Table 5: Estimates with the control for Hofstede's cultural dimensions

VARIABLES	(1) Switzerland	(2) Multilingual Cantons	(3) Linguistic Border
Weak FTR	0.0273***	0.0360***	0.0325***
	(0.00441)	(0.00767)	(0.0119)
Switcher	0.0291***	0.0246***	0.0204***
	(0.00555)	(0.00607)	(0.00715)
Observations	482,511	63,116	23,914
R-squared	0.041	0.050	0.057
Individual controls	YES	YES	YES
Religion dummies	YES	YES	YES
Linguistic features	YES	YES	YES
Hoefstade cult. dimensions	YES	YES	YES
Self-empl. in birth-country	YES	YES	YES
District FE	YES	YES	YES

[1] Standard errors, clustered at the country of origin by Swiss linguistic area level, in parenthesis. *** p<0.01, ** p<0.05, * p<0.1

[2] The dependent variable in all specifications is *Entrepreneur*, a dummy equal to 1 if i reports to be entrepreneur.

[3] *Weak FTR* is a dummy equal to 1 if i's main spoken language does not prescribe the use of future tense in prediction-based contexts (see Dahl, 2000, and Thieroff, 2000).

[4] *Switcher* is a dummy equal to 1 if i abandoned his or her mother tongue to speaks one of the four Swiss native languages.

[5] Individual controls: gender, age, marital status, number of children in household; residence in Switzerland for less than 5 years, Swiss citizenship and a dummy for higher than secondary education.

[6] Linguistic features: presence of i) markers for past tense, ii) gender-based system, iii) politeness distinctions, iv) present perfect tense.

[7] Hofstede's cultural dimensions: uncertainty avoidance, long term orientation, individualism, power distance, masculinity and indulgence.

[8] Self-empl. in birth-country: proportion of self-employed in country of origin in 2000.

Table 6: Estimates by language switcher and stayer status

VARIABLES	(1) Switchers and Stayers	(2) Switchers	(3) Stayers	(4) Stayers (type 1 excluded)	(5) Stayers of type 3
Weak FTR	0.0270***	0.0283***	0.0292**	0.0424**	0.0371***
	(0.00500)	(0.00758)	(0.0136)	(0.0192)	(0.0134)
Switcher	0.0308***				
	(0.00673)				
Stayer type 2	0.00136		0.0120		
	(0.00684)		(0.00760)		
Stayer type 3	0.00954		-0.0217*	-0.0162	
	(0.0112)		(0.0129)	(0.0134)	
Observations	482,511	136,788	345,723	195,636	106,469
R-squared	0.041	0.043	0.040	0.040	0.052
Individual controls	YES	YES	YES	YES	YES
Religion dummies	YES	YES	YES	YES	YES
Linguistic features	YES	NO	YES	YES	YES
Hoefstade cult. dimensions	YES	YES	YES	YES	YES
Self-empl. in birth-country	YES	YES	YES	YES	YES
District FE	YES	YES	YES	YES	YES

[1] Standard errors, clustered at the country of origin by Swiss linguistic area level, in parenthesis. *** p<0.01, ** p<0.05, * p<0.1

[2] The dependent variable in all specifications is *Entrepreneur*, a dummy equal to 1 if i reports to be entrepreneur.

[3] *Weak FTR* is a dummy equal to 1 if i's main spoken language does not prescribe the use of future tense in prediction-based contexts (see Dahl, 2000, and Thieroff, 2000).

[4] *Switcher* is a dummy equal to 1 if i abandoned his or her mother tongue to speak one of the four Swiss native languages. *Stayers* are those individuals who retain their mother tongue as main spoken language. Within this group, we distinguish between *stayers type 1*, i.e. those whose mother tongue is one of four Swiss native languages and live in cantons where their mother tongue is official (e.g. individuals born in Italy living in Ticino canton), *stayers type 2*, who speak their mother tongue, which is a Swiss language, but not the majority language of the cantons where their live, and *stayers type 3*, who speak their mother tongue which is not a Swiss language.

[5] Individual controls: gender, age, marital status, number of children in household; residence in Switzerland for less than 5 years, Swiss citizenship and a dummy for higher than secondary education.

[6] Linguistic features: presence of markers of past vs. present, gender-based system, politeness form, present perfect tense.

[7] Hofstede's cultural dimensions: uncertainty avoidance, long term orientation, individualism, power distance, masculinity and indulgence.

[8] Self-empl. in birth-country: proportion of self-employed in the country of origin in 2000

Table 7: Medium and High Skilled Occupations only

VARIABLES	(1) Switzerland	(2) Multilingual Cantons	(3) Linguistic Border
Weak FTR	0.0185***	0.0197***	0.0203**
	(0.00357)	(0.00556)	(0.00954)
Switcher	0.0287***	0.0174**	0.0145*
	(0.00481)	(0.00684)	(0.00813)
Observations	532,483	68,981	26,350
R-squared	0.040	0.049	0.055
Individual controls	YES	YES	YES
Religion dummies	YES	YES	YES
Linguistic features	YES	YES	YES
District FE	YES	YES	YES
Country of origin FE	YES	YES	YES

[1] Standard errors, clustered at the country of origin by Swiss linguistic area level, in parenthesis. *** p<0.01, ** p<0.05, * p<0.1

[2] The dependent variable in all specifications is *Entrepreneur*, a dummy equal to 1 if i reports to be entrepreneur.

[3] *Weak FTR* is a dummy equal to 1 if i's main spoken language does not prescribe the use of future tense in prediction-based contexts (see Dahl, 2000, and Thieroff, 2000).

[4] *Switcher* is a dummy equal to 1 if i abandoned his or her mother tongue to speak one of the four Swiss native languages.

[5] Individual controls: gender, age, marital status, number of children in household; residence in Switzerland for less than 5 years, Swiss citizenship and a dummy for higher than secondary education.

[6] Linguistic features: presence of markers of past vs. present, gender-based system, politeness form, present perfect tense.

Table 8: Heterogeneous effects by sector, religion and education

VARIABLES	(1) Agriculture excluded	(2) Catholics	(3) Protestants	(4) Atheists	(5) Low skilled	(6) High skilled
Weak FTR	0.0154***	0.0106**	0.0240***	0.0246***	0.0157***	0.0190***
	(0.00330)	(0.00453)	(0.00582)	(0.00554)	(0.00355)	(0.00465)
Switcher	0.0303***	0.0350***	0.0170**	0.0295***	0.0317***	0.0194***
	(0.00547)	(0.00627)	(0.00773)	(0.00421)	(0.00505)	(0.00419)
Observations	537,795	337,168	81,632	121,475	434,715	197,770
R-squared	0.034	0.038	0.041	0.047	0.048	0.028
Individual controls	YES	YES	YES	YES	YES	YES
Religion dummies	YES	NO	NO	NO	YES	YES
Linguistic features	YES	YES	YES	YES	YES	YES
District FE	YES	YES	YES	YES	YES	YES
Country of origin FE	YES	YES	YES	YES	YES	YES

[1] Standard errors, clustered at the country of origin by Swiss linguistic area level, in parenthesis. *** p<0.01, ** p<0.05, * p<0.1

[2] The dependent variable in all specifications is *Entrepreneur*, a dummy equal to 1 if i reports to be entrepreneur.

[3] *Weak FTR* is a dummy equal to 1 if i's main spoken language does not prescribe the use of future tense in prediction-based contexts (see Dahl, 2000, and Thieroff, 2000).

[4] *Switcher* is a dummy equal to 1 if i abandoned his or her mother tongue to speak one of the four Swiss native languages.

[5] Individual controls: gender, age, marital status, number of children in household; residence in Switzerland for less than 5 years, Swiss citizenship and a dummy for higher than secondary education (except in columns 7 and 8).

[6] Linguistic features: presence of markers of past vs. present, gender-based system, politeness form, present perfect tense.

[7] In our sample, the share of self-employment is 12 percent when agriculture is excluded. It is 12 percent among Catholics, 16 percent among Protestants and 15 percent among Atheists. Finally, it is 12 percent among individuals with at most upper secondary education and 15 percent among those with tertiary education.

Table 9: Heterogeneous effects by age and gender

VARIABLES	(1) Males	(2) Females	(3) Age 25-40	(4) Age over 40
Weak FTR	0.0214***	0.0101**	0.0117***	0.0174***
	(0.00380)	(0.00394)	(0.00331)	(0.00371)
Switcher	0.0388***	0.0234***	0.0164***	0.0382***
	(0.00599)	(0.00430)	(0.00373)	(0.00630)
Observations	357,752	274,733	290,837	341,648
R-squared	0.047	0.026	0.023	0.040
Age	YES	YES	YES	YES
Household controls	YES	YES	YES	YES
Religion dummies	YES	YES	YES	YES
Linguistic features	YES	YES	YES	YES
District FE	YES	YES	YES	YES
Country of origin FE	YES	YES	YES	YES

[1] Standard errors, clustered at the country of origin by Swiss linguistic area level, in parenthesis. *** p<0.01, ** p<0.05, * p<0.1

[2] The dependent variable in all specifications is *Entrepreneur*, a dummy equal to 1 if i reports to be entrepreneur.

[3] *Weak FTR* is a dummy equal to 1 if i's main spoken language does not prescribe the use of future tense in prediction-based contexts (see Dahl, 2000, and Thieroff, 2000).

[4] *Switcher* is a dummy equal to 1 if i abandoned his or her mother tongue to speak one of the four Swiss native languages.

[5] Individual controls: age, marital status, number of children in household; residence in Switzerland for less than 5 years, Swiss citizenship and a dummy for higher than secondary education.

[6] Linguistic features: presence of markers of past vs. present, gender-based system, politeness form, present perfect tense.

[7] In our sample, the share of self-employment is 15 and 10 percent among males and females respectively. It is 9 and 16 percent among younger and older individuals, respectively.

A Cross-country correlation between Future Time Reference and Hofstede's cultural dimensions

In the spirit of Galor and Özak (2016), Galor et al. (2017) and Galor et al. (2020), we run a cross-country analysis in order to assess the correlation between country languages' FTR and the cultural traits defined at the national level. The rationale of this analysis is to check whether FTR is associated with long term orientation and other country-specific cultural traits that may correlate with the propensity for entrepreneurship.

As country-wide measure of cultural values, we consider the six cultural dimensions defined by Hofstede et al. (2010):

- *Long Term Orientation.* Low scores on this dimension are attached to countries characterized by a culture which preserves traditions and norms, while high scores to cultures that promote societal changes and efforts, especially in education.
- *Uncertainty Avoidance.* This dimension quantifies the degree to which individuals living in a country feel uncomfortable with uncertainty.
- *Individualism.* It ranks societies according to how much individuals are expected to take care of themselves and their families, rather than expecting other groups' support in exchange for loyalty.
- *Power Distance.* In countries characterized by high scores in this dimension, the less powerful members of society accept and expect an unequal distribution of power and the existence of hierarchical structures.
- *Masculinity.* This cultural dimension expresses how strong is the need for achievement, heroism, assertiveness and material rewards for success.
- *Indulgence versus Restraint.* Indulgent cultures allow relatively free gratification of basic and natural human drives related to enjoying life and having fun, as opposed to suppression of these needs by means of strict social norms.

The sample only includes countries where there is an almost perfect identification with only one language. We exclude, therefore, countries with high linguistic fragmentation.

Table A9 presents our cross-country estimates of the correlation between *Weak FTR*, a dummy equal to 1 if the main spoken language in that country has a weak FTR, and each national cultural dimension.[40] All specifications include continent fixed effects and several geographic and institutional controls at the country level (latitude, land quality, elevation, temperature, precipitation, distance to waterways, percentage of arable land, genetic diversity, legal origin dummies, Old World dummy). Our findings confirm a positive association between Long Term Orientation and the probability that a country language is characterized by weak FTR. No significant correlation is found between *Weak FTR* and any other cultural dimension. When all six cultural dimensions are included in the model, we find that a one percentage point increase in Long Term Orientation is associated with a 1.1 percentage point increase in the probability of speaking a weak FTR language.

Our findings are in line with the literature (in particular with Falk et al., 2015, Galor and Özak, 2016, Galor et al., 2017 and Galor et al., 2020), confirming that language FTR is significantly correlated with the cultural trait regarding time perception and intertemporal preferences, while there is no evidence of association with other cultural characteristics, in particular to those related to risk-aversion (such as *Uncertainty Avoidance* in Hofstede et al., 2010), which can be a significant determinant of selection into entrepreneurship and future-oriented activities in general.

[40] Tables A5 to A7 provide detailed information on the countries represented in the sample, including each country main spoken language and the scores on each Hofstede's cultural dimensions.

A Appendix Tables

Table A1: Linguistic differences between German and French. WALS dataset

Category	French	German	Area
Genus	Romance	Germanic	
The Velar Nasal	No velar nasal	No initial velar nasal	Phonology
Vowel Nasalization	Contrast present	Contrast absent	Phonology
Fixed Stress Locations	Right-edge: Ultimate or penultimate	Right-oriented: One of the last three	Phonology
Weight-Sensitive Stress	Prominence	Coda consonant	Phonology
Weight Factors in Weight-Sensitive Stress Systems	Undetermined	Trochaic	Phonology
Exponence of Selected Inflectional Formatives	No case	Case + number	Morphology
Inflectional Synthesis of the Verb	4-5 categories per word	2-3 categories per word	Morphology
Locus of Marking in the Clause	No marking	Dependent marking	Morphology
Locus of Marking: Whole-language Typology	Inconsistent or other	Dependent-marking	Morphology
Number of Genders	Two	Three	Nominal Categories
Plurality in Independent Personal Pronouns	Person-number stem + nominal plural affix	Person-number stem	Nominal Categories
The Associative Plural	No associative plural	Unique periphrastic associative plural	Nominal Categories
Pronominal and Adnominal Demonstratives	Different stem	Identical	Nominal Categories
Indefinite Pronouns	Generic-noun-based	Mixed	Nominal Categories
Number of Cases	No morphological case-marking	4 cases	Nominal Categories
Asymmetrical Case-Marking	No case-marking	Syncretism in relevant NP-types	Nominal Categories
Position of Case Affixes	Prepositional clitics	Case suffixes	Nominal Categories
Ordinal Numerals	First, second, three-th	First, two-th, three-th	Nominal Categories
Distributive Numerals	No distributive numerals	Marked by preceding word	Nominal Categories
Perfective/Imperfective Aspect	Grammatical marking	No grammatical marking	Verbal Categories
The Future Tense	Inflectional future exists	No inflectional future	Verbal Categories
Suppletion According to Tense and Aspect	Tense and aspect	Tense	Verbal Categories
Order of Subject, Object and Verb	SVO	No dominant order	Word Order
Order of Object and Verb	VO	No dominant order	Word Order
Order of Object, Oblique, and Verb	VOX	No dominant order	Word Order
Order of Adjective and Noun	Noun-Adjective	Adjective-Noun	Word Order
Position of Polar Question Particles	Initial	No question particle	Word Order
Relationship between the Order of Object and Verb and the Order of Adposition and Noun Phrase	VO and Prepositions	Other	Word Order
Alignment of Case Marking of Full Noun Phrases	Neutral	Nominative - accusative (standard)	Simple Clauses
Nonperiphrastic Causative Constructions	Both	Morphological but no compound	Simple Clauses
Negative Indefinite Pronouns and Predicate Negation	Mixed behaviour	No predicate negation	Simple Clauses
Polar Questions	Question particle	Interrogative word order	Simple Clauses
Purpose Clauses	Deranked	Balanced/deranked	Complex Sentences
Reason Clauses	Balanced/deranked	Balanced	Complex Sentences
SVNegO Order	OptDoubleNeg	No SVNegO	Word Order
Position of Negative Word With Respect to Subject, Object, and Verb	OptDoubleNeg	More than one position	Word Order
SNegVO Order	OnlyWithAnotherNeg	No SNegVO	Word Order
SVONeg Order	No SVONeg	NoDoubleNeg	Word Order
Position of negative words relative to beginning and end of clause and with respect to adjacency to verb	Immed postverbal	End, not immed postverbal	Word Order
Order of Negative Morpheme and Verb	OptDoubleNeg	Type 1 / Type 2	Word Order

[1] Linguistic differences between German and French according to the classification of linguistic features provided by the World Atlas of Language Structures (WALS).

Table A2: Linguistic differences between German and Italian. WALS dataset

Category	Italian	German	Area
Genus	Romance	Germanic	
Fixed Stress Locations	Right-edge: Ultimate or penultimate	Right-oriented: One of the last three	Phonology
Weight-Sensitive Stress	Lexical stress	Coda consonant	Phonology
Weight Factors in Weight-Sensitive Stress Systems	Undetermined	Trochaic	Phonology
The Associative Plural	No associative plural	Unique periphrastic associative plural	Nominal Categories
Distance Contrasts in Demonstratives	Two-way contrast	No distance contrast	Nominal Categories
Indefinite Pronouns	Generic-noun-based	Mixed	Nominal Categories
Number of Cases	No morphological case-marking	4 cases	Nominal Categories
Asymmetrical Case-Marking	Additive-quantitatively asymmetrical	Syncretism in relevant NP-types	Nominal Categories
Position of Case Affixes	No case affixes or adpositional clitics	Case suffixes	Nominal Categories
Ordinal Numerals	First, second, three-th	First, two-th, three-th	Nominal Categories
The Prohibitive	Special imperative + normal negative	Normal imperative + normal negative	Verbal Categories
Order of Subject, Object and Verb	SVO	No dominant order	Word Order
Order of Subject and Verb	No dominant order	SV	Word Order
Order of Object and Verb	VO	No dominant order	Word Order
Order of Adjective and Noun	Noun-Adjective	Adjective-Noun	Word Order
Relationship between the Order of Object and Verb and the Order of Adposition and Noun Phrase	VO and Prepositions	Other	Word Order
Expression of Pronominal Subjects	Subject affixes on verb	Obligatory pronouns in subject position	Simple Clauses
Negative Indefinite Pronouns and Predicate Negation	Mixed behaviour	No predicate negation	Simple Clauses
Polar Questions	Interrogative intonation only	Interrogative word order	Simple Clauses
Purpose Clauses	Deranked	Balanced/deranked	Complex Sentences
Reason Clauses	Balanced/deranked	Balanced	Complex Sentences
Para-Linguistic Usages of Clicks	Logical meanings	Affective meanings	Other
Postverbal Negative Morphemes	None	VNeg	Word Order
Position of Negative Word With Respect to Subject, Object, and Verb	SNegVO	More than one position	Word Order
SNegVO Order	Word & NoDoubleNeg	No SNegVO	Word Order
SVONeg Order	No SVONeg	NoDoubleNeg	Word Order
Position of negative words relative to beginning and end of clause and with respect to adjacency to verb	Immed preverbal	End, not immed postverbal	Word Order
Order of Negative Morpheme and Verb	NegV	Type 1 / Type 2	Word Order

[1] Linguistic differences between German and Italian according to the classification of linguistic features provided by the World Atlas of Language Structures (WALS).

Table A3: Education and Occupation by country of origin.

Country	Frequency	share self-employed	share tert. education	share low-skilled occ.
Algeria	3,233	0.14	0.32	0.14
Austria	26,272	0.17	0.52	0.18
Belgium	5,594	0.14	0.24	0.08
Cambodia	614	0.12	0.41	0.12
Canada	4,229	0.13	0.28	0.06
Chile	2,917	0.08	0.35	0.17
China	2,877	0.14	0.21	0.19
Denmark	1,024	0.17	0.51	0.13
Former Czechoslovakia	7,870	0.21	0.46	0.11
Former Yugoslavia	46,974	0.10	0.30	0.16
Finland	2,131	0.13	0.38	0.11
France	49,483	0.14	0.41	0.15
Germany	94,494	0.16	0.43	0.10
Greece	3,362	0.16	0.26	0.15
Hungary	5,604	0.24	0.45	0.12
India	2,788	0.13	0.26	0.08
Iran	2,418	0.20	0.28	0.13
Israel	943	0.26	0.36	0.10
Italy	128,650	0.14	0.30	0.16
Japan	1,765	0.16	0.23	0.15
Libano	2,246	0.23	0.26	0.12
Liechtenstein	1,495	0.14	0.49	0.11
Netherland	9,671	0.18	0.37	0.11
Oceania	2,486	0.14	0.34	0.08
Other Africa	20,805	0.12	0.30	0.16
Other America	17,817	0.12	0.31	0.19
Other Asia	11,527	0.11	0.23	0.18
Poland	2,938	0.16	0.43	0.11
Portugal	62,918	0.05	0.13	0.30
Romania	2,991	0.16	0.28	0.11
Spain	39,403	0.09	0.25	0.22
Sweden	3,755	0.17	0.30	0.08
Tunisia	3,374	0.13	0.32	0.17
Turkey	28,628	0.12	0.19	0.13
United Kingdom	14,467	0.16	0.26	0.06
United States	10,111	0.19	0.19	0.05
Vietnam	4,611	0.12	0.32	0.11
Total	632,485	0.13	0.31	0.16

[1] Number of first generation immigrants in our sample, by country of birth, and shares (i) self-employed, (ii) with at least a college degree and (iii) working in low-skilled occupations (ISCO categories 5 and 9).

Table A4: Robustness check. Controlling for stayers' type

VARIABLES	(1) Switzerland	(2) Multilingual Cantons	(3) Linguistic Border
Weak FTR	0.0181***	0.0207***	0.0205**
	(0.00368)	(0.00555)	(0.00825)
Switcher	0.0459***	0.0281**	0.00103
	(0.0103)	(0.0112)	(0.0126)
Stayer type 2	0.0102	0.00615	-0.0119
	(0.00693)	(0.00630)	(0.00771)
Stayer type 3	0.0246**	0.00953	-0.0225
	(0.0117)	(0.0137)	(0.0153)
Observations	632,485	84,552	31,782
R-squared	0.040	0.047	0.054
Individual controls	YES	YES	YES
Religion dummies	YES	YES	YES
Linguistic features	YES	YES	YES
District FE	YES	YES	YES
Country of origin FE	YES	YES	YES

[1] Standard errors, clustered at the country of origin by Swiss linguistic area level, in parenthesis. *** p<0.01, ** p<0.05, * p<0.1

[2] The dependent variable in all specifications is *Entrepreneur*, a dummy equal to 1 if i reports to be entrepreneur.

[3] *Weak FTR* is a dummy equal to 1 if i's main spoken language does not prescribe the use of future tense in prediction-based contexts (see Dahl (2000) and Thieroff (2000)).

[4] *Switcher* is a dummy equal to 1 if i abandoned his or her mother tongue to speak one of the four Swiss native languages.

[5] *Stayers* are those individuals who retain their mother tongue as main spoken language. Within this group, we distinguish between *stayers type 1*, i.e. those whose mother tongue is one of four Swiss native languages and live in cantons where their mother tongue is official (e.g. individuals born in Italy living in Ticino canton), *stayers type 2*, who speak their mother tongue, which is a Swiss language, but not the majority language of the cantons where their live, and *stayers type 3*, who speak their mother tongue which is not a Swiss language.

[6] Individual controls: gender, age, marital status, number of children in household; residence in Switzerland for less than 5 years; Swiss citizenship and a dummy for higher than secondary education.

[7] Linguistic features: presence of i) markers for past tense, ii) gender-based system, iii) politeness distinctions, iv) present perfect tense.

Table A5: Hofstede's national cultural dimensions and language future time reference (part1)

Country	Main spoken langauge	Strong FTR	LTO	UAI	PDI	IDV	MAS	IVR
Albania	Albanian	1	61.46					14.51
Algeria	Arabic	1	25.94					32.37
Argentina	Spanish	1	20.40	86	49	46	56	61.83
Armenia	Armenian	1	60.96					
Australia	English	1	21.16	51	38	90	61	71.43
Austria	German	0	60.45	70	11	55	79	62.72
Azerbaijan	Azerbaijani	1	60.71					21.65
Bangladesh	Bengali	1	47.10	60	80	20	55	19.64
Belarus	Belorussian	1	80.86					14.96
Belgium	Dutch	0	81.86	94	65	75	54	56.70
Bosnia and Herzegovina	Bosnian	1	69.77					44.20
Brazil	Portuguese	1	43.83	76	69	38	49	59.15
Bulgaria	Bulgarian	1	69.02	85	70	30	40	15.85
Burkina Faso	French	1	27.46					18.08
Canada	English	1	36.02	48	39	80	52	68.30
Chile	Spanish	1	30.98	86	63	23	28	68.00
China	Mandarin	0	87.41	30	80	20	66	23.66
Colombia	Spanish	1	13.10	80	67	13	64	83.04
Costa Rica	Spanish	1		86	35	15	21	
Croatia	Croatian	1	58.44	80	73	33	40	33.26
Cyprus	Greek	1						69.87
Czech Republic	Czech	1	70.03	74	57	58	57	29.46
Denmark	Danish	0	34.76	23	18	74	16	69.64
Dominican Republic	Spanish	1	13.10					54.24
Ecuador	Spanish	1		67	78	8	63	
Egypt	Arabic	1	6.80					4.24
El Salvador	Spanish	1	19.65	94	66	19	40	88.84
Estonia	Estonian	0	82.12	60	40	60	30	16.29
Ethiopia	Amharic	0						46.00
Finland	Finnish	0	38.29	59	33	63	26	57.37
France	French	1	63.48	86	68	71	43	47.77

[1] Each entry reports the country's main language, whether the latter is a strong FTR language, and the country-level Hofstede's cultural dimensions.

[2] Legend: LTO=Long Term Orientation; UAI=Uncertainty Avoidance; IDV=Individualism; PDI=Power Distance; MAS=Masculinity; IVR=Indulgency versus Restraint

Table A6: Hofstede's national cultural dimensions and language future time reference (part 2)

Country	Main spoken langauge	Strong FTR	LTO	UAI	PDI	IDV	MAS	IVR
Georgia	Georgian	1	38.29					31.92
Germany	German	0	82.87	65	35	67	66	40.40
Ghana	English	1	3.53					72.32
Greece	Greek	1	45.34	100	60	35	57	49.55
Guatemala	Spanish	1		98	95	6	37	
Hong Kong	Cantonese	0	60.96	29	68	25	57	16.96
Hungary	Hungarian	1	58.19	82	46	80	88	31.47
Iceland	Icelandic	0	27.96					66.74
Indonesia	Indonesian	0	61.96	48	78	14	46	37.72
Iran	Persian	1	13.60	59	58	41	43	40.40
Iraq	Arabic	1	24.94					16.74
Ireland	English	1	24.43	35	28	70	68	64.96
Israel	Hebrew	1	37.53	81	13	54	47	
Italy	Italian	1	61.46	75	50	76	70	29.69
Jamaica	English	1		13	45	39	68	
Japan	Japanese	0	87.91	92	54	46	95	41.74
Jordan	Arabic	1	16.12					43.08
Kyrgyzstan	Kirghiz	1	65.99					39.29
Latvia	Latvian	1	68.77	63	44	70	9	12.95
Lithuania	Lithuanian	1	81.86	65	42	60	19	15.63
Luxembourg	Luxembourgish	0	63.98	70	40	60	50	56.03
Macedonia	Macedonian	1	61.71					35.27
Malaysia	Malay	0	40.81	36	100	26	50	57.14
Mali	French	1	20.15					42.63
Malta	Maltese	1	47.10	96	56	59	47	65.63
Mexico	Spanish	1	24.18	82	81	30	69	97.32
Moldova	Romanian	1	71.03					19.20
Montenegro	Montenegrin	1	75.31					19.87
Morocco	Arabic	1	14.11	68	70	46	53	25.45
Netherlands	Dutch	0	67.00	53	38	80	14	68.30
New Zealand	English	1	32.75	49	22	79	58	74.55

[1] Each entry reports the country's main language, whether the latter is a strong FTR language, and the country-level Hofstede's cultural dimensions.

[2] Legend: LTO=Long Term Orientation; UAI=Uncertainty Avoidance; IDV=Individualism; PDI=Power Distance; MAS=Masculinity; IVR=Indulgency versus Restraint

Table A7: Hofstede's national cultural dimensions and language future time reference (part 3)

Country	Main spoken langauge	Strong FTR	LTO	UAI	PDI	IDV	MAS	IVR
Norway	Norwegian	0	34.51	50	31	69	8	55.13
Pakistan	English	1	49.87	70	55	14	50	0.00
Panama	Spanish	1		86	95	11	44	
Peru	Spanish	1	25.19	87	64	16	42	46.21
Poland	Polish	1	37.78	93	68	60	64	29.24
Portugal	Portuguese	1	28.21	99	63	27	31	33.26
Puerto Rico	Spanish	1	0.00					89.96
Romania	Romanian	1	51.89	90	90	30	42	19.87
Russia	Russian	1	81.36	95	93	39	36	19.87
Rwanda	English	1	18.39					37.28
Saudi Arabia	Arabic	1	35.52					52.23
Serbia	Serbian	1	52.14	92	86	25	43	28.13
Slovak Republic	Slovak	1	76.57	51	100	52	100	28.35
Slovenia	Slovene	1	48.61	88	71	27	19	47.54
South Korea	Korean	1	100.00	85	60	18	39	29.46
Spain	Spanish	1	47.61	86	57	51	42	43.53
Suriname	Dutch	0		92	85	47	37	
Sweden	Swedish	0	52.90	29	31	71	5	77.68
Taiwan	Mandarin	0	92.95	69	58	17	45	49.11
Tanzania	Swahili	1	34.01					38.39
Thailand	Thai	1	31.74	64	64	20	34	45.09
Trinidad and Tobago	English	1	12.59	55	47	16	58	80.13
Turkey	Turkish	1	45.59	85	66	37	45	49.11
Uganda	Swahili	1	23.68					52.46
Ukraine	Ukrainian	1	86.40					14.29
United Kingdom	English	1	51.13	35	35	89	66	69.42
United States	English	1	25.69	46	40	91	62	68.08
Uruguay	Spanish	1	26.20	98	61	36	38	53.35
Venezuela	Spanish	1	15.62	76	81	12	73	100.00
Vietnam	Vietnamese	1	57.18	30	70	20	40	35.49
Zambia	English	1	30.23					42.19

[1] Each entry reports the country's main language, whether the latter is a strong FTR language, and the country-level Hofstede's cultural dimensions.

[2] Legend: LTO=Long Term Orientation; UAI=Uncertainty Avoidance; IDV=Individualism; PDI=Power Distance; MAS=Masculinity; IVR=Indulgency versus Restraint

Table A8: Natives

VARIABLES	(1) Switzerland	(2) Multilingual Cantons	(3) Linguistic Border
Weak FTR	0.0224***	0.0346***	0.0325***
	(0.00317)	(0.00705)	(0.00949)
Observations	2,185,045	496,893	153,267
R-squared	0.044	0.048	0.044
Individual controls	YES	YES	YES
Religion dummies	YES	YES	YES
Linguistic features	NO	NO	NO
District FE	YES	YES	YES
District of Birth FE	YES	YES	YES

[1] Standard errors clustered by district of birth in parenthesis. *** p<0.01, ** p<0.05, * p<0.1
[2] The sample is composed of all Swiss natives who speak a Swiss language.
[3] The dependent variable in all specifications is *Entrepreneur*, a dummy equal to 1 if i reports to be entrepreneur.
[4] *Weak FTR* is a dummy equal to 1 if i's main spoken language does not prescribe the use of future tense in prediction-based contexts (see Dahl (2000) and Thieroff (2000)).
[5] Individual controls: gender, age, marital status, number of children in household and a dummy for higher than secondary education.

Table A9: Cultural dimensions and language future time reference, cross-country analysis

Table A5. Cultural dimensions and language future time reference, cross-country analysis

	(1) Weak FTR	(2) Weak FTR	(3) Weak FTR	(4) Weak FTR	(5) Weak FTR	(6) Weak FTR	(7) Weak FTR
Long Term Orientation	0.00706***						0.0110**
	(0.00244)						(0.00394)
Uncertainty Avoidance		-0.00583					-0.00126
		(0.00396)					(0.00546)
Individualism			0.00681*				0.00151
			(0.00345)				(0.00528)
Power Distance				-0.00456			-0.00442
				(0.00367)			(0.00414)
Masculinity					0.00381		0.00174
					(0.00311)		(0.00394)
Indulgence versus Restraint						0.00463	0.00666
						(0.00341)	(0.00458)
Observations	68	52	52	52	52	67	47
R^2	0.615	0.637	0.639	0.626	0.623	0.529	0.743
Geographic and Institutional controls	YES	YES	YES	YES	YES	YES	YES
Continent FE	YES	YES	YES	YES	YES	YES	YES

[1] The dependent in all specifications is *Weak FTR*, a dummy equal to 1 if the main spoken language in the country does not prescribe the use of future tense in prediction-based contexts (see Dahl (2000) and Thieroff (2000)).

[2] Robust standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1).

[3] Geographic and institutional controls: legal origin dummies (ref. Uk legal origin), Old World dummy, geographic variables (latitude, land quality, elevation, temperature, precipitation, distance to waterways, percentage of arable land), genetic diversity index.