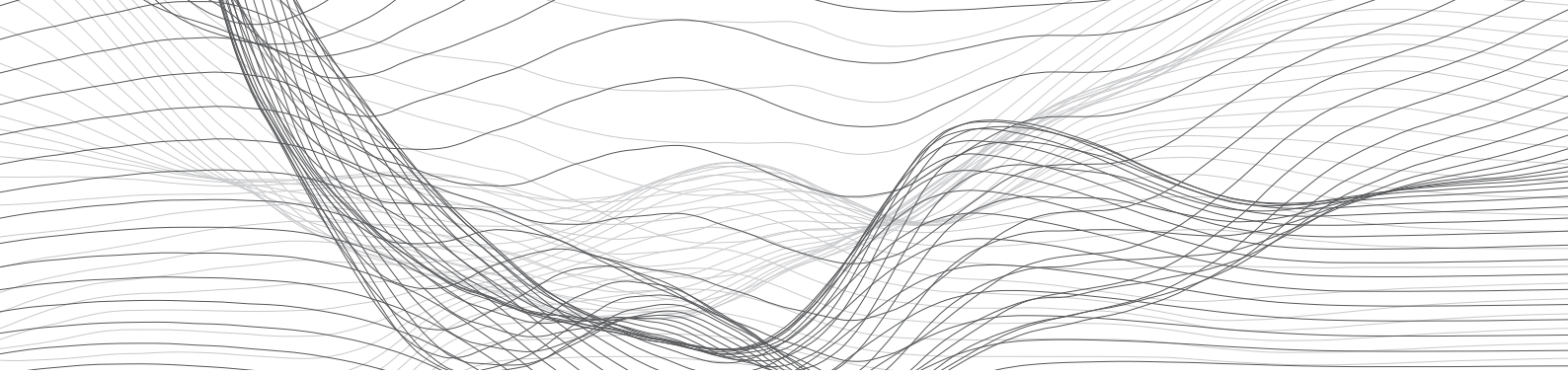


Cultural Differences in Monetary Policy Preferences

Adriel Jost

SNB Working Papers
2/2018

SCHWEIZERISCHE NATIONALBANK
BANQUE NATIONALE SUISSE
BANCA NAZIONALE SVIZZERA
BANCA NAZIUNALA SVIZRA
SWISS NATIONAL BANK

Legal Issues

ISSN 1660-7716 (printed version)
ISSN 1660-7724 (online version)

Cultural Differences in Monetary Policy Preferences

Adriel Jost*

February 21, 2018

The monetary policy preferences of a population are often explained by the country's economic history. Based on Swiss data, this paper indicates that while different language groups may share the economic history, they demonstrate distinct monetary policy preferences. This suggests that distinct monetary policy preferences among the populations of different countries may be determined by not only their economic histories but also their distinct cultural backgrounds.

Keywords: Inflation preferences; Culture; Monetary policy

JEL classification: D01, E31, E52, E58, Z13

*University of St.Gallen and Swiss National Bank (SNB). Contact address: Laupenstrasse 18, 3003 Berne, adriel.jost@snb.ch. I thank Monika Bütler, Martin Brown, Alex Cukierman, Klaus Dingwerth, Till Ebner, Beatrix Eugster, Anna Faber, Rita Fleer, Nikola Mirkov, Niklas Potrafke and Martin Weder as well as the seminar participants at the University of St. Gallen and the SNB for their helpful comments. The views, opinions, findings and conclusions or recommendations expressed in this paper are strictly those of the author. They do not necessarily reflect the views of the SNB.

1 Introduction

Monetary policy is not an exact science. Similar economic conditions may lead to different monetary policy decisions worldwide. These differences might stem from either different mandates defined by the laws of the countries or the different approaches to policy implementation by the central banks.[1] What are the underlying reasons for differences in mandates and implementation? This paper argues that the *preferences of the population* are an important determinant of a country's monetary policy and shows that these preferences are partly influenced by *cultural backgrounds*.

The influence of culture on economic outcomes has gained increasing interest among economists.[2] Summarizing the literature, Guiso, Sapienza & Zingales (2006) suggested three steps to examine the relation among culture, preferences and economic outcome. First, the influence of culture on specific preferences should be tested. Second, the impact of preferences on the economic outcome needs to be shown. Third, a discussion on causality is necessary. Correlation does not specify whether culture leads to specific preferences and economic outcomes or vice versa.

This paper focuses on step 1, the influence of culture on monetary policy preferences. However, to establish the relevance of public preferences, the paper starts by discussing the influence of public monetary policy preferences on economic outcomes (step 2). Why are public preferences concerning inflation and unemployment important for monetary policy decisions, even under the assumption of independent central banks? The rationale is as follows: Politicians will support central bank independence only if their electorate supports it, which, in turn, depends on whether the central bank's decisions are broadly aligned with the voters' preferences. Therefore, central banks cannot implement measures that are remote from public preferences.

After establishing the relevance of public preferences, the paper discusses the link between

[1] Few central banks, such as the Federal Reserve, pursue a dual mandate of price stability and maximum sustainable employment. Many others focus on inflation while considering unemployment developments. In the implementation process, the relative weight placed on the inflation gap versus the unemployment gap as, for example, defined by the Taylor rule (Taylor, 1993) differs among the central banks.

[2] Various definitions of culture exist (Fernandez, 2011). Most definitions are similar to that of Guiso, Sapienza & Zingales (2006). They defined culture as 'those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation'.

culture and preferences (step 1). Swiss data enable a specific study on the influence of culture on monetary policy preferences because they allow us to control for the influence of economic history and institutions. Cultures often coincide with institutional and economic environments, which make it difficult to distinguish between the influences of these factors. In Switzerland, on the contrary, different cultures co-exist within analogous institutional and economic backgrounds.[3]

Specifically, the different cultures in Switzerland share the same central bank, monetary policy and inflation history. The Swiss franc was created in 1850. While it took several steps until the issuing of private banknotes was restricted and the Swiss National Bank was finally founded in 1907, price stability was determined until this event by the commodity base of the banknotes (Baltensperger, 2012).[4] In contrast to the studies by Hayo (1998), Scheve (2004) and Ehrmann & Tzaroumani (2012), this paper thus excludes different historical or economic backgrounds (such as hyperinflation) as a determinant of different monetary policy preferences. In other words, reverse causality from economic outcomes to preferences is highly unlikely (step 3).[5] Similarly, the approach adopted in this study controls for the influence of institutions on preferences, as suggested by Farvaque (2002) or Alesina & Giuliano (2015).

To test the influence of culture on monetary policy preferences, this study uses the linguistic background as a proxy for culture, similar to the studies by Pujol & Weber (2003), Eugster, Lalive, Steinhauer & Zweimüller (2011), Eugster & Parchet (2014) and Guin (2016). Language is a major medium for transmission of culture. Because language is unlikely to change significantly over a lifetime, economic outcomes do not have any influence on it. Such influence cannot be completely excluded for cultural values as used by de Jong (2002). She found evidence for the influence of cultural values—as defined in the study by Hofstede (1980), for example, attitudes towards uncertainty, inequality and centralisation of authority—on inflation

[3]The political institutions have remained similar since the foundation of the Swiss Confederation as a federal state in 1848. The history of cooperation between cantons across cultural borders has even earlier origins.

[4]For a long-term perspective on inflation in Switzerland, see the study by Kaufmann (2015).

[5]In contrast to the study by Brown & Stix (2015), in this study's setting, it is unlikely that differences in preferences depend on various assessments of households regarding currency and current policies. The effect of economic outcome on preferences is also discussed in literature that is unrelated to monetary policy preferences; refer to, e.g., Malmendier & Nagel (2011) and Bütler & Ramsden (2016) who discussed the influence of economic outcomes on risk-taking.

and central bank independence.

This paper is based on two Swiss datasets. First, I use data from the International Social Survey Programme (ISSP) 96. In this dataset, monetary policy preferences are measured as the choice between higher unemployment and inflation. The data indicate variations in these preferences among respondents with different linguistic backgrounds. The preferences also depend on socio-demographic factors, such as income and gender, and political attitudes. On the other hand, this dataset relies on a national survey. While it is reasonable to assume comparable inflation in different regions, many institutions, social security policies and unemployment developments differ among regional political jurisdictions.

The second dataset avoids this drawback. It is based on voting data from three cantons in Switzerland that are bilingual. The language barrier separates different cultures within these cantons. Using voting patterns in the municipalities of bilingual cantons, the influence of different institutional backgrounds in cantons can be excluded. The dataset is mainly based on voting patterns regarding unemployment insurance and reflect the people's aversion to unemployment. The results indicate that despite belonging to the same political jurisdiction and the close proximity of these municipalities, differences in preferences concerning unemployment exist and are stable over time. This result is supported by post-vote surveys for the same referendums.

While the ISSP originated in 1998, the analysed public referendums occurred over a span of 20 years. The analysis of these referendums provides evidence for the stability of the influence of language despite different economic environments at different times. Overall, under the assumption that the linguistic background is a proxy of culture, this paper presents evidence for the role of culture in monetary policy preferences.

The remainder of this paper is structured as follows. Section 2 explains why the population's preferences remain relevant for the economic outcome even with independent central banks. It also discusses the relation between culture and preferences as well the use of language as a proxy for culture. Section 3 presents background information regarding the distribution of the different languages in Switzerland. Section 4 estimates the influence of culture on monetary policy preferences based on the ISSP 96 data and voting patterns in municipalities next to the

language border. Section 5 concludes the study.

2 Culture, monetary policy preferences and economic outcome

2.1 Monetary policy preferences and economic outcome

Why do public monetary policy preferences remain relevant for the economic outcome when an independent central bank decides on monetary policy? The discussion concerning the influence of culture on monetary policy preferences becomes relevant only if the development of prices and unemployment is influenced by public preferences.

Theoretical and empirical stands of literature indicate the importance of public monetary policy preferences for the development of inflation and unemployment. Even if central banks are independent from politicians, they cannot deviate from the preferences of society in a democracy. The theoretical arguments for an independent central bank do not devalue this role of the society. The main argument for an independent central bank relates to the problem of *politicians*' commitment to monetary policy (Kydland & Prescott, 1977 and Barro & Gordon, 1983a). If monetary policy is used under political pressure to exploit the Philips curve, it has—under the assumption of rational expectations—no effect on the unemployment rate despite higher inflation. People will anticipate higher inflation rates and undo the positive effects of the expansionary policy. The effects of other political motives to (ab)use monetary policy, such as financing government expenditures, are similar (Cukierman, 1992, for an overview). To prevent such an unfavourable outcome, Rogoff (1985) proposed delegating monetary policy to a 'conservative' central banker whose preference is always low inflation rates. In contrast to politicians who need to be re-elected, such a central banker has no incentive to exploit the Philips curve. Other possibilities to prevent an unfavourable outcome include loss of reputation for the central banker in case of high inflation (Barro & Gordon, 1983b) or contracts for the central banker with a setup of punishments and rewards to ensure that he or she has the right incentives and always pursues the best policy for the society (Walsh, 1995).

However, these solutions only relocate the commitment problem (McCallum, 1995). In the case of a conservative central banker, the proposed solution assumes that the government

cannot commit to a specific inflation policy, but it can commit to the appointment of an agent with specific preferences. In the case of contracts, the government is assumed to have the ability to commit to a specific contract but not to the monetary policy that this contract proposes. Barro & Gordon (1983b) assumed that high inflation leads to a costly loss of reputation for a central banker but not for politicians, if they were responsible for monetary policy.[6]

Politicians apparently have incentives to accept conservative central bankers or monetary policy strategies. At this point, public preferences come into play. Politicians react to incentives provided by their voters. Therefore, politicians will not question the independence of a central bank as long as their voters do not. The voters, in turn, do not question the independence of a central bank as long as the central bank makes decisions that are broadly in line with their preferences. In other words, a pre-commitment to delegate monetary policy to an independent central bank can only work as long as the preferences of voters and those of the central bank are largely aligned. Central banks cannot pursue policies over the long term that stand in contrast to the public's preferences.[7] If the preferences of the public and the central bank significantly differ, the central bank will likely lose its independence rather than the independence remains a credible pre-commitment.[8] Accepting the median voter theorem thus leads to the conclusion that the voters' preferences decide on the broad direction of policies in representative democracies, including monetary policy (Minford, 1995).[9]

[6]When voters prefer low inflation rates, they could simply vote for candidates with the same preferences (Lippi & Swank, 1999).

[7]Similarly, McCallum (1997) argued that 'the presumption that central banks can have preferences that are systematically different from the society's [...] might occasionally be the case in some nations, but on average I would expect that the relative importance given to inflation and unemployment avoidance will be approximately the same by a central bank and the society of which it is a part. In democracies, central banks will tend to be aware of and reflect the preferences of the population' (p.107).

[8]Of course, a credible commitment can exist in the short run because of 'institutional inertia' (Alesina & Stella, 2010) and because it takes some time to adjust to laws. The adjustment time depends on the legal level at which independence is defined and on the checks and balances in the political process, such as the number of veto powers or the existence of a free press (Moser, 1999, Stasavage & Keefer, 2003 or Bodea & Hicks, 2015). However, if necessary, and if the majority of voters agree with the proposed change, only a short period is needed.

[9]The links between public (i.e., median voter) preferences and policy outcomes should be even closer in direct democracies (Matsusaka, 2005), which is important for Switzerland, given that its political system includes many elements of direct democracy. Herrendorf & Neumann (1998) provided a detailed discussion of the relation among the median voter theorem, representative democracies and central bank independence.

In the present day, independence is sometimes defended by arguing that only central banks have a sufficiently long time horizon (e.g., Blinder, 1998, or the various arguments from political business cycle theories, cf. Alesina, 2000, for an overview). This line of argument questions the rationality of voters. People are assumed to have rational expectations regarding inflation. The same people will not likely vote for politicians who generate inflation without any increase in employment, except if one assumes that the voters' decisions are uninformed or irrational. In the Swiss case, empirical studies have indicated that voters are better informed in countries with a tradition of direct democracy, on average, than in countries without the same level of civic participation (Benz & Stutzer,

Empirical studies have confirmed the strong relation between public preferences and policy outcome. For the United States, Tootell (1999) presented evidence that the Federal Open Market Committee decisions between 1965 and 1991 were influenced by public concern about inflation and unemployment. Hayo (1998) tested the influence of monetary policy preferences on price stability. Based on Eurobarometer data, he found evidence for a 'price stability culture' in countries with low inflation. However, he remained ambiguous regarding the causality between inflation aversion and low actual inflation. In a more recent study, Ehrmann & Tzaroumani (2012) presented evidence for influences in both directions between economic outcome and preferences. Based on the data from the World Values Surveys, they claimed that memories of high inflation lead to higher inflation aversion and that higher inflation aversion, in turn, leads to lower inflation via greater support for inflation-averse central banks.[10]

2.2 Linguistic background and monetary policy preferences

If (monetary) policy preferences are relevant, it is also important to understand the determinants of these preferences. This paper focuses on the specific influence of culture on monetary policy preferences.

Although it seems intuitively clear that culture can influence policy preferences, culture, as a determinant of preferences and economic outcome, has long been neglected in economics. Owing to the difficulty to define culture, it is difficult to frame testable hypotheses. In recent years, the interest in the influence of culture on policy has been rising. Several studies have addressed the influence of culture on economic preferences, especially the support of redistributive policies.

Different personal attributes have been used to differentiate among cultures. The epidemiological approach (Fernandez, 2008) uses the difference between immigrants and natives (e.g.,

2004).

[10] In another cross-country comparison based on different surveys, Scheve (2004) found that the economic outcome, measured by inflation and unemployment performance, significantly impacts preferences. However, controlling for economic outcome and individual characteristics, the results suggest additional national-level determinants of cross-country variation in inflation preferences, particularly the demand for government revenue and the size and structure of the financial sector.

Moreover, a broad body of empirical literature covers the relation between the independence of central banks and low inflation. Cukierman (2008) provided an overview. The argument in this paper is in line with the literature that assumes a third common factor, the preferences of the population, underlying both central bank independence and low inflation (Hayo, 1998, de Jong, 2002).

Luttmer & Singhal, 2011). Historical case studies have used events such as the German reunification, where people living in Eastern Germany differ from their compatriots in the West due to the strong influence of communism (Alesina & Fuchs-Schündeln, 2007). Other research has used the survey data of different countries and controls for differences other than culture (e.g., Alesina & Glaeser, 2004). However, this approach faces the problems of omitted variables because it is difficult to capture all institutional and economic differences (Fernandez, 2011).

Following Pujol & Weber (2003), Eugster et al. (2011), Eugster & Parchet (2014) and Guin (2016), this study uses the language of the respondents as a proxy for culture. Using language as a proxy is ideal because it serves as a medium for transmission of culture in at least two ways. First, in the course of growing up, people acquire the values, beliefs, norms and attitudes of a culture in the native language from older generations. Second, within a generation, culture is spread through social interactions, which are mostly based on language. Thus, sharing the language is, by definition, a sign of at least a partly common culture. Using language as a proxy also restricts the definition of culture somewhat. In contrast to religious and social groups, language groups mainly capture the ethnic aspects of the definition.[11]

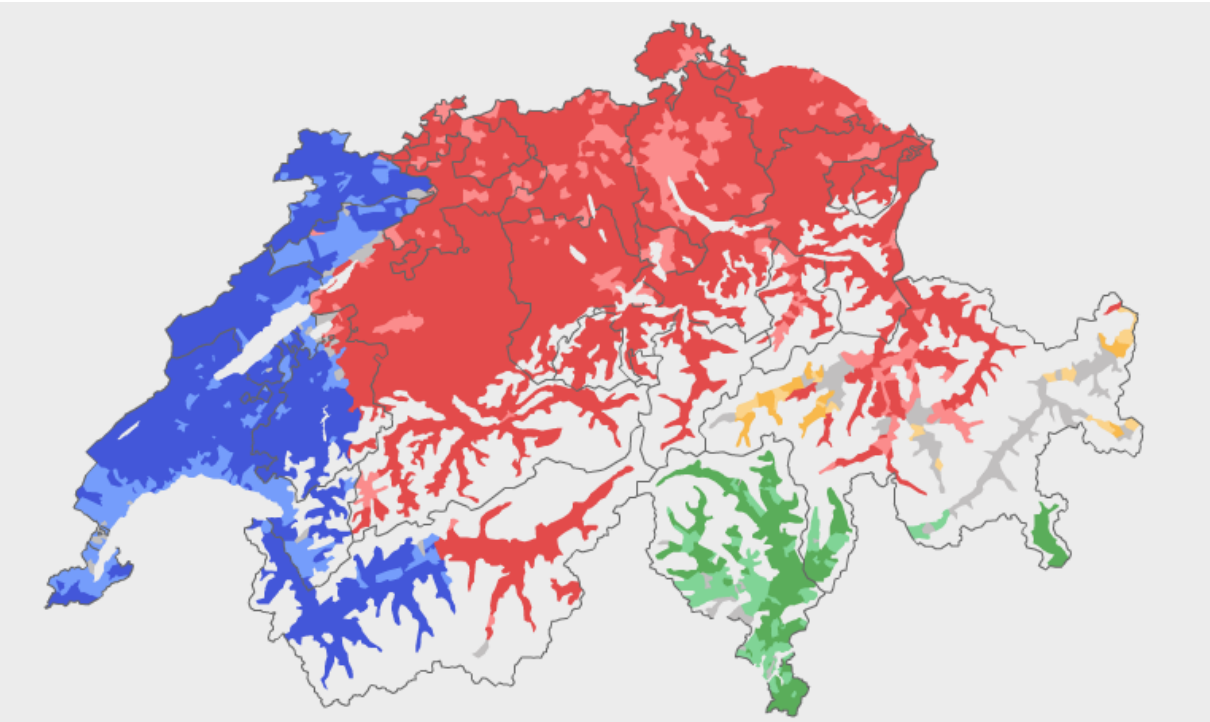
Language as a proxy for culture helps clarify the causality between culture and economic outcomes. The primary language is exogenous and unlikely to change over a lifetime. Language is less likely to change unlike other suggested variables, such as religion (Guiso et al., 2006). It cannot be influenced by economic outcomes. Nevertheless, while reverse causality can be excluded, this study cannot provide definite answers on causality. Omitted factors correlated with language and monetary policy preferences may exist. For example, hyperinflation in Germany in the 1920s might have considerably influenced monetary policy preferences in German-speaking Switzerland more than those in the rest of the country. In this case, foreign historical economic developments and not cultural differences per se have led to differences in monetary policy preferences.[12]

[11] Spolaore & Wacziarg (2016) indicated that genetic distance is positively correlated with linguistic distance.

[12] However, one could argue that exactly these kind of historical experiences define a culture. In general, explaining the determinants of culture is difficult (Pujol & Weber, 2003).

3 Languages in Switzerland

Country borders often coincide with language borders. Consequently, linguistic background often coincides with institutional and economic background. This makes it difficult to distinguish between the influences of these factors. In Switzerland, different different languages are spoken within a similar institutional and economic environment. Thus, data from Switzerland enable us to test the specific influence of culture on policy preferences. Pujol & Weber (2003), Eugster et al. (2011), Eugster & Parchet (2014) and Guin (2016) used this fact to test the influence of culture on fiscal discipline, the demand for social insurance, desired tax levels and household saving.



Notes: Dark red: >85% German-speaking, light red: 70-85% German-speaking. Dark blue: >85% French-speaking, light blue: 70-85% French-speaking. Dark green: >85% Italian-speaking, light green: 70-85% Italian-speaking. Dark yellow: >85% Romansh-speaking, light yellow: 70-85% Romansh-speaking. Dark grey: No dominating language. Light grey: Unpopulated mountain regions. Lines within the country correspond to canton borders. Source: Swiss Federal Statistical Office based on a census in 2000 (no more up-to-date data are available on the level of municipalities).

Figure 1: Languages in Switzerland

Switzerland has four official languages: the main language of 72.5% of Swiss citizens living in Switzerland is German, that of 21.0% is French, that of 4.3% is Italian, that of 0.6% is Romansh and that of 1.6% is other languages (Lüdi & Werlen, 2005). Figure 1 depicts that in

most cases, the border between the languages is sharp. The dominant native language changes completely from one municipality to the other. In 2290 of 2895 municipalities, one language clearly dominates (85% or more of the inhabitants speak the main language). In only 107 municipalities, there is no dominant language (less than 70% of the inhabitants speak the main language). Of these 107 municipalities, many are in the Romansh-speaking regions.

In Figure 1, lines within the country correspond to cantonal borders. Bern, Fribourg and Valais have municipalities with French- and German-speaking majorities. In these three cantons, different institutional backgrounds at a cantonal level can also be excluded as a determinant of different preferences.

4 Empirical evidence for the influence of culture

Although Swiss data are especially interesting to analyse, only limited data on monetary policy preferences are available. The ISSP 96 survey and data related to voting patterns in municipalities within bilingual cantons are exceptions.

4.1 Empirical evidence based on survey data

Data

Surveys by the ISSP are regularly conducted on various topics. However, the last available dataset for the role of the government in Switzerland originated in 1998 and is entitled 'The Role of Government III' (ISSP 96). This survey includes the following question:

- 'If the government had to choose between keeping down inflation or keeping down unemployment to which do you think it should give highest priority? 1. Keeping down inflation., 2. Keeping down unemployment.'

Fitting the theoretical (Kydland & Prescott, 1977) and empirical background (Philips curve), this survey investigates whether the relative cost of inflation is higher than that of unemployment. Ideally, the question would ask for the acceptable level of inflation in lieu of a certain reduction in the unemployment rate and vice versa (Jayadev, 2008). However, respondents may be encumbered by this question, and it is likely that an easier one would produce more reliable

responses. Due to the implicit budget constraint, the question of the ISSP survey should lead respondents to provide more reliable answers than if they were asked regarding a specific inflation or unemployment target. On the negative side, including inflation and unemployment in the question makes it unclear whether the respondents express their unemployment or inflation aversion.

In Switzerland, the survey was conducted in 1998, with a sample size of 2518 respondents (ISSP, 2000). It was a random sample of German-, French- and Italian-speaking permanent residents aged between 18 and 70 years. The selection process included two stages. First, a random sample of 6700 households was drawn from the official telephone register. Second, one member of each household was drawn at random by a computer. Of the 6700 chosen persons, 2518 completed the survey.[13] The survey was conducted using standardised computer-aided telephone interviews to mainly check for the ISSP standard background variables and the standardised postal self-completion follow-up questionnaires, which included the specific questions on the 'role of government'. Table 1 presents the summary statistics for important variables of the dataset. In total, 30% of the respondents in the sample spoke Italian or French as their main language. No foreigners were included in the sample. The influence of the cultures of other countries and different economic backgrounds on the results can thus be excluded.

Monetary policy preferences and economic outcome

As discussed, previous research has suggested that monetary policy preferences and inflation history influence each other. On the one hand, there should be a comparably high level of aversion to inflation underlying the Swiss track record of very low inflation rates. On the other hand, economic outcomes impact the population's preferences. The history of low inflation rates leads to less inflation aversion in Switzerland because the costs of high inflation are less well known.

What does the dataset reveal regarding the relation between monetary policy preferences and economic outcome? A comparison among average monetary policy preferences for different countries and regions (Table 2) indicates that the Swiss sample was less inflation-averse than the

[13] From this follows the assumption that no relevant bias emerges. The dataset only provides weighting factors that consider relative selection probabilities due to household size.

Variables	Observations	Mean				Std. dev.
			German	Latin	Difference	
Inflation aversion	**2047**	0.35	0.36	0.30	0.06**	0.48
0 = Lower unemployment	1332					
1 = Lower inflation	715					
Language	**2351**	0.30				0.46
0 = German	1643					
1 = French/Italian	708					
Gender	**2518**	0.53	0.53	0.53	0.00	0.50
0 = Male	1174					
1 = Female	1344					
Age	**2518**	0.72	0.72	0.75	0.03	0.72
0 = 18-39	1106					
1 = 40-59	1006					
2 = 60+	406					
Education level	**2517**	2.06	2.09	1.99	0.10***	0.66
0 = None	72					
1 = Compulsory school	266					
2 = High school	1620					
3 = University	559					
Income	**2042**	1.66	1.75	1.49	0.25***	1.19
0 = <2000	377					
1 = 2000–4000	569					
2 = 4000–6000	652					
3 = 6000–8000	256					
4 = >8000	188					
Employment status	**2480**	0.27	0.25	0.31	0.05***	0.48
0 = Employed	1845					
1 = Not in labour force	598					
2 = Unemployed	37					
Left–right orientation	**2518**	0.14	0.16	0.12	0.04***	0.35
0 = Other	2158					
1 = Right, conservative	360					
Preference for less state intervention	**2234**	1.33	1.33	1.34	0.01	0.79
0 = More intervention	457					
1 = Nor	581					
2 = Less intervention	1196					

Note: Data are based on the ISSP 96 survey for Switzerland. Means are provided for all respondents, German-speaking respondents and French-/Italian-speaking respondents. Significance level of the difference: *** = 1%, ** = 5% and * = 10%.

Table 1: ISSP 96: Summary statistics

Country/region	Keeping down unemployment	Keeping down prices
Germany (West)	38%	62%
Germany (East)	47%	53%
Total ISSP 96 survey sample	59%	41%
German-speaking Switzerland	64%	36%
Switzerland	65%	35%
French-/Italian-speaking Switzerland	70%	30%
Italy	78%	22%
France	82%	18%

Notes: Data are based on the ISSP 96 survey. Question: 'If the government had to choose between keeping down inflation or keeping down unemployment to which do you think it should give highest priority?' The total ISSP 96 survey sample included 24 countries (Australia, Bulgaria, Canada, Cyprus, Czech Republic, France, Germany, Great Britain, Hungary, Ireland, Israel, Italy, Japan, Latvia, New Zealand, Norway, The Philippines, Poland, Russia, Slovenia, Spain, Sweden, Switzerland and United States).

Table 2: ISSP 96: Monetary policy preferences in different countries/regions

average of all 18 countries participating in the ISSP 96 survey. In total, 65% of the respondents in Switzerland preferred low unemployment to low inflation. The average of the overall sample was 59%.

	Unemployment rate	Inflation rate
1985	1.0%	3.4%
1986	0.8%	0.8%
1987	0.8%	1.4%
1988	0.7%	1.9%
1989	0.6%	3.2%
1990	0.5%	5.4%
1991	1.1%	5.9%
1992	2.5%	4.0%
1993	4.5%	3.3%
1994	4.7%	0.9%
1995	4.2%	1.8%
1996	4.7%	0.8%
1997	5.2%	0.5%
1998	3.9%	0.0%

Notes: Unemployment rates are based on yearly average values of the SECO statistics. Inflation rates are based on yearly average growth rates for consumer prices. Source: Swiss Statistical Office.

Table 3: Unemployment and inflation rates in Switzerland between 1985 and 1998

Apparently, the history of low inflation led to comparatively low inflation aversion in Switzerland. However, these results were influenced by the economic outcome during the survey. Switzerland experienced a deep and extended recession in the first half of the 1990s. In the years before the survey, the unemployment rate in Switzerland increased to extraordinarily high levels, while inflation rates were low (Table 3). This development likely raised unemployment aversion among the population.

Linguistic background and monetary policy preferences

Table 2 displays differences in monetary policy preferences among language regions. Given the large differences between inflation aversion in Germany and that in France, one might expect similar differences in the preferences among inhabitants in the German-speaking and French-speaking parts. The survey results indicated that the differences within Switzerland were smaller. While 36% of the German speakers preferred lower inflation over lower unemployment, 30% of the Latin-language speakers preferred low inflation. This comparably small difference is in line with the results of Bachmann & Hens (2016). They demonstrated greater similarities in the investment-decision behaviour of Swiss with different linguistic backgrounds

than between Swiss and their linguistically closest neighbours abroad.

Personal characteristics	Keeping down unemployment	Keeping down prices
Gender		
0 = Male	59%	41%
1 = Female	71%	29%
Age		
0 = 18–39	65%	35%
1 = 40–59	67%	33%
2 = 60+	62%	38%
Education level		
0 = None	72%	28%
1 = Compulsory school	73%	27%
2 = High school	66%	34%
3 = University	59%	41%
Income		
0 = <2000	74%	26%
1 = 2000–4000	68%	32%
2 = 4000–6000	64%	36%
3 = 6000–8000	62%	38%
4 = >8000	50%	50%
Employment status		
0 = Employed	66%	34%
1 = Not in labour force	63%	37%
2 = Unemployed	58%	42%
Left–right orientation		
0 = Other	68%	32%
1 = Right, conservative	50%	50%
Preference for less state intervention		
0 = More intervention	71%	39%
1 = Nor	71%	39%
2 = Less intervention	58%	42%

Note: Data are based on the ISSP 96 survey for Switzerland. Question: 'If the government had to choose between keeping down inflation or keeping down unemployment to which do you think it should give highest priority?'

Table 4: ISSP 96: Monetary policy preferences and personal characteristics

When testing the influence of language on monetary policy preferences, it will be important to control for the various socio-economic and socio-demographic factors besides language. Table 4 presents bivariate relations between monetary policy preferences and socio-economic and socio-demographic factors in the study sample. Men are more inflation-averse than women. This result is in line with that of Funk and Gathmann (2015). They presented a significant gap between female and male preferences in various policy decisions (based on post-vote surveys in Switzerland). University graduates' aversion to inflation differs from that of persons with other educational backgrounds, in line with the result of Jayadev (2006). Lower earnings are associated with lower inflation aversion. Jayadev (2006, 2008) arrived at the same conclusion based on the ISSP 96 survey data excluding Switzerland. This result is surprising because poorer people are more likely to suffer from high inflation rates (Easterly & Fischer, 2001), which is

also one of the reasons why central banks fight inflation. Whether low-income persons misunderstand the costs and implications of inflation or central banks overestimate their inflation costs is an open question.[14] Alternatively, low-income persons and central banks differ in their assessment of unemployment costs. The level of inflation aversion of unemployed respondents is higher than that of employed respondents. This surprising result has to be taken with a grain of salt, however, because the absolute number of unemployed respondents is small. Individuals with a right-wing bias and conservative political opinions are more inflation-averse than others. Respondents who support more government regulations prefer lower unemployment to lower inflation. This is in line with the positive correlation between preferences towards central bank independence, which is often equated with a preference for low inflation and general economic freedom (Capie, Goodhart & Schnadt, 1994).[15]

To discuss the significance of the influence of the language, this study tests the determinants of monetary policy preferences in a linear probability model.[16] The regressions are based on the following equation:

$$\delta_i = \alpha + \beta * Language_i + \gamma * X_i + \epsilon_i \tag{1}$$

where δ_i denotes the inflation aversion of respondent i as a binary variable, α denotes a constant, $Language_i$ denotes the language variable, X_i denotes a vector of the respondent-specific control variables (gender, age, education level, income, employment status, left-right orientation and preference for economic freedom in the baseline specification), β is a coefficient, γ denotes a vector of coefficients and ϵ_i denotes the error term.

Specification (1) in Table 5 simply regresses inflation aversion on the variable language. The result indicates a statistically significant influence of language on inflation aversion.

Based on the previous discussion of the bivariate relations and the related literature (Jayadev, 2006, 2008 and van Lelyveld, 1999), this study includes specific socio-economic and socio-demographic characteristics as control variables in multivariate regressions (columns 2 and 3

[14] In contrast, van Lelyveld (1999) found no relevant role of income in explaining inflation aversion.
[15] Other possible factors, such as religion and urban or rural background, do not have any influence.
[16] The results of logit models are very similar and do not provide any additional insights.

Independent variables	**Inflation aversion**			
	(1)	(2)	(3)	(4): Bilingual cantons
Language				
Latin languages	-0.06**	-0.10***	-0.10***	-0.07
	(0.025)	(0.040)	(0.027)	(0.080)
Latin language region				
Gender				
Female		-0.14***	-0.15***	-0.23***
		(0.036)	(0.031)	(0.058)
*Language*Gender*				
Latin language & female		0.11***	0.12**	0.14*
		(0.058)	(0.053)	(0.111)
Age				
40–60		-0.03	-0.03	0.06
		(0.030)	(0.026)	(0.057)
>60		-0.06	-0.05	-0.02
		(0.053)	(0.042)	(0.11)
Education level				
Compulsory school		-0.05	-0.05	-0.22
		(0.106)	(0.088)	(0.295)
High school/apprenticeship		0.02	0.03	-0.20
		(0.102)	(0.082)	(0.284)
University		0.02	0.05	-0.11
		(0.105)	(0.084)	(0.29)
Income				
2000–4000		0.04		0.10
		(0.042)		(0.067)
4000–6000		0.05		0.13*
		(0.043)		(0.071)
6000–8000		0.03		0.056
		(0.052)		(0.084)
8000+		0.10*		0.12
		(0.059)		(0.118)
Employment status				
Not in labour force		0.11**	0.09**	0.09
		(0.056)	(0.036)	(0.098)
Unemployed		0.19	0.06	0.08
		(0.131)	(0.095)	(0.180)
Left–right orientation				
Right, conservative		0.15***	0.13***	0.10
		(0.039)	(0.034)	(0.078)
Economic freedom				
Support of regulations		0.12***	0.13***	0.18***
		(0.034)	(0.031)	(0.06)
Nor		0.02	0.02	0.07
		(0.038)	(0.034)	(0.069)
Constant	0.36***	0.28***	0.32***	0.32***
	(0.014)	(0.109)	(0.089)	(0.294)
R squared	0.00	0.07	0.06	0.13
Observations	1902	1413	1705	319

Notes: Data are based on the ISSP 96 survey for Switzerland. Coefficients are based on linear regressions. Significance level: *** = 1%, ** = 5% and * = 10%. Robust standard errors in parentheses. (5) is only based on respondents in bilingual cantons (BE, FR, VS). The independent variable is defined as follows: 1 = Keeping down inflation, 0 = Keeping down unemployment. Reference categories: *Income*: 0-2000; *Employment status*: Employed; *Education level*: None; *Left–right orientation*: Not right, conservative; *Age*: <40; *Economic freedom*: Against regulation.

Table 5: ISSP 96: Estimation results

in Table 5). It also uses the preferences for government regulation in the economy as a control variable (Capie et al., 1994). In addition, an interaction term between language and gender is used to capture any combined effect.

Language remains statistically significant. Speaking a Latin language reduces the odds of being inflation-averse by 10 percentage points. The size of the influence of linguistic background is similar to that of being female and having right-wing views. Indeed, the coefficient of language increases after the inclusion of various socio-demographic and socio-economic factors. Thus, language directly influences monetary policy preferences and does not merely have an impact through mediators such as socio-demographic and socio-economic factors.

The question of endogenous factors is important in studies on cultural effects (Brown, Henchoz & Spycher, 2017). Factors such as the preference for economic freedom, political preferences or labour market participation might be influenced by culture, and in turn, they might determine monetary policy preferences. Table 14 in the appendix provides more evidence that this is not the case. Excluding potentially endogenous factors barely changes the coefficients of language.

Nevertheless, various control factors prove to be significant predictors of monetary policy preferences: gender, earnings, employment status, political preferences and support of regulations. Women are significantly less inflation-averse than men. In contrast, the coefficient for the interaction term between language and gender is significantly negative. The combination of being female and speaking a Latin language reduces the inflation aversion. Higher income is related to higher inflation aversion. Including all control variables and applying case-wise deletion significantly reduces the number of observations. In particular, many respondents did not provide income data. Income is slightly negatively correlated with language. However, excluding the income variable does not significantly alter the coefficient for language (Column 3). Those not in the labour force are more inflation-averse than those working. In contrast to other studies (Jayadev, 2006), the influence of education disappears after controlling for other factors. Preferences for government regulation are a significant predictor. Respondents supporting government regulations are also more inflation-averse. In addition, including this factor in the

multivariate regression reduces the significance of the income variable.

To reduce the problem of diverse institutional backgrounds in different cantons, only the respondents in the three bilingual cantons are considered in Column (4). Hence, different language groups within similar institutional and economic backgrounds at the cantonal level are compared. The influence of language is negative, as expected. However, the restricted and small sample leads to an insignificant coefficient.[17]

Linguistic background and monetary policy preferences in general

The ISSP 96 survey contains additional questions that relate to monetary policy preferences, particularly concerning the control of prices and the importance of jobs, wages and unemployment benefits. Table 6 provides an overview of these questions. Columns (1) and (2) indicate the approval rates among the German-speaking and French-/Italian-speaking respondents. All differences between these approval rates are significant at the 1%-level (Column 3).

Topic	**(1) German**	**(2) Latin**	**(3) Δ**	**(4) Language**
The government should control wages by law	0.32	0.53	0.21***	0.20***
The government should control prices by law	0.64	0.81	0.16***	0.15***
The government should spend more money for unemployment benefits	0.18	0.31	0.13***	0.11***
It is the government's responsibility to provide a job for everyone	0.51	0.64	0.13***	0.17***
It is the government's responsibility to keep prices under control	0.75	0.87	0.12***	0.12***
It is govt.'s responsibility to provide decent standard of living for the unemployed	0.66	0.82	0.17***	0.12***

Notes: Dataset is based on the ISSP96 survey for Switzerland. Significance level: *** = 1%, ** = 5% and * = 10%. (1): Approval rate of German speakers, (2): Approval rate of French/Italian speakers; (3): Difference in approval rates; (4): Coefficient for variable language in linear regression with following control variables: Latin language region, gender, language*gender, age, education, earnings, employment status, left–right orientation and economic freedom.

Table 6: ISSP 96: Results of topics related to monetary policy preferences

Column (4) contains the coefficients of language, which are based on regressions that include control variables for Latin language region, gender, age, education, income, employment status, left–right orientation, economic freedom and the interaction term between language and gender (analogous to (4) in Table 5). For each question related to monetary policy preferences,

[17]Including a dummy for the cantons with predominantly Latin-language-speaking inhabitants (not shown) would lead to a focus on the influence of language, considering various policies or economic conditions that differ among the language regions. With such a dummy variable, the coefficient for language illustrates the case of a French-/Italian-speaking respondent in a German-speaking canton. In this case, speaking French or Italian lowers the probability of being inflation-averse by 14 percentage points.

language is a significant determinant of the respective preference. These results confirm the influence of language on monetary policy preferences.

The cultural differences in monetary policy preferences are in line with the results of other economic preferences and areas outside economic policies. Cultures within Switzerland seem to differ, as already noted by Hofstede (1980). Various cultures (defined by their language) lead to diverse preferences in different areas. Hofstede (1980) made a relevant observation that the language split is a much hotter political topic in Belgium than in Switzerland although the preferences differ significantly in the latter.[18] According to Hofstede (1980), this can be traced back to the establishment of Switzerland's political structure, with the importance of regional rather than central solutions.

4.2 Empirical evidence based on voting patterns

This section analyses the voting patterns of municipalities within bilingual cantons. Considering the differences within a canton, the influence of the institutional differences among different cantons can be controlled for. Although public referendums often occur in Switzerland, only a few deal with monetary policy preferences. The best available proxies are referendums concerning preferences regarding unemployment and price increases. While these referendums involve the main pillars of monetary policy preferences—unemployment and inflation aversion—they do not involve a trade-off between unemployment and price increases. Nevertheless, the results will be insightful. If the linguistic background did not impact preferences regarding unemployment and price increases in the referendums, they would provide a strong argument against the previous results. Because the datasets originate at different time periods, they also help clarify the stability of the cultural influences on monetary policy.

Results based on municipality-level data

Since 1980, four referendums related to the unemployment insurance have occurred.[19] Three of them (in 1997, 2002 and 2010) would have reduced unemployment benefits (see the appendix

[18] Canada seems to be more similar to Belgium than Switzerland. According to the ISSP 96 dataset, preferences between cultures, defined as language groups, differ on fewer issues. Still, separation movements are much more prevalent.

[19] Only referendums since 1980 are available due to data restrictions.

for further details of the referendums). Correspondingly, right-wing parties and business-related organisations, not left- wing parties, supported the referendum. The referendum of 2002 differs from the other two because it contains more benefits for the unemployed. The referendum of 1993 had increases as well as reductions in unemployment benefits of a similar magnitude. This ambiguity led to the fact that support for the initiative did not follow a typical distribution along the left-/right-wing axis (Dubach, 2010). This referendum draws inconclusive results concerning unemployment aversion and is not included in this analysis. For the other referendums, higher levels of support for the reduction in unemployment benefits can be interpreted as lower unemployment aversion. In contrast, higher unemployment aversion is assumed to be related to a preference for higher benefits.

In 1982, there were two votes on inflation preferences. Since then, price developments in Switzerland have slackened and, hence, did not play a major role in public discussion. One referendum in 1982 was based on an initiative that demanded a reintroduction of price controls in case of abusive prices, mainly in relation to cartel-like organisations. Most left-wing parties supported the initiative, while right-wing parties and organisations with an ear to the economy fought against it. The corresponding referendum was based on a counterproposal by the Federal Council. Because it was mainly proposed for strategic reasons,[20], this referendums is ineffective to analyse preferences. However, inflation aversion also cannot be directly equated with support for the initiative. On the one hand, higher approval ratings for the initiative could be interpreted as higher levels of inflation aversion. On the other hand, as indicated by the analysis of the ISSP 96 data, support for regulation is negatively correlated with inflation aversion. A referendum that demands regulation of price increases must necessarily remain ambiguous.

Table 7 includes the approval rates at national and communal levels for these six referendums. It indicates that the results for the referendums differ in different language regions. This indicates the influence of language on the preferences of the population for unemployment and price development.

[20]The content of the referendum was similar to the initiative. At that time, the law did not allow the voters to support both the initiative and the counterproposal during the vote. If the initiative and the counterproposal had similar content, the supporters of an idea could have been split. However, the strategy did not work this time. The counterproposal did not find much support across the political spectrum (Menzi, 2010).

Year	Subject	All cantons			Bilingual cantons	
		All mun.	German	Latin	German	French
2010	Unemployment insurance (only reduction)	53%	58%	41%	54%	42%
2002	Unemployment insurance (mostly reduction)	56%	58%	49%	56%	48%
1997	Unemployment insurance (only reduction)	49%	55%	35%	51%	35%
1993	Unemployment insurance (ambiguous)	70%	69%	71%	71%	70%
1982	Price controls (initiative)	56%	54%	60%	54%	52%
1982	Price controls (strategic counter-initiative)	22%	23%	17%	25%	17%

Notes: Average approval rates in Switzerland and in the bilingual cantons, Berne, Fribourg and Valais, are split according to mostly German- and French-/Italian-speaking municipalities.

Table 7: Voting data: Referendums concerning unemployment and prices since 1980

First, all municipalities of the three bilingual cantons are analysed.[21] Table 8 provides the summary statistics of these municipalities. The standard deviation of all characteristics is quite high. The municipalities strongly differ in their characteristics. The differences between the French-speaking and German-speaking municipalities are smaller but significant: German-speaking municipalities are more populous, comprising especially old and young persons as well as foreigners. Additionally, their inhabitants have lower income and are more likely to be welfare recipients; at the same time, they are less likely to be unemployed. Finally, right-wing parties are more successful in German-speaking municipalities. To estimate the differences in monetary policy preferences, it will be important to control for these factors.

Characteristics	Mean				Stand. dev.	Min	Max
	All mun.	German	French	Diff.			
Number of inhabitants	2281	2419	2030	389	6224	23	124'381
Age ratio (share above 65)	28.5%	29.6%	26.4%	3.3%***	7.5%	8.9%	65.0%
Youth ratio (share below 20)	36.6%	34.8%	39.9%	5.1%***	7.5%	8.0%	105.9%
Average income	31'279	30'622	32'466	1843***	6594	14'659	102'629
Unemployment rate	1.1%	0.9%	1.5%	0.53%***	0.62%	0.0%	3.4%
Proportion of welfare recipients	1.8%	2.1%	1.4%	0.64%***	1.7%	0.0%	10.9%
Proportion of foreigners	9.6%	7.6%	13.3%	5.7%***	7.6%	0.0%	59.2%
Political preferences: Right wing	44.0%	45.4%	41.3%	4.1%**	13.0%	5.2%	86.0%
Political preferences: Centre	31.6%	33.5%	28.2%	13.7%***	13.7%	5.5%	88.2%
Political preferences: Left wing	22.1%	18.8%	28.1%	9.4%***	9.2%	0.1%	50.9%

Notes: Coefficients are based on linear regressions. Significance level: *** = 1%, ** = 5% and * = 10%. All ratios and proportions are shown as a percentage of the number of inhabitants (Data for 2013 are obtained from the Swiss Statistical Office.) Political preferences as a percentage of voters in the national election of 2011 (right wing: FDP, SVP; centre: CVP, EVP, CSP, GLP, BDP; left wing: SP, Greens, AL).

Table 8: Voting data: Summary statistics for bilingual cantons

The following linear regression equation gives

$$approvalrate_i = \alpha + \beta * Language_i + \gamma * X_i + \epsilon_i \tag{2}$$

[21] In these three bilingual cantons, there were 411 German-speaking and 230 French-speaking municipalities during the 2010 vote on unemployment benefits. The number of municipalities differs over the years mainly because of several mergers of municipalities.

where $approvalrate_i$ denotes the approval rate for municipality i, α is a constant, $Language_i$ denotes the language spoken in municipality i, X_i is a vector of the municipality-specific control variables, β is a coefficient, γ is a vector of coefficients and ϵ_i denotes the error term. Size, age distribution, proportion of foreigners, income level, unemployment rate, proportion of welfare recipients, political orientation and dummies are taken as control variables for the cantons of the municipalities.

Table 9 presents the results for the four referendums. The significant influence of language becomes clear in the three referendums concerning unemployment benefits. Without control factors, the approval rate is 7 to 17 percentage points lower in French-speaking than in the German-speaking municipalities. Hence, unemployment aversion is higher in French-speaking municipalities. With control variables, the coefficients are smaller but still statistically significant. The decrease in the coefficients is partly due to the inclusion of political preferences and unemployment rates and their role as mediators, but the influence is not consistent among the different referendums (see Table 15 in the appendix for further specifications that exclude the potentially endogenous variables unemployment rate and political preferences).

The coefficient for language is smaller for the referendum of 2002 than for the referendums of 1997 and 2010. This agrees with the 2002 referendum, in contrast to the other two referendums, which also contained elements of increases in unemployment benefits. Accordingly, the influence of language remains remarkably stable over time.

Several control factors are significant. The average income of the inhabitants significantly influences the results. Higher average income is positively related to higher levels of support for the referendum. If the average income increases by 10,000 Francs, the support increases by 1.7 to 3.7 percentage points. This result corresponds with the analysis of the ISSP survey data, where higher income levels were also related to lower unemployment aversion (as a trade-off with inflation aversion). The influence of political preferences is also similar to the ISSP results. The support for right-wing political parties increases the support for the referendums and, thus, for less unemployment aversion. In the ISSP survey, supporter of right-wing parties had higher rates of inflation aversion. As expected, the unemployment rate and the proportion

Independent variables	**Unempl. benef. (10)**		**Unempl. benef. (02)**		**Unempl. benef. (97)**		**Price control (82)**	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
				Coefficients				
French-speaking mun.	-13.73***	-10.50***	-7.08***	-6.56***	-17.00***	-13.88***	2.34**	0.43
	(0.74)	(1.14)	(0.71)	(0.82)	(0.80)	(0.89)	(1.18)	(1.29)
Inhabitants ('000)		0.07		0.05		0.12**		-0.08
		(0.05)		(0.05)		(0.05)		(0.07)
Age ratio		0.11**		-0.01		0.07		-0.05
		(0.05)		(0.04)		(0.05)		(0.07)
Youth ratio		0.08		-0.03		0.01		-0.09
		(0.05)		(0.05)		(0.05)		(0.07)
Prop. of foreigners (%)		0.18***		0.26***		0.32***		0.03
		(0.05)		(0.05)		(0.06)		(0.09)
Average income ('000)		0.37***		0.30***		0.17***		-0.14*
		(0.05)		(0.05)		(0.05)		(0.07)
Unemployment rate (%)		-0.39		-1.01		-3.45***		4.06***
		(0.74)		(0.88)		(0.96)		(1.41)
Welfare recipients (%)		-0.46*		-0.82***		-0.56**		0.26
		(0.24)		(0.22)		(0.24)		(0.36)
Polit. pref.: Right (%)		0.30***		0.12***		0.11***		-0.39***
		(0.03)		(0.02)		(0.02)		(0.04)
Polit. pref.: Left (%)		-0.30***		-0.22***		-0.47***		0.28***
		(0.06)		(0.03)		(0.04)		(0.05)
Constant	56.23***	25.03***	55.08***	30.03***	52.65***	32.07***	46.51***	53.65***
	(0.44)	(3.62)	(0.42)	(3.94)	(0.47)	(4.45)	(0.70)	(5.31)
R squared	0.33	0.60	0.13	0.47	0.41	0.67	0.05	0.46
Number of observations	688	627	669	599	664	597	657	594

Notes: Coefficients are based on linear regressions. Significance level: *** = 1%, ** = 5% and * = 10%. Robust standard errors are in parentheses. Independent variable: Approval rates in the municipalities of the bilingual cantons, Berne, Fribourg and Valais. Control factors for model (1) are based on 2010 data (political preferences: 2011). Control factors for other models are based on data from 2000 (political preferences: 1999/1983; income, social security: 2010). Unemployment data are only available for municipalities that did not disappear until 2014 due to mergers, which leads to a lower number of observations in specifications with control variables. Specifications (1b), (2b), (3b) and (4b) include dummies for the cantons.

Table 9: Voting data: Estimation results for bilingual cantons

of welfare recipients have a negative influence and reduce the support for benefit reductions (for the unemployment rate, only the coefficient in the 1997 vote is significant).[22]

The results of the regression on the price control referendum are ambiguous. Without controlling for other factors, a positive coefficient of 2.34 for language is significant at the 5% level. This would mean that the inflation aversion of French-speaking municipalities' inflation aversion appears slightly higher than that of the German-speaking municipalities. Controlling for other factors, the significance diminishes. It is likely that the unclear results stem from inflation aversion being negatively correlated with preferences for regulation. Prediction of how voters with high aversion to inflation as well as regulations would decide on this referendum is difficult. With regard to the control factors, the unemployment rate and left-wing political preferences have a positive significant influence.

Next, the sample of municipalities is limited to those in proximity with the language border. These municipalities are defined according to two criteria. First, they are clearly dominated by one language, with more than 70% of the population speaking the language. Second, they share a border with a different municipality within the same canton that is clearly dominated by a different language. Fifty-nine municipalities in the three cantons of Bern, Fribourg and Valais fulfil these criteria. In 31 of these municipalities, the majority speaks German. Twenty-eight municipalities comprise mainly French-speaking population. Table 10 presents the results of the border municipalities for the four referendums. The results for the referendums also differ between municipalities next to the language border. Table 11 provides summary statistics for different key characteristics of these municipalities.

Referendum	**All border mun.**	**German mun.**	**French mun.**
Reduction in unemployment benefit (2010)	47%	53%	42%
Reduction in unemployment benefit (2002)	52%	53%	50%
Reduction in unemployment benefit (1997)	42%	47%	36%
Price controls (1982)	56%	58%	57%

Notes: Average approval rates in all language border municipalities in the bilingual cantons, Berne, Fribourg and Valais.

Table 10: Voting data: Referendums concerning unemployment and prices (border municipalities)

The results for the three referendums concerning the unemployment benefits are similar to

[22]Multicollinearity is not an issue. No variance inflation factor of the control variables is above 5.

Characteristics	Mean				Stand. dev.	Min	Max
	All mun.	German	French	Diff.			
Number of inhabitants	2449	2224	2699	475	2910	87	16'332
Age ratio (share above 65)	30.5%	32.9%	27.8%	3.5%*	9.5%	6.3%	63.9%
Youth ratio (share below 20)	34.5%	32.7%	36.5%	3.0%	5.5%	23.5%	44.3%
Average income	32'455	31'105	33'950	2845*	5879	22'511	62'318
Unemployment rate	1.3%	1.1%	1.5%	0.32%*	0.65%	0.1%	2.6%
Proportion of welfare recipients	2.3%	1.9%	2.6%	0.52%	2.2%	0%	10.6%
Proportion of foreigners	17.0%	14.3%	20.0%	4.6%	11.1%	3.6%	60.6%
Political preferences: Right wing	37.2%	36.1%	38.5%	2.4%	10.8%	11.4%	58.8%
Political preferences: Centre	36.1%	43.3%	28.1%	15.2%***	16.6%	9.7%	84.7%
Political preferences: Left wing	24.9%	19.2%	31.2%	11.9%***	9.8%	1.1%	42.6%

Notes: Coefficients are based on linear regressions. Significance level: *** = 1%, ** = 5% and * = 10%. All ratios and proportions are indicated as a percentage of the number of inhabitants. Data for 2013 are obtained from the Swiss Statistical Office for 2013. Political preferences as a percentage of voters in the national election of 2011 (right wing: FDP, SVP; centre: CVP, EVP, CSP, GLP, BDP; left wing: SP, Greens, AL).

Table 11: Voting data: Summary statistics for language border municipalities

the results of all municipalities (Table 12). Using control factors, the approval rate is between 8 and 16 percentage points lower in French-speaking than in the German-speaking border municipalities. Without control variables, the coefficients are distinctly smaller (and, in the case of the 2002 referendum, they are no longer significant). The control variables therefore help to highlight the influence of language, as other characteristics of the municipalities (that are correlated with language) lead to contrasting effects in monetary policy preferences.[23]

The coefficients of the control factors are also similar. In addition to the previous results, the youth ratio and the proportion of foreigners have a significant influence for the 2002 and 1997 referendums. A higher proportion of families and foreigners is related to less unemployment aversion. Individuals with children may have been more unemployment-averse because an income loss affects more people. However, having more children may also be connected with some form of conservatism that is not captured with the other control variables but is correlated with scepticism for state interventions.

The results of the regression on the price control referendum are again unclear. Without controlling for other factors, a negative coefficient of 6.7 for language is significant at the 10% level. In other words, the inflation aversion of the German-speaking municipalities seems to be higher than that of the French-speaking municipalities. Controlling for other factors, the significance diminishes.

[23]Table 16 in the appendix provides further specifications that exclude the potentially endogenous variables unemployment rate and political preferences. However, the influence of excluding these factors has no clear pattern in the different referendums.

Independent variables	**Unempl. benef. (10)**		**Unempl. benef. (02)**		**Unempl. benef. (97)**		**Price control (82)**	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
	Coefficients							
French-speaking mun.	-9.50***	-15.70***	-0.73	-9.10***	-8.45***	-16.76***	-6.65*	-0.72
	(2.13)	(3.21)	(2.29)	(2.62)	(2.63)	(2.95)	(3.91)	(3.90)
Inhabitants ('000)		0.03		0.10		-0.04		-0.17
		(0.38)		(0.49)		(0.55)		(0.78)
Age ratio		0.20		0.08		0.31		0.03
		(0.18)		(0.16)		(0.17)		(0.27)
Youth ratio		0.23		0.48**		0.41**		-0.73***
		(0.21)		(0.18)		(0.20)		(0.29)
Prop. of foreigners (%)		0.14		0.51***		0.49***		-0.50**
		(0.14)		(0.15)		(0.16)		(0.23)
Average income ('000)		0.41**		0.41**		0.75***		-1.10***
		(0.17)		(0.23)		(0.25)		(0.36)
Unemployment rate (%)		-0.66		-0.69		-2.75		11.40***
		(2.57)		(2.86)		(3.21)		(4.48)
Welfare recipients (%)		-1.12		-0.69		-0.28		0.50
		(0.64)		(0.64)		(0.71)		(1.00)
Polit. pref.: Right wing (%)		0.44***		0.18**		0.14		-0.21*
		(0.12)		(0.07)		(0.08)		(0.12)
Polit. pref.: Left wing (%)		0.15		-0.17		-0.22		0.22
		(0.20)		(0.15)		(0.17)		(0.19)
Constant	52.58***	9.21	52.03***	-5.90	46.90***	-16.54	56.89***	115.73***
	(1.47)	(13.96)	(1.54)	(16.14)	(1.77)	(18.10)	(2.63)	(23.90)
R squared	0.25	0.66	0.00	0.46	0.16	0.57	0.05	0.57
Number of observations	59	59	55	55	55	55	55	55

Notes: Coefficients are based on linear regressions. Significance level: *** = 1%, ** = 5% and * = 10%. Robust standard errors are in parentheses. Independent variables: Approval rates in all language border municipalities in the bilingual cantons Berne, Fribourg and Valais. Control factors for model (1) are based on 2010 data (political preferences: 2011). Control factors for other models are based on data from 2000 (political preferences: 1999/1983; income, social security: 2010). All models include dummies for the cantons.

Table 12: Voting data: Estimation results for language border municipalities

In summary, while the regression results based on the price control referendums do not provide clear conclusions, those regarding the unemployment referendums are clear. The results based on voting patterns in language border municipalities confirm the cultural differences in monetary policy-related preferences.

Results based on post-vote analyses

To confirm the results derived from municipalities at an individual level, post-vote survey data for the referendums are also used. The so-called Vox analyses offer background data on the relation between how people voted and their background, including the language region and canton. In contrast to the dataset based on voting patterns in municipalities, the data are based on the respondents' answers during telephone interviews and not the actual vote. This affects the credibility because respondents do not have incentives to provide accurate answers. Funk (2016) examined the accuracy of surveyed preferences in post-vote analyses and indicated two major biases: the liberal bias and conformity bias. Topics related to immigration, international

integration and votes involving socio-politically liberal/conservative attitudes are most likely affected. Monetary policy preferences do not fall into these categories. Summary statistics for the relevant variables of the Vox surveys can be found in the appendix.

Unfortunately, no variable for the respondents' language is available. The variable language region is defined as follows: In all cantons outside the bilingual cantons, every respondent in the respective canton originates from the language region that is most commonly spoken. This variable differs within a canton only in the three bilingual cantons. Consequently, in a regression that controls for the cantons, the coefficient of the language region indicates how different language regions within the bilingual cantons differed in their decision. The signs of the coefficient should be in line with the results from the municipalities' voting patterns. Again, the independent variable in the regression is the respondents' decision in the referendum. For each referendum, regressions with and without control variables are run.

Independent variables	**Unempl. benef. (10)**		**Unempl. benef. (02)**		**Unempl. benef. (97)**		**Price control (82)**	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
				Coefficients				
Language region	-0.22***	-0.18***	-0.14**	-0.20***	-0.09	-0.15*	0.28***	0.27***
	(0.41)	(0.05)	(0.06)	(0.08)	(0.06)	(0.08)	(0.09)	(0.09)
Age		0.003***		0.004***		0.002*		0.00
		(0.001)		(0.001)		(0.001)		(0.00)
Gender		0.02		0.02		-0.07		-0.03
		(0.03)		(0.06)		(0.05)		(0.07)
Revenue category		0.02		-0.01		0.03		0.13***
(4b): Living standard		(0.02)		(0.03)		(0.43)		(0.05)
Education level		-0.01		0.00		0.02		0.01
		(0.01)		(0.01)		(0.02)		(0.03)
Trust in government		0.19***		0.15***		0.10**		-0.25***
		(0.03)		(0.05)		(0.05)		(0.08)
Left-right orientation		0.08***		0.04***		0.07***		
		(0.01)		(0.01)		(0.01)		
Pref. for less regulation		0.05***		0.04*		0.06***		
		(0.01)		(0.02)		(0.02)		
Constant	0.39***	-0.38***	0.60***	-0.18***	0.53***	-0.20***	0.71***	0.66
	(0.03)	(0.13)	(0.04)	(0.20)	(0.03)	(0.19)	(0.05)	(0.27)
R squared	0.06	0.27	0.02	0.12	0.02	0.15	0.08	0.22
Number of observations	771	580	508	337	533	359	209	153

Notes: Data are based on Vox surveys. Coefficients are based on linear regressions. Significance level: *** = 1%, ** = 5% and * = 10%. Robust standard errors are in parentheses. All models include dummies for the cantons. Definitions: *Dependent variable*: 1 = Agree with initiative, 0 = Do not agree with initiative; *Language region*: 1 = French/Italian, 0 = German; *Gender*: 1 = Female, 0 = Male; *Revenue categories*: 2 = >9000, 1 = 3000-9000, 0 = 0-3000; *Living standard (4b)*: 4 = High, 1 = Low; *Education level*: 6 = High, 1 = Low; *Trust in government*: 2 = Trust in government, 1 = No trust in government; *Left-right orientation*: 10 = Extreme right, 0 = Extreme left; *Preference for less state intervention*: 4 = Less intervention, 1 = More intervention.

Table 13: Vox surveys: Estimation results

Table 13 provides the results of the linear regressions. For all referendums on the unemployment insurance, the coefficients for the influence of coming from a French-speaking region have

the same sign as in the previous dataset. On average, the chance of agreement with the initiative is between 15 and 20 percentage points lower if a respondent originates from a French-speaking region. The results are more stable over time, as the coefficient for the 2002 referendum is similar to the others. Among the control variables, the left–right orientation and the preferences for less regulation play the same role as in the previous datasets. Trust in the government is related to less unemployment aversion.[24] In addition, older respondents are less unemployment-averse.

Concerning the referendum on the price control, no data are available for the preferences concerning government regulations. Living in a French-speaking region increases the support for the referendum, as in the analysis of all municipalities in bilingual cantons. The results of this referendum remain ambiguous because preferences for less regulation are often related to higher inflation aversion.

5 Conclusion

Based on Swiss datasets, this paper has analysed the determinants of monetary policy preferences. Assuming that language is a proxy for culture, the paper has presented evidence for the role of culture in monetary policy preferences. In contrast to the findings of Hayo (1998) and Ehrmann & Tzamourani (2012), inflation history is not a determinant factor because the different cultures in Switzerland share the same central bank. Similarly, institutions are excluded as an explanation for different preferences (Alesina & Giuliano, 2015) because institutions within the same regional jurisdictions do not differ. Instead, the data confirm the differences in monetary policy preferences among different language regions in Switzerland.

Pujol & Weber (2003) claimed that to say culture is at the root of preferences is like saying that one cannot identify the determinants of people's monetary policy preferences. It is difficult to elaborate on the determinants of culture. However, the results of the present study reveal that the differences in culture influence preferences in relevant economic policy topics. Thus, culture is key to understanding the differing reactions to monetary policy in given economic conditions among countries. Decisions are based on different public preferences, and these preferences are, at least partly, based on different cultural backgrounds.

[24] This variable is not available in the ISSP dataset.

A Alternative specifications

Independent variables	**Inflation aversion**		
	(1)	(2)	(3)
Language			
Latin languages	-0.13***	-0.15***	-0.14***
	(0.054)	(0.053)	(0.080)
Latin language region	0.04	0.06	0.05
	(0.050)	(0.050)	(0.046)
Gender			
Female	-0.13***	-0.14***	-0.15***
	(0.036)	(0.036)	(0.054)
*Language*Gender*			
Latin language & female	0.11**	0.11**	0.09
	(0.058)	(0.058)	(0.054)
Age			
40-60	-0.03	-0.03	-0.02
	(0.030)	(0.030)	(0.028)
>60	0.00	-0.059	-0.04
	(0.041)	(0.053)	(0.050)
Education level			
Compulsory school	-0.05	-0.05	-0.04
	(0.106)	(0.106)	(0.093)
High school/apprenticeship	0.02	0.03	0.05
	(0.101)	(0.101)	(0.088)
University	0.01	0.02	0.05
	(0.103)	(0.104)	(0.92)
Income			
2000–4000	0.03	0.04	0.03
	(0.042)	(0.042)	(0.040)
4000–6000	0.04	0.05	0.05
	(0.043)	(0.043)	(0.041)
6000–8000	0.03	0.03	0.02
	(0.05)	(0.05)	(0.049)
8000+	0.09	0.11*	0.11*
	(0.059)	(0.059)	(0.057)
Employment status			
Not in labour force		0.11*	0.11**
		(0.05)	(0.05)
Unemployed		0.19	0.16
		(0.13)	(0.117)
Left–right orientation			
Right, conservative	0.15***		0.17***
	(0.038)		(0.037)
Economic freedom			
Support of regulations	0.15***	0.14***	
	(0.034)	(0.034)	
Nor	0.02	0.03	
	(0.038)	(0.038)	
Constant	0.30***	0.27***	0.32***
	(0.108)	(0.109)	(0.092)
R squared	0.07	0.06	0.06
Observations	1421	1413	1545

Notes: Data are based on the ISSP 96 survey for Switzerland. Coefficients are based on linear regressions. Significance level: *** = 1%, ** = 5% and * = 10%. Robust standard errors are in parentheses. The independent variable is defined as follows: 1 = Keeping down inflation, 0 = Keeping down unemployment. Reference categories: *Income*: 0-2000; *Employment status*: Employed; *Education level*: None; *Left-right orientation*: Not right, conservative; *Age*: <40; *Economic freedom*: Against regulation.

Table 14: ISSP 96: Estimation results (alternative specifications)

Independent variables	**Unempl. benef. (10)**		**Unempl. benef. (02)**		**Unempl. benef. (97)**		**Price control (82)**	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
				Coefficients				
French-speaking mun.	-11.92***	-11.76***	-7.24***	-5.47***	-15.09***	-12.84***	1.92	-2.41
	(1.00)	(1.14)	(0.75)	(0.87)	(0.79)	(1.04)	(1.16)	(1.55)
Inhabitants ('000)	0.07	-0.04	0.04	0.00	0.10**	0.05**	-0.06	-0.06
	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)	(0.06)	(0.07)	(0.09)
Age ratio	0.09**	0.13**	-0.04	0.01	0.07	0.11	-0.08	-1.56*
	(0.08)	(0.05)	(0.04)	(0.05)	(0.04)	(0.05)	(0.07)	(0.08)
Youth ratio	0.08*	0.08	-0.04	-0.03	0.03	0.04	-0.07	-0.23***
	(0.05)	(0.06)	(0.04)	(0.05)	(0.04)	(0.06)	(0.07)	(0.09)
Prop. of foreigners (%)	0.16***	0.21***	0.23***	0.33***	0.20***	0.36***	0.22	-0.19*
	(0.05)	(0.06)	(0.05)	(0.06)	(0.06)	(0.07)	(0.09)	(0.11)
Average income ('000)	0.38***	0.17***	0.33***	0.21***	0.19***	0.00***	-0.11	-0.05
	(0.05)	(0.05)	(0.05)	(0.49)	(0.05)	(0.06)	(0.07)	(0.09)
Unemployment rate (%)		-0.55		-3.04***		-6.23***		9.56***
		(0.74)		(0.94)		(1.11)		(1.66)
Welfare recipients (%)	-0.53**	-1.48*	-0.73***	-1.35***	-0.65**	-1.45**	0.35	1.88***
	(0.22)	(0.28)	(0.22)	(0.22)	(0.23)	(0.28)	(0.35)	(0.42)
Polit. pref.: Right (%)	0.32***		0.11***		0.12***		-0.43***	
	(0.03)		(0.02)		(0.02)		(0.03)	
Polit. pref.: Left (%)	-0.27***		-0.25***		-0.51***		0.23***	
	(0.06)		(0.03)		(0.04)		(0.05)	
Constant	29.77***	37.37***	55.08***	43.43***	30.02***	43.21***	53.70***	51.75***
	(3.91)	(3.99)	(0.42)	(3.57)	(4.14)	(4.23)	(5.70)	(6.30)
R squared	0.60	0.44	0.13	0.36	0.66	0.54	0.42	0.20
Number of observations	641	627	669	599	664	597	657	594

Notes: Coefficients are based on linear regressions. Significance level: *** = 1%, ** = 5% and * = 10%. Robust standard errors are in parentheses. Independent variable: Approval rates in the municipalities of the bilingual cantons, Berne, Fribourg and Valais. Control factors for model (1) are based on 2010 data (political preferences: 2011). Control factors for other models are based on data from 2000 (political preferences: 1999/1983; income, social security: 2010). Unemployment data are only available for municipalities that did not disappear until 2014 due to mergers, which leads to a lower number of observations in specifications with control variables. All specifications include dummies for the cantons.

Table 15: Voting data: Estimation results for bilingual cantons (alternative specifications)

Independent variables	**Unempl. benef. (10)**		**Unempl. benef. (02)**		**Unempl. benef. (97)**		**Price control (82)**	
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
					Coefficients			
French-speaking mun.	-16.03***	-14.32***	-9.08***	-6.56**	-17.80***	-14.53***	4.14	-0.88
	(2.92)	(2.60)	(2.36)	(2.64)	(2.67)	(2.88)	(3.74)	(3.95)
Inhabitants ('000)	0.01	0.01	0.10	-0.05	0.15	-0.24	0.31	0.14
	(0.37)	(0.41)	(0.47)	(0.51)	(0.53)	(0.55)	(0.80)	(0.76)
Age ratio	0.20	0.45	0.08	0.15	0.32*	0.37**	0.00	-0.21
	(0.18)	(0.19)	(0.15)	(0.16)	(0.17)	(0.18)	(0.28)	(0.24)
Youth ratio	0.24	0.36	0.48***	0.52***	0.45 **	0.45**	-0.91***	-0.79***
	(0.21)	(0.24)	(0.18)	(0.19)	(0.20)	(0.21)	(0.30)	(0.29)
Prop. of foreigners (%)	0.12	0.29*	0.51***	0.53**	0.48***	0.49***	-0.48*	-0.59**
	(0.13)	(0.15)	(0.14)	(0.15)	(0.16)	(0.17)	(0.24)	(0.22)
Average income ('000)	0.41**	0.32	0.41*	0.52**	0.79***	0.85***	-1.28***	-1.26***
	(0.17)	(0.19)	(0.22)	(0.23)	(0.24)	(0.26)	(0.37)	(0.36)
Unemployment rate (%)		0.02		-0.42		-3.08		11.49**
		(2.93)		(3.05)		(3.32)		(4.56)
Welfare recipients (%)	-1.21**	-1.56*	-0.69	-1.03	-0.36	-0.61	0.84	1.00
	(0.52)	(0.71)	(0.62)	(0.66)	(0.70)	(0.73)	(1.05)	(0.99)
Polit. pref.: Right (%)	0.44***		0.17**		0.14*		-0.24***	
	(0.03)		(0.07)		(0.08)		(0.13)	
Polit. pref.: Left (%)	0.15		-0.17		-0.22		0.17	
	(0.20)		(0.15)		(0.17)		(0.20)	
Constant	8.42	10.88	-5.81	4.84	-21.81	-9.90	136.34***	129.33***
	(13.48)	(16.07)	(15.00)	(15.31)	(16.97)	(16.69)	(23.88)	(22.90)
R squared	0.66	0.53	0.35	0.46	0.51	0.56	0.50	0.53
Number of observations	59	59	55	55	55	55	55	55

Notes: Coefficients are based on linear regressions. Significance level: *** = 1%, ** = 5% and * = 10%. Robust standard errors are in parentheses. Independent variable: Approval rates in the municipalities of the bilingual cantons Berne, Fribourg and Valais. Control factors for model (1) are based on 2010 data (political preferences: 2011). Control factors for other models are based on data from 2000 (political preferences: 1999/1983; income, social security: 2010). Unemployment data are only available for municipalities that did not disappear until 2014 due to mergers, which leads to a lower number of observations in specifications with control variables. All specifications include dummies for the cantons.

Table 16: Voting data: Estimation results of language border municipalities (alternative specifications)

B Public referendums

Price controls: 1982

The referendum proposed the following change in the federal constitution:

Initiative: To prevent misuse, the Confederation shall legislate the monitoring of prices of market power companies and organisations, in particular, cartels and cartel-like structures. To the extent of the purpose, such prices may be reduced.

Counterproposal: In case the measures in paragraphs 1 and 2 are not enough, the federal government is authorised to arrange a price monitoring and a reduction in unjustified prices, particularly for cartels and similar organisations. Such measures must be limited and be abrogated once the situation calms.

Unemployment insurance: 1993

The referendum mainly proposed the following changes to the law:

- Increase in the number of eligible days from 300 to 400.
- Increase in the protection for short-time work from 18 to 24 months.
- Increase in the federal contribution rate for employment programs from 50 to 85%.
- Reduction in the daily allowance from 80 to 70% of insured earnings.
- Unemployed may be obliged to take a job, even if the compensation is less than the daily allowance, since the insurance paid a compensation payment in this case.

Unemployment insurance: 1997

The referendum proposed the following changes to the law:

- The daily allowances that exceed CHF 130 shall be reduced by 3%, and daily allowances under CHF 130 shall be reduced by 1%. For persons with maintenance obligations towards their children, the reduction is generally 1%.
- The short-time work compensation is 78% of eligible earnings (previously 80%).

- The reasonableness limit for the adoption of a new job shall be reduced to 68% of insured earnings (previously 70%).
- The Confederation cancels the a-fonds-perdu-contributions to the unemployment insurance.

Unemployment insurance: 2002

The referendum proposed the following changes to the law:

- Confederation and the cantons participate in the unemployment insurance, with contributions of CHF 300 and 100 million annually, respectively.
- The contributions of the social partners decrease from 3 to 2%.
- The solidarity contribution of 2% is cancelled; if the debt of the unemployment insurance is 5 billion or more, a corresponding contribution will be increased to 1%.
- The contribution period for entitlement to unemployment benefit is increased from 6 to 12 months (with exceptions).
- The eligibility period for unemployment benefits will be reduced from 520 to 400 days (with exceptions for certain groups of people). Furthermore, the cantons may (regionally limited) increase the eligibility period under certain circumstances.
- High termination pay (more than CHF 106'800) delays the benefit receipt.
- During illness, pregnancy and after giving birth, the benefit period for unemployed people increases. Entitlement to unemployment benefits after childcare can more easily be claimed.

Unemployment insurance: 2010

The referendum proposed the following changes to the law:

- The contribution rate will be increased from 2.0% to 2.2% of the salary.

- The benefit period is reduced for different groups of people depending on the contribution period.
- Working in labour market measures is no longer insured and, therefore, does not extend the maximum period.
- The waiting time after graduation or after a completed apprenticeship before you can apply for unemployment benefit is increased from 5 days to 4 months.

C Summary statistics Vox surveys

Independent variables	Observations	Mean	Std. dev.	Min	Max
Decision *(0 = No, 1 = Yes)*	771	0.48	0.50	0	1
Language region *(0 = German, 1 = French/Italian)*	1511	0.46	0.49	0	1
Gender *(0 = Male, 1 = Female)*	1511	0.50	0.50	0	1
Age *(linear)*	1511	49.37	17.47	19	91
Income category *(0 = <3000, 1 = 3000–9000, 2 = 9000+)*	1293	1.21	0.82	0	2
Education level *(0 = Low, 6 = High)*	1500	3.75	1.85	1	6
Trust in the government *(0 = Mistrust, 1 = Trust)*	1350	0.52	0.50	0	1
Preference for less state intervention *(0 = More intervention, 4 = Less intervention)*	1501	2.15	1.32	0	4
Left-right orientation *(0 = Left, 10 = Right)*	1350	4.99	2.05	0	10

Notes: Dataset is based on the Vox survey after the public votes on 26 September 2010.

Table 17: Vox survey 'Unemployment insurance (2010)': Summary statistics

Independent variables	Observations	Mean	Std. dev.	Min	Max
Decision *(0 = No, 1 = Yes)*	508	0.54	0.50	0	1
Language region *(0 = German, 1 = French/Italian)*	1007	0.30	0.46	0	1
Gender *(0 = Male, 1 = Female)*	1511	0.50	0.50	0	1
Age *(linear)*	1007	48.92	17.34	18	97
Income category *(0 = <3000, 1 = 3000–9000, 2 = 9000+)*	857	0.82	0.83	0	2
Education level *(0 = Low, 6 = High)*	999	3.14	1.76	1	6
Trust in the government *(0 = Mistrust, 1 = Trust)*	841	0.50	0.50	0	1
Preference for less state intervention *(0 = More intervention, 4 = Less intervention)*	801	2.37	1.32	0	4
Left–right orientation *(0 = Left, 10 = Right)*	1003	4.99	1.74	0	10

Notes: Dataset is based on the Vox survey after the public votes on 24 November 2002.

Table 18: Vox survey 'Unemployment insurance (2002)': Summary statistics

Independent variables	Observations	Mean	Std. dev.	Min	Max
Decision *(0 = No, 1 = Yes)*	533	0.46	0.50	0	1
Language region *(0 = German, 1 = French/Italian)*	1001	0.28	0.45	0	1
Gender *(0 = Male, 1 = Female)*	1001	0.51	0.50	0	1
Age *(linear)*	1001	45.34	16.82	18	84
Income category *(0 = <3000, 1 = 3000–9000, 2 = 9000+)*	912	0.77	0.80	0	2
Education level *(0 = Low, 6 = High)*	991	3.18	1.78	1	6
Trust in the government *(0 = Mistrust, 1 = Trust)*	798	0.42	0.49	0	1
Preference for less state intervention *(0 = More intervention, 4 = Less intervention)*	993	2.75	1.34	0	4
Left-right orientation *(0 = Left, 10 = Right)*	827	4.91	1.76	0	10

Notes: Dataset is based on the Vox survey after the public votes on 28 September 1997.

Table 19: Vox survey 'Unemployment insurance (1997)': Summary statistics

Independent variables	Observations	Mean	Std. dev.	Min	Max
Decision *(0 = No, 1 = Yes)*	317	0.65	0.47	0	1
Language region *(0 = German, 1 = French/Italian)*	704	0.24	0.42	0	1
Gender *(0 = Male, 1 = Female)*	1001	1.51	0.50	0	1
Age *(linear)*	705	46.04	17.34	22	80
Living standard *(1 = Low, 4 = High)*	705	2.71	0.80	1	4
Education level *(0 = Low, 5 = High)*	705	2.24	1.35	1	5
Trust in the government *(0 = Mistrust, 1 = Trust)*	529	0.54	0.50	0	1

Notes: Dataset is based on the Vox survey after the public votes on 28 November 1982.

Table 20: Vox survey 'Unemployment insurance (1982): Summary statistics

References

[1] Alesina, A. (2000). The Political Business Cycle after 25 Years: Comment. *NBER Macroeconomics Annual*, 15: 117-124.

[2] Alesina, A. and N. Fuchs-Schündeln (2007). Goodbye Lenin (or not?): The Effect of Communism on People's Preferences. *American Economic Review*, 97 (4): 1507-1528.

[3] Alesina, A. & P. Giuliano (2015). Culture and Institutions. *Journal of Economic Literature*, 53 (4): 898-944.

[4] Alesina, A. & E. Glaeser (2004). *Fighting Poverty in the US and Europe*, Oxford University Press: Oxford.

[5] Alesina, A. & A. Stella (2010). The Politics of Monetary Policy. NBER Working Paper, 15856.

[6] Bachmann, K. & T. Hens (2016). Is there Swissness in Investment Decision Behavior and Investment Competence? *Financial Markets and Portfolio Management*, 30 (3): 233-275.

[7] Baltensperger, E. (2012). Der Schweizer Franken - Eine Erfolgsgeschichte. NZZ: Zürich.

[8] Barro, R.J. & D.B. Gordon (1983a). A Positive Theory of Monetary Policy in a Natural Rate Model. *Journal of Political Economy*, 91 (4): 589-610.

[9] Barro, R.J. & D.B. Gordon (1983b). Rules, discretion and reputation in a model of monetary policy. *Journal of Monetary Economics*, 12: 101-121.

[10] Blinder, A.S. (1998). *Central Banking in Theory and Practice*. MIT Press: Cambridge.

[11] Bodea, C. & R. Hicks (2015). Price stability and central bank independence: Discipline, Credibility, and Democratic Institutions, *International Organization*, 69 (1): 35-61.

[12] Bütler, M. & A. Ramsden (2016). Increasing risk aversion: the consequences of the financial crisis for retirement behaviour in Switzerland. Working Paper. mimeo, University of St.Gallen.

[13] Brown, M. & H. Stix (2015). The euroization of bank deposits in Eastern Europe. *Economic Policy*, 30 (81): 95-139.

[14] Brown, M., C. Henchoz & T. Spycher (2017). Culture and Financial Literacy. University of St.Gallen Working Papers on Finance, 2017/03.

[15] Capie, F., C. Goodhart & N. Schnadt (1994): The development in central banking. In: Capie, F., C. Goodhart, S. Fischer & N. Schnadt. *The Future of Central Banking - The Tercentenary Symposium of the Bank of England*, Cambridge University Press: Cambridge.

[16] Cukierman, A. (1992). *Central Bank Strategy, Credibility, and Independence: Theory and Evidence*. MIT Press, Cambridge.

[17] Cukierman, A. (2008). Central bank independence and monetary policymaking institutions - Past, present, future. *European Journal of Political Economy*, 24: 722-736.

[18] Dubach, R. (2010). Weniger soll mehr sein: Deutliches Ja zur Kürzung der Arbeitslosengelder und zur Verlängerung der Bezugsdauer. In: Linder, W., C. Bolliger & Y. Rille (eds). *Handbuch der eidgenössischen Volksabstimmungen 1848 bis 2007*, Haupt: Bern.

[19] Easterly, W. & S. Fischer (2001). Inflation and the Poor. *Journal of Money, Credit and Banking*, 33 (2): 160-178.

[20] Ehrmann, M. & P. Tzamourani (2012). Memories of high inflation. *European Journal of Political Economy*, 28 (2): 174-191.

[21] Ehrmann, M., M. Soudan & L. Stracca (2013). Explaining EU Citizens' Trust in the ECB in Normal and Crisis Times. *Scandinavian Journal of Economics*, 115 (3): 781-807.

[22] Eugster, B., R. Lalive, A. Steinhauer & J. Zweimüller (2011). The Demand For Social Insurance: Does Culture Matter? *The Economic Journal*, 121: F413–F448.

[23] Eugster, B. & P. Parchet (2014). Culture and Taxes: Towards Identifying Tax Competition. Cesifo Conference Working Paper.

[24] Farvaque, E. (2002). Political determinants of central bank independence. *Economics Letters*, 77: 131-135.

[25] Fernández, R. (2008). Culture and Economics. In: Durlauf, S. & L. Blume (eds.), *New Palgrave Dictionary of Economics*, Palgrave Macmillan: Basingstoke and New York.

[26] Fernández, R. (2011). Does Culture Matter? In: Benhabib, J., A. Bisin & M. Jackson (eds.), *Handbook of Social Economics, Volume 1A*, Elsevier: Amsterdam.

[27] Funk, P. & C. Gathmann (2015). Gender Gaps in Policy Making: Evidence from Direct Democracy in Switzerland. *Economic Policy*, 30 (81): 141-181.

[28] Funk, P. (2016). How Accurate are Surveyed Preferences for Public Policies? Evidence from a Unique Institutional Setup. *Review of Economics and Statistics*, 98 (3): 455-466.

[29] Guin, B. (2016). Culture and Household Saving. mimeo.

[30] Guiso, L. P. Sapienza & L. Zingales (2006). Does Culture Affect Economic Outcomes? *The Journal of Economic Perspectives*, 20 (2): 23-48.

[31] Hayo, B. (1998). Inflation culture, central bank independence and price stability. *European Journal of Political Economy*, 14: 241-263.

[32] Hayo, B. & E. Neuenkirch (2014). The German public and its trust in the ECB: The Role of knowledge and information search. *Journal of International Money and Finance*, 47: 286-303.

[33] Herrendorf, B. & M. Neumann (1998). The Political Economy of Inflation and Central Bank Independence. CEPR Discussion Paper, 1787.

[34] Hofstede, G. (1980). *Culture's Consequences. International Differences in Work-Related Values*, Sage Publications: Beverly Hills.

[35] ISSP (2000). *ISSP 1996 - Role of Government III - Codebook*, Köln: Zentralarchiv für Empirische Sozialforschung.

[36] Jayadev, A. (2006). Differing preferences between anti-inflation and anti-unemployment policy among the rich and the poor. *Economics Letter*, 91: 67-71.

[37] Jayadev, A. (2008). The class content of preferences towards anti-inflation and anti-unemployment policies. *International Review of Applied Economics*, 22 (2): 161-172.

[38] de Jong, E. (2002). Why are price stability and statutory independence of central banks negatively correlated? The role of culture. *European Journal of Political Economy*, 18: 675-694.

[39] Kaufmann, D. (2015). Nominal Stability and Swiss Monetary Regimes over two Centuries. KOF Working Papers, 379.

[40] Kydland, F.E. & E.C. Prescott (1977). Rules Rather than Discretion: The Inconsistency of Optimal Plans. *Journal of Political Economy*, 85 (3): 473-492.

[41] van Lelyveld, I. (1999). Inflation or unemployment? Who cares? *European Journal of Political Economy*, 15: 463-484.

[42] Lippi, F. & O.H. Swank (1999). Rational Voters, Elections, and Central Banks: Do Representative Democracies Need Nonrepresentative Institutions? *The Journal of Policy Modeling*, 21 (4): 515-525.

[43] Lüdi, G. & I. Werlen (2005). *Sprachenlandschaft in der Schweiz, Eidgenössische Volkszählung 2000*. Bundesamt für Statistik: Neuchatel.

[44] Luttmer, E.F. & M. Singhal (2011). Culture, context, and the taste for redistribution. *American Journal of Ecomomics: Economy Policy*, 3 (1): 157-159.

[45] Malmendier, U. & S. Nagel (2011). Depression Babies: Do Macroeconomic Experiences Affect Risk Taking? *Quarterly Journal of Economics*, 126 (1): 373-416.

[46] Matsusaka, J.G. (2005). Direct Democracy Works. *Journal of Economic Perspectives*, 19 (2): 185-206.

[47] McCallum, B.T. (1995). Two Fallacies Concerning Central-Bank Independence. *The Amercian Economic Review*, 85 (2): 207-211.

[48] McCallum, B.T. (1997). Crucial issues concerning central bank independence. *Journal of Monetary Economics*, 39 (1): 99-112.

[49] Menzi, B. (2010). Die Preisüberwachung entgeht der Doppel-Nein-Falle. In: Linder, W., C. Bolliger & Y. Rille (eds). *Handbuch der eidgenössischen Volksabstimmungen 1848 bis 2007*, Haupt: Bern.

[50] Minford, P. (1995). Time-Inconsistency, Democracy, and Optimal Contingent Rules. *Oxford Economic Papers*, 47 (2): 195-210.

[51] Moser, P. (1999). Checks and balances, and the supply of central bank independence. *European Economic Review*, 43: 1559-1593.

[52] Pujol, F. & L. Weber (2003). Are preferences for fiscal discipline endogenous? *Public Choice*, 114: 421-444.

[53] Rogoff, K. (1985). The Optimal Degree of Commitment to an Intermediate Monetary Target. *The Quarterly Journal of Economics*, 100 (4): 1169-1189.

[54] Scheve, K. (2004). Public Inflation Aversion and the Political Economy of Macroeconomic Policymaking. *International Organization*, 58: 1-34.

[55] Spolaore, E. & R. Wacziarg (2016). Ancestry, Language and Culture. In: Ginsburgh V. & S. Weber (eds.). *The Palgrave Handbook of Economics and Language*, 174-211.

[56] Stasavage, D. & P. Keefer (2003). The Limit of Delegation: Veto Players, Central Bank Independence and the Credibility of Monetary Policy. *American Political Science Review*, 93 (3): 407-423.

[57] Taylor, J.B. (1993). Discretion versus policy rules in practice. *Carnegie-Rochester Conference Series on Public Policy*, 39: 195-214.

[58] Tootell, G.M.B. (1999). Whose monetary policy is it anyway? *Journal of Monetary Economics*, 43: 217-235.

[59] Walsh, C.E. (1995). Optimal Contracts for Central Bankers. *The American Economic Review*, 85 (1): 150-167.

List of Figures

List of Tables

Recent SNB Working Papers

2018-2 Adriel Jost:
Cultural Differences in Monetary Policy Preferences

2018-1 Reto Foellmi, Adrian Jaeggi and Rina Rosenblatt-Wisch:
Loss Aversion at the Aggregate Level Across Countries and its Relation to Economic Fundamentals

2017-18 Gregor Bäurle, Sarah M. Lein and Elizabeth Steiner:
Employment Adjustment and Financial Constraints – Evidence from Firm-level Data

2017-17 Thomas Lustenberger and Enzo Rossi:
The Social Value of Information:
A Test of a Beauty and Non-Beauty Contest

2017-16 Aleksander Berentsen and Benjamin Müller:
A Tale of Fire-Sales and Liquidity Hoarding

2017-15 Adriel Jost:
Is Monetary Policy Too Complex for the Public?
Evidence from the UK

2017-14 David R. Haab, Thomas Nitschka:
Predicting returns on asset markets of a small, open economy and the influence of global risks

2017-13 Mathieu Grobéty:
Government Debt and Growth: The Role of Liquidity

2017-12 Thomas Lustenberger and Enzo Rossi:
Does Central Bank Transparency and Communication Affect Financial and Macroeconomic Forecasts?

2017-11 Andreas M. Fischer, Rafael Greminger and Christian Grisse: Portfolio rebalancing in times of stress

2017-10 Christian Grisse and Silvio Schumacher: The response of long-term yields to negative interest rates: evidence from Switzerland

2017-9 Petra Gerlach-Kristen, Richhild Moessner and Rina Rosenblatt-Wisch: Computing long-term market inflation expectations for countries without inflation expectation markets

2017-8 Alain Galli: Which indicators matter? Analyzing the Swiss business cycle using a large-scale mixed-frequency dynamic factor model

2017-7 Gregor Bäurle, Matthias Gubler and Diego R. Känzig:
International inflation spillovers - the role of different shocks

2017-6 Lucas Marc Fuhrer: Liquidity in the Repo Market

2017-5 Christian Grisse, Signe Krogstrup and Silvio Schumacher: Lower bound beliefs and long-term interest rates

2017-4 Toni Beutler, Robert Bichsel, Adrian Bruhin and Jayson Danton: The Impact of Interest Rate Risk on Bank Lending

2017-3 Raphael A. Auer, Andrei A. Levchenko and Philip Sauré:
International Inflation Spillovers Through Input Linkages

2017-2 Alain Galli, Christian Hepenstrick and Rolf Scheufele:
Mixed-frequency models for tracking short-term economic developments in Switzerland

2017-1 Matthias Gubler and Christoph Sax:
The Balassa-Samuelson Effect Reversed:
New Evidence from OECD Countries