An exogenous shock to culture, and its causal effect on Preferences for Redistribution and Government Intervention: Empirical Evidence from a Quasi-Experiment[1][2]

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Abstract

We exploit a Quasi-Experiment in Western Switzerland, where in the 16th century within a small homogeneous region one half, our treatment group, had the Protestant religion imposed against its will, and the other half, our control group, was obliged to remain Catholic. We show that this led to different preferences for redistribution and government intervention in the economy that have persisted until today. This by itself is remarkable in view of the many other events that have also occurred in the meantime. Furthermore, we show that these different preferences are in turn associated with different policies today. Our findings demonstate that an exogenous shock to preferences can place an economy in a different and long-persistent equilibrium. They also contribute to explaining why different countries have chosen different types of welfare state, and suggest that this may to some extent be optimal in that the same set of policies does not cater equally well to the preferences in all countries.

Key words: Preferences-for-Redistribution, government intervention, culture and economics, quasi-experiment

1 Introduction

Why do countries differ so persistently in the extent to which governments intervene in the market, both before surplus is realized, and afterwards by redistributing it? Can these differences be explained by economic factors alone, or do we need to look also at political preferences? In particular, might factors commonly denoted as "culture" play a role?

These questions are inherently difficult to answer, because such factors, if at all relevant, are likely to interact with political institutions and the economy, and their causal impact is therefore hard to isolate empirically. This is particularly true in a cross-country context, where cultural differences are bundled with many other differences, for instance in endowments, formal political institutions, or history. Therefore our first step was to focus on one particular cultural factor, religion, and restrict our analysis to the within-country context of Switzerland, in which some regions have historically been Catholic and others Protestant[1].

But even within Switzerland, the mere observation of some correlation between political preferences and religion is not sufficient to establish causality. For, even if most present-day inhabitants inherit their religion from their ancestors – and we show indeed that until today the most important explanatory factor of a municipality's religious composition is its historical religion–, the municipality's initial choice, made in the 16th century, may have been endogenous to some unobserved factor that affects political preferences today also through some other channel. One such factor that, as we shall see, might have been relevant in the Swiss case, was geography, which influenced the choice set of economic activities and thereby the economic reliance upon mercenary, an important income source for 16th century Swiss municipalities, and in particular for those in the more mountainous regions. Since the Reformers however demanded that people give up any mercenary, and since geography may via economic endowments also have influenced political preferences today through some channel other than religion, geography is a possible omitted variable. And it is not clear whether we can control for all factors 16th century geography involves. But if we cannot, then the observed correlation would at least partially be a spurious one, and we could not refute the Marxist view, whereby culture is merely a reflection of underlying economic variables, rather than an independent cause of economic behaviour. To solve this problem, we require a quasi-experiment, in which the assignment of religion can plausibly be considered as ignorable with respect to any other factors likely to impact political preferences today.

The experiment we are exploiting consists of the imposition, from the early 16th century on, of Reformed Protestantism on one region and that of Catholicism on the neighbouring one. Given that, as we shall show, the two regions can otherwise be considered identical in terms of endowments, political institutions, and other possibly relevant cultural factors, we have meaningful treatment and control groups, allowing us to interpret the resulting differences in preferences and outcomes today as a causal effect.

To measure political preferences, we use Swiss country-wide referenda, and the decentralized Swiss tax system allows for significant heterogeneity of marginal income tax rates across municipalities, which provide a measure of outcomes. The collective choice of redistributive schemes can be thought to follow lines that can roughly be described by an extension of the standard Meltzer-Richards model of redistribution. This is

[1] In all of the following, the term "Protestantism" refers to the Reformed or Calvinist-Puritan variant that was born in Switzerland and that would later become influential in such countries as England or the United States. The reader should be aware that on the dimensions we are interested in, it differs significantly from the Lutheran variant of Protestantism that was started in Germany and would later spread for instance to most of Scandinavia.

particularly so because the political institutions of Switzerland, with their many elements of direct democracy, come unusually close to the social choice mechanism of "Pure Majority Voting" typically assumed in the political economy literature

To trace out a channel through which the imposition of different religions in the 16th century has affected present-day policies, we proceed in three steps: We show first how different assignments of religion in the 16th century have led to different religious compositions of the population today. Second, we demonstrate how this religious composition has shaped different attitudes today, as measured by voting patterns in country-wide referenda. Given our argument about "ignorability" of the assignment mechanism with respect to other possible determinants of political preferences today, we can show a causal effect by *instrumenting* the religious composition today with the assignment of religions in the 16th century. Thirdly, we explore the relationship between these attitudes and actual variation in the progressiveness of taxation across municipalities today. While for redistribution *after* market outcomes we have both a measure of attitudes and one of policies varying across municipalities, an analogue of the latter measure for intervention in the market *before* or during its operation could not be found, so for *this issue* we conduct only steps 1 and 2.

Consistent with the structural political-economy model, but without depending on it, we find that Reformed Protestantism, which after its development in Switzerland spread to such countries as England or the United States, tends to foster relatively more confidence in the market, or relatively less confidence in the government, and weaker preferences for government-led redistribution (henceforth just PfR) than Roman Catholicism. In particular, depending on the measure, our estimates predict support for redistribution to lie between 7 and 12 percentage points lower, and support for government intervention in the market between 18 to 26 percentage points lower in a fully Protestant municipality than in a fully Catholic one (for details, see Table 2b). Given that before accounting for religion the referenda on these policies tend to have support levels fairly close to 50%, such differences can clearly be pivotal for which policies a region or country ends up with.

These findings are consistent with those previously obtained, mainly within sociology, but the authors of which have to our knowledge so far not been able to show empirically that the links they investigate are actually causal. Amongst the arguments often mentioned for the existence of such a link between religion and political preferences are not least different views on the sources of poverty: Whereas Catholicism has tended to consider it as an exogenous accident and demanded individuals to assist each other to cure it, in Reformed Protestantism the poor are more likely suspected to either not have been pre-destined by God, or have been too lazy[2]. While the latter view still leaves much room for private charity, it does not make the poor entitled to it. Furthermore, Reformed Protestantism has traditionally been perceived as placing greater emphasis on individualism and promoting greater skepticism against the government. Given then that at least formally religion is a very persistent factor, passed on across many generations, one might think that there could still be an effect even many generations after the initial determination of religions. At the same time, it is not obvious whether preferences that were initially transmitted through religions persist also in times of strong secularization, as has occurred in recent decades. Only an empirical analysis can tell, and ours does.

Our finding on a cultural origins of heterogeneity in political preferences bears important implications

[2] The same difference in beliefs about the sources of poverty has been found by Alesina and Glaeser (2004) to exist between the US and the average European country, and to be correlated with views about redistribution.

for economists' and policy-makers' thinking about changes in their countries' welfare states: ultimately, it suggests that not the same types of economic system and welfare state need be optimal for all countries, not even after accounting for differences in the standard economic variables.

The article draws upon three different literatures in economics. Methodologically, we rely first upon the Impact Evaluation literature to help us understand the requirements for causal inference. The respective considerations will be pointed out for our specific context in section 4 below, but a more general overview can be found in Angrist et al (1996). At the same time, we draw upon previous work seeking to capture the impact of cultural parameters on economic behaviour and outcomes. And finally, for the structural model which we need to have in mind at least implicitly to assess the validity of respectively the treatment and control group of our experiment, we draw upon the Political Economy literature on redistribution. The remainder of this paragraph provides a brief overview over previous articles related to ours.

For the analysis of culture, we draw a lot on Guiso et al (2006), who summarize the progress economists have made only very recently in analyzing the impact of culture on economics, and who make two useful methodological suggestions. The first is the definition of culture as "those customary *beliefs and values* that ethnic, religious, and social *groups transmit fairly unchanged* from generation to generation" [italics are ours]. This definition facilitates the introduction of culture into the classical economic optimization framework in the form of preferences, expectations or constraints, and also already reduces somewhat the scope for confounding factors and reverse causality, by focusing attention on largely time-invariant factors. It thus excludes for instance such aspects of government intervention that evolved rather spontaneously in response to the recent financial crisis. To the same end, they propose that, rather than just looking at reduced-form equations exploring the relationship between the cultural factor of interest and the economic outcome, one explore each step in the hypothesized channel separately, a suggestion we shall follow also in the present article.

As their paper makes clear, the majority of the literature on the effect of culture to this day has focused on its effects on economic growth and thus the "total size of the cake", whereas only very few papers have examined the effect on its distribution[3], in particular on the empirical side. One is Alesina and Glaeser (2004), who show that different sizes of welfare state between the US and the average European country are related to different beliefs about prospects of upward mobility, an idea that has also been explored in a number of theoretical papers, including Benabou and Tirole (2006) and Alesina and Angeletos (2005). The idea of mutual re-enforcement of beliefs and actual policies allows for the existence of multiple equilibria and thus helps to explain why different types of welfare state are so persistent, although this alone cannot explain what put countries into those different equilibria in the first place.

A wide range of possible determinants of PfR, from standard economic variables like income to cultural factors like religion, is explored in Alesina and Giuliano (2008), using survey data from America's General Social Survey (GSS). We shall come back to their results, by way of comparison, when presenting ours below. A closer focus on culture as determinant of PfR is to be found in Luttmer and Singhal (2008), who seek to establish causality by what Fernandez (2007) calls the "Epidemiological Approach": By analyzing the attitudes of immigrants within Europe from different countries of origin but who now live in the same

[3] Total size and distribution of economic payoffs are of course related, not least through the opportunities and incentives different distributional outcomes provide for the investment of capital and labour.

country of residence, they can get variation in culture, while keeping formal institutions and the markets fixed. The fact that they find attitudes to remain correlated with those in the country of origin into the second generation after immigration makes it unlikely that this is merely the result of slow updating of beliefs about the functioning of markets and formal political institutions. While strictly speaking this method allows to estimate only the Local Average Treatment Effect for those who migrate, it provides a sensible lower bound estimate for the whole population, as one would expect the idiosyncratic effect of culture to be stronger for those who stay in their country of birth.

Methodologically closest to our experiment is Alesina and Fuchs-Schuendeln (2007), who exploit the natural experiment provided by German separation and reunification to show the effect on preferences for government intervention and redistribution of having lived under the Communist regime of East Germany. The results may be interpreted as reflecting the feedback from redistributive and interventionist policies to preferences therefor, although the crucial determinant might as well be the indoctrination of the East German regime. Either way, the causal factor in their experiment is some component of East German formal institutions.

Finally, there are two papers related to ours methodologically, albeit investigating different outcomes. Becker and Woessmann (2009), by instrumenting the spread of Lutheran-Protestant thought by distance from Luther's residence city Wittenberg, show how this thought affected economic prosperity in 19th century Prussia by promoting different education policies. Bruegger et al (2008), by exploiting a discontinuity in work ethic at the language frontier, show that in Switzerland regional differences in unemployment can at least partly be explained by differences in work norms.

This article proceeds as follows. Section 2 presents some theory for thinking about redistribution and government intervention, first a generalization of the Meltzer-Richards political-economy model of redistribution, and then some hypotheses – mainly from the other social sciences – on the role we would expect religion to play within this framework. Section 3 then introduces the Swiss context and the data we use. Having thus laid the ground, we then come to the core of our paper in sections 4 and 5, in which we explain the setup of our experiment and then present our main results. Section 6 gives an indication of the external validity of our experiment by demonstrating that qualitatively the same results hold true for the whole of Switzerland, and explores possible Nonlinearities in the Marginal Effect of Protestantism. Section 7 concludes.

2 Theory

In this section, we first outline a formal model of people's vote for or against more redistribution, which we obtain as a generalization of the standard Meltzer-Richards political-economy model of redistribution. The extension we use introduces a political preference parameter, which may possibly be shared by all those who have been exposed to the same transmission mechanism, such as a common religion. Following that, we outline some predictions – both for Preferences-for-Redistribution (PfR) and for Preferences-for-Intervention (PfI), and both of which are based mainly on work in the other social sciences – about how these preferences should be influenced specifically by respectively Catholicism and Reformed Protestantism.

2.1 A Model of Redistribution, generalized to allow for Political Preferences

Here we build on the standard political-economy model of redistribution, as popularized by Meltzer and Richard (1981). It can easily be extended to allow for the possibility of political preferences. The framework is general enough to encompass simultaneously all kinds of redistribution of payoffs, be it by income or wealth, by employment status, by age, or by health. For concreteness, the following exposition considers the example of unemployment insurance. We first derive purely self-regarding individual choices of redistribution, then we demonstrate how these change when we allow for the existence of (possibly culturally transmitted) political preferences. It is important to note that within an economic optimization framework, the existence of such preferences does by no means make individual choice depend deterministically on political preferences alone, as the latter may in equilibrium be traded off against the individual's purely self-regarding interests.

Consider then a decision framework with two periods, $t = 1, 2$. In $t = 2$, each citizen i will be hit by an accident, such as unemployment, with a total utility cost[4] of y, with idiosyncratic probability p_i. With the p_i distributed across the population according to probability density function $f(p)$, this implies that overall a fraction $\rho \equiv \int pf(p)dp$ will be hit. In view of this, in $t = 1$ citizens vote on implementing a benefit scheme that would fully cover the implied losses. To maintain a balanced budget, this requires a contribution amounting to share $x \in [0, 1]$ of each individual's income w_i, distributed across the population according to probability density function $f(w)$ such that $\int f(w)wxdw = \rho y$.[5] Individuals therefore differ on two dimensions, namely their income w_i and their accident probability p_i, where the latter will aggregate a whole vector of individual characteristics such as occupation, employment sector or education, which however can for the present purpose all be collapsed into the scalar p_i. Then under the traditional Meltzer-Richards paradigm of purely self-regarding preferences, and with von Neumann-Morgenstern expected utility, the ex-ante (i.e. expected) net payoff of the scheme to individual i is given by $b_i = u[(1 - x)w_i]\} - \{p_i u(w_i - y) + (1 - p_i)u(w_i)\}$, where $u(.)$ satisfies the standard neoclassical properties. Note that so far this is no more than an insurance scheme, albeit an obligatory one, as empirically tends to be the case in OECD economies for accidents like unemployment, and which can be rationalized as a response to problems of Adverse Selection.[6][7] It is also worth noting that, while p_i will depend on a whole vector of individual characteristics, all individual heterogeneity is nonetheless summarized on a single dimension by the "Intermediate Preferences" b_i, such that *i will want the scheme if and only if* $b_i \geq 0$.

We shall now consider a generalization of the previous preferences, by allowing for the possibility that individuals exhibit some nonzero degree of altruism, so that they experience additional utility z_i from knowing that those hit by accidents will be compensated, and where furthermore this preference may vary systematically with the transmission mechanism individuals have been exposed to. If so, the true utility function would be: $U_i(S, w_i, p_i) = b_i(S; w_i, p_i) + z_i(S)$,[8] where S is an indicator variable taking the value 1 if the

[4] This may be purely monetary, or also psychic, but in any case can be fully compensated through sufficiently high monetary transfers.

[5] In practice, most such schemes are financed through more or less progressive taxation, implying that e.g. oldage benefits combine redistribution by age with redistribution by income.

[6] In practice, i's net benefit will also depend on the distribution of other, correlated and not fully insured risks. In the above formula this should show up in individual-specific u(.). Here, following Persson and Tabellini (2000) , we abstract from this.

[7] Further, we assume that i is either affected or not, but not to different degrees, and the scheme will provide full coverage or none. If, more realistically, damage and/or benefits depend on previous income, high-earners just gain relatively more from the scheme, making it less progressive, without however qualitatively changing the analysis.

[8] We follow Tabellini (2000) in assuming z(.) to be independent from the self-regarding payoff b(.).

scheme is implemented and 0 otherwise. This then changes the above prediction into the following: *i will want the scheme if and only if* $b_i + \mathbf{z}_i \geq 0$.

This specification captures the Meltzer-Richards paradigm as the special case in which $z = 0 \; \forall i$. More interesting than just assuming some nonzero value for $z(.)$ is seeking to identify it empirically. However, the mere finding of remaining group-specific variation in voting after controlling for a range of other factors does not prove existence of such other-regarding preferences, even if such a residual can be shown to be correlated with a plausible transmission mechanism for such preferences, because we might still just be looking at the effect of some omitted variable. Our quasi-experiment however enables us to show that such political preferences do exist, and that they differ with the cultural transmission mechanism individuals have been exposed to.

2.2 Political Preferences and Religion

Here we look at existing work in sociology and political science, as well as at analyses of the social teachings of the different Christian confessions, to derive testable hypotheses about the relationships between the two confessions and present-day political preferences about respectively redistribution and government intervention in the market. One of the best-known comparative analyses of the welfare state is Esping-Andersen's "Three Worlds of Welfare Capitalism" (1990), in which he contrasts the "Liberal" (i.e. minimum) type of welfare state, said characteristic of the Anglo-Saxon countries, with two larger types of welfare state, namely the "Social-Democratic" or "Universal" one typically found in the Scandinavian countries and the "Conservative" one found in much of Continental Europe. Manow (2004) then links these three types to the influence of respectively Reformed Protestant, Lutheran and Catholic social teaching, analyzing in more detail all three dogmas, while also pointing out the huge within-confession variation[9]. Manow's and related works distinguish three stylized types of Christian doctrine on how to deal with individuals in need. Firstly, the Catholic one which has since the Middle Ages seen poverty as a largely exogenous phenomenon, such that solidarity with the disadvantaged would largely be seen as an essential requirement for salvation[10]. Secondly, there is the Lutheran one, where salvation depended only on beliefs and not on deeds, but nonetheless affluence would still imply a moral obligation to help the less affluent (including through state-organized investment in jobs and education). And thirdly, there is the Calvinist-Puritan ("Reformed-Protestant") ethic, where salvation was seen as pre-determined by God, and so was individual economic affluence, which served merely as a sign of being chosen — with the implication that individuals might still privately help others, but were much less obliged to do so, and certainly not in a way organized by the state. More generally, Greeley (1989) finds Catholics to place a greater emphasis on communitarian values like solidarity, based on the fact that they have traditionally tended to see society as sacramental and revelatory of God, whereas Reformed Protestants tended to see it more like standing in the way between the individual and God[11]. In

[9] His list of qualifications includes a further distinction between Northern and Southern Continental European states, which is particularly relevant for comparative cross-country analysis, but less so for our study, given our exclusive focus on Switzerland.

[10] Key documents of Catholic Social Theory include the papal encyclicals "Rerum Novarum" (1891) and "Quadrogesimo Anno" (1931), as well as Nell-Breuning (1980). The former, as a response to the "Social Question", opened a way for Catholics to fight poverty and the suppression of workers, without having to identify with classic Socialism, when Protestants would have to choose between classical liberalism and socialism.

[11] Catholic more communitarian preferences have also, in the eyes of some observers, for a while been working hand in hand with a Catholic fondness for European integration. Thus Kenneth Younger, a senior adviser to British Prime Minister Bevin, noted in his diary entry for May 14th, 1950 – five days after learning of the Schuman Plan – that European integration might

a similar vein, Swanson (1967) shows that Catholics tend to identify more with the state, when Reformed Protestants see it more as an arena for individual fight. Interestingly, both Greeley and Castles, the latter of whom confirms Esping-Andersen's finding of larger welfare states in Catholic countries, find such differences to persist until today and find value differences to be as pronounced amongst respectively younger and more educated cohorts as amongst respectively older and less educated ones. In the same vein, Schmitt (1984) discovers that, despite a decline in explicit religious practices, confessional voting patterns in Germany have not declined between 1953 and 1983. To summarize, existing analysis of the two confessions' social teachings and existing cross-country studies provide us with a clear hypothesis:

Conjecture 1 *In municipalities characterized by a strong influence of Reformed Protestantism, we expect to find lower Preferences for Redistribution, i.e. in terms of our analytical framework a lower value for z, than in those with a dominance of Catholic influence.*

In a similar vein, Swanson's findings whereby Catholics tend to identify more with the state and are less individualist, would suggest that Catholics should ceteris paribus be more and Protestants less in favour of government intervention in the market This is also what we would expect after Max Weber's (1905) classic analysis of the relationship between more market-oriented individual preferences and the development of capitalism. We thus hypothesize that:

Conjecture 2 *In municipalities characterized by a strong influence of Reformed Protestantism, we expect to find less support for government intervention in the market than in those with a dominance of Catholic influence.*

Let us then proceed with introducing the Swiss context in which we have conducted our investigation.

3 The Swiss Context and our Data

3.1 Swiss Direct Democracy: Referenda provide a Measure of Preferences

The Swiss system of Direct Democracy is one of the rare cases that come close to the paradigm of "Pure Majority Rule" (Persson and Tabellini 2000) typically assumed in Political Economy models. First, rather than only electing representatives who then chose policies, citizens vote directly on specific policy proposals and every citizen has one vote. Second, we chose only referenda in which citizens' choice set comprised only two alternatives, for or against, thus excluding the possibility of Strategic Voting. Since furthermore Swiss voters participate in referenda rather frequently (more than 50% of all referenda held worldwide take place in Switzerland) and each is preceded by a thorough discussion of the issues at stake in the national and local media, voters can be considered to be truly voting on the issue under consideration, rather than using referenda for instance to express their general level of satisfaction with the present government, as sometimes happens in referenda held in other countries. And third, the setup can validly be considered as one with "Open Agenda", given that in Switzerland many issues must by constitution automatically be submitted for referendum, and any other issue can be and frequently is demanded by citizens to be submitted for referendum. The resulting data, which for all referenda held after 1980 are available for each of the 2600

"be just a step in the consolidation of the Catholic 'black international' which [he had] always thought to be a big driving force behind the Council of Europe." (Quoted in Judt 2005)

municipalities of Switzerland and in particular for all 532 municipalities in the region of our experiment, provide a measure of preferences in the spirit of the Paradigm of Revealed Preferences, a measure that may be seen as more meaningful than those obtained from mere survey data.

Data at municipality level are available for all referenda held after 1980. From this set, we have chosen all those that fulfilled three criteria. Firstly, we wanted referenda that proposed a change in the amount of redistribution in the spirit of our analytical framework laid out above or in the amount of government intervention in the market. Secondly, we wanted the referendum to either propose one specific change rather than a full set thereof, or at least to make a set of proposals that could be considered as all being in the same spirit. This required us for instance to exclude a referendum from 1993 which, in order to fight shortages of funding for unemployment insurance, proposed at the same time to increase the duration for which the unemployed could receive benefits but cut the size thereof. This referendum was hard to classify unambiguously as implying more or less redistribution toward the unemployed. We also excluded referenda in which a redistributive issue was mixed with some other issue, as in the case of a 2002 referendum on cutting benefits for asylum seekers. Here we considered it difficult to determine to what extent voting patterns expressed PfR or solidarity and to what extent they expressed attitudes toward foreigners from specific countries. Thirdly, to exclude the possibility of strategic voting, we have excluded cases in which two referenda were connected, thus allowing voters to choose between a total of four alternatives (accept both, reject both, accept only the first, or accept only the second). This constellation occurs sometimes when the government, in response to a popular initiative it considers as too extreme, makes an alternative proposal which will typically make a similar but less extreme proposal, and in which case voters are asked to vote on both at the same time. It also occurred for instance in 2004, when one referendum proposed to counter budget deficits in the pension system by either increases in the VAT (which was then voted on in a separate referendum) or, if these were rejected, by cuts in the benefits. In such constellations, some citizens might have seen a need to vote strategically, even when, from a game-theoretic point of view, they would rationally not have needed to. Therefore we have excluded those referenda and for the work in this article used only those for which it seemed sufficiently clear which voting behaviour could be considered to express what kind of preferences. We have however run the same regressions also for a wider set of referenda, including those mentioned above, and obtained qualitatively the same results.

This said, let us then provide a brief description of the specific referenda the procedure described above left us with, while noting that summary tables with all official titles in German and again with the contents is also provided in the appendix. The first, which we have denoted poor1992, had citizens vote on whether to lower health insurance contributions for the poor. It thus provides a measure of solidarity on the basis of income. Second, we used av1997, which dealt with cuts in unemployment benefits ("Arbeitslosen-Versicherung") and thus with solidarity with the unemployed. Third, we used ahv1995, which dealt with old-age, widow and handicapped benefits. These are in Switzerland organized through three "columns", where the first one is obligatory for all citizens and provides the most basic layer of benefits, the second is obligatory for all members of the labour force and adds to the first column, and the third consists of optional private insurance to fill any remaining gaps. ahv1995 was about the two schemes that make up the first column, "Alters- und Hinterbliebenen-Versicherung" (AHV) and "Invaliden-Versicherung" (IV), both of which are obligatory and mainly financed through direct income-dependent contributions, although some 20% are currently financed through taxes, in particular VAT. As both schemes are pay-as-you-go, i.e. the current young and healthy finance the living of the current old and disabled, they imply redistribution by age and

ability to work. At the same time, given that contributions are income-dependent, the scheme also has an element of redistribution from high- to low-earners. Taking this scheme as the status quo, ahv1995, which was initiated by the Social Democratic Party and trade unions, proposed to expand coverage of obligatory insurance to areas previously covered only by optional insurance. Finally, we used iv2007, which proposed to solve funding shortages in the disability benefit scheme by cutting benefits for the disabled, as opposed to raising the required level of contributions. In addition, we used 4 referenda on government intervention in the market. Consumerprotect1981 suggested that firms were inherently tempted to abuse the market at the cost of consumers and hence asked the government to intervene. Tenantprotect1986 focused more specifically on the market for housing, asking the government to prevent the charging of excessive rents. Farmprotect1998, suggesting that the market for agricultural products could, if left to itself, neither provide sufficient quality nor fair prices to consumers, demanded that the government step in and pay subsidies for ecological farming. Finally, rentprotect2003 in a spirit similar to that of tenantprotect1986, proposed to regulate more strongly how and which rent rates can be charged. For our main analyses, we have then for both issues generated two summary measures, namely firstly the simple average of each set of four referenda, and secondly the first principal component of them. The latter measure tends to yield larger coefficients, as it filters out any components not common to all referenda on an issue, but the reader might also find it less straightforward to interpret, so we display always the results from both measures. Furthermore, the individual results for each of the eight referenda are provided in the appendix. All referenda data are available from the Political Atlas of Switzerland

3.2 Different tax rates across municipalities as final outcome

The political system of Switzerland is remarkable not only for its many elements of direct democracy, but also for its high degree of cantonal and even municipal autonomy, under which the marginal rate of income tax for a given marital status and income differs not only across the 26 cantons, but even across the municipalities therein. The main informational brochure for Swiss citizens, "Das Schweizerische Steuersystem" (2005) explains this characteristic explicitly with the great cultural heterogeneity within the country.[12]. Under this system, beyond the common taxes raised by the federation, additional taxes are raised by both cantons and municipalities, according to the following system: Each of the 26 cantons typically chooses a "Steuersatz" (tax rate), which must be regulated by law and therefore must typically be submitted to the canton's citizens in a referendum. Following that, each municipality can choose a "Steuerfuss", a factor by which the product of basic tax rate and a citizen's income is multiplied in order to compute the effective tax rate she must pay. While the latter is typically chosen by the municipal assembly or parliament, citizens can and often do oppose any choices which they deem not reflecting the majority view by calling a referendum, so that final choices can plausibly be regarded as a majority choice. Then within each municipality marginal tax rates vary also, as in many countries, across income brackets and family status. While degressive taxation has been declared unconstitutional for all of Switzerland, the degree to which the tax system is progressive varies significantly across municipalities. Since total tax duties do thus arise from the interaction of parameter choices at different levels, a comparable measure of the progressiveness of each municipality's tax system cannot be

[12] "A reduced autonomy of the members of the Federation [i.e. cantons and municipalities] however would imply a strengthening of central power, and one must ask whether a Switzerland governed centrally would even be able to survive, for after all its raison d'être is not based on a common and homogeneous ethnicity, language or territory, but only on common history and politics in a federation." (p. 26, the translation into English being ours).

read directly from its parameters. Fortunately however, the Federal Tax Administration has computed such a comparable measure for 812 Swiss municipalities, organized by tax brackets and for representative types of citizen (single, married and married with children). From this, we can compute our measure of progressiveness of the tax system basically as the ratio between highest and lowest marginal tax rate.[13] Finally, we have aggregated across types of tax payer by computing the first principal component of them and normalizing it to lie between 0 and 1, as a summary measure of a municipality's tax progressiveness. The only disadvantage for this measure is that it has not been computed for all 2,573 municipalities of Switzerland or all 532 of our Lab, but only for respectively the 812 or 84 largest.[14] This implies that this outcome measure is biased towards the more urban areas, in which the effect of religion would be expected to be less strong than in the average Swiss municipality, and we will need to take this into account in our interpretation of results in the respective sections below.

3.3 Other Data Sources

Data on mean and median income, which we use as controls, have been obtained from two studies commissioned by the Swiss Federal Tax Administration (EStV), Ecoplan (2004) and Jeitziner and Peters (2007). The classification into municipality types is taken from the dataset "Spatial Structures of Switzerland" (1994). Data on the historical distribution of religions, languages and types of governance have been computed by ourselves on the basis of the historic documents mentioned in the following section on the Swiss Reformation in general and in our Lab in particular. Finally, today's population shares of the different religious groups, as well as all other covariates used in the regressions, come from decennial census data from respectively 1980, 1990 and 2000, all of which are available from the Federal Office of Statistics of Switzerland.

4 The Need for a Quasi-Experiment, and How it Works

In this section, we first provide a general overview of governance structures and Reformation (i.e. the change of some regions from the Catholic to the Protestant religion) in Switzerland as a whole. This outline will show that, while Switzerland as a whole has already some features of a Natural Experiment, doubt remains about ignorability of the assignment mechanism for religion and will thus motivate the need for a true quasi-experiment. This will then be explained in the second part of the section, where we point out in what sense treatment and control group of the experiment can be considered as almost identical before the experiment, and the assignment mechanism as unrelated to any factors that might also affect present-day political preferences through some other channel.

4.1 Swiss governance at the time of the Reformation

Between its foundation in 1291 and the arrival of Napoleonic troops in 1798, and thus also in the early 16th century when the religious composition of the area was determined, most of the territory that now

[13] In fact, the lowest marginal tax rate is in many cases zero, so that the simple ratio is not defined. Therefore, we take instead the opposite ratio and substract it from one. This means that a municipality with zero marginal taxes for the poorest has a progressiveness measure of 1, whereas one where highest and lowest rates are identical would have have a value of 0.

[14] More precisely, the authors have first computed the measure for all municipalities with 2000 or more inhabitants (according to the 2000 census data) and at least for 5 municipalities per canton. Then they have added further municipalities until 50% of all citizens liable to pay taxes within each canton had been covered.

makes up Switzerland constituted the "Old Confederation", a lose common-defence alliance of republics along with their subject territories, plus several "Associates" of the Confederacy ("Zugewandte Orte") that had mutual-defence treaties only with a subset of all full members. As can be seen from Map 1 in the appendix, large parts of the land back then were Subject or Mandated Territories ("Untertanengebiete") of either city republics in their middle, such as Fribourg, Berne or Zurich, or of a republic further away, including of Associates ("Zugewandte Orte"), or Common Lordships ("Gemeine Herrschaften"), the latter of which were ruled jointly by more than one of the republics. Except for the few Territorial Republics ("Laenderorte") in the very centre and the city centres of the city republics, both of which are painted in dark-green in Map 1 and which make up only 15% of our present-day sample of Swiss municipalities, Switzerland back then consisted of Subject Territories, the inhabitants of which had to obey the orders of small elites, including on issues of religion. In this sense, one might already conceive of Switzerland as a whole as a possible quasi-experiment. Nonetheless, as the maps in the appendix reveal, some differences existed in the year in which the areas were made subject territories. At the same time, as the following subsection will reveal, we cannot exclude that some rulers were motivated in their choice of religion also by economic considerations that might be correlated with our present-day outcomes. This is why we have chosen to use only the "Lab" in the West of Switzerland. In terms of governance structure, this area was entirely Subject Territory – except for the city of Fribourg, which for this reason we exclude from the sample – and furthermore, as Map 2 shows, it all became so in the same year, in 1513.

4.2 The Swiss Reformation

Having previously been entirely Catholic, part of the Swiss Confederation experienced Reformation in the early 16th century. While those Swiss citizens critical of the Catholic Church were certainly encouraged in their opposition by the preachings of Martin Luther (the first Reformer) in the German Reich, the Swiss Reformation was nonetheless very much separate from the German one, being rooted largely in the Humanist thought taught at the time at the University of Basel, seat of such thinkers as Erasmus van Rotterdam. Started in Zurich by Huldrych Zwingli, it subsequently made its way also to several other cities such as Berne and Basel. Only after the death of Zwingli were the already reformed territories then also influenced by Calvin, who was operating from francophone Geneva. The resulting mixture is what we have so far been referring to "Reformed Protestantism", and what Max Weber (1905) in his analysis of work and savings behaviour called "Ascetic Protestantism". It is important to note that this variant, which was to become the dominant one inter alia in England or the United States, differs from the Lutheran one that was to spread beyond Germany mainly to the Scandinavian countries. As the share of Lutherans in Switzerland is negligeable, in the remainder all use of the term "Protestantism" shall be referring to the "Reformed" variant. As far as its spread and its competition with Catholicism in Switzerland is concerned, it is worth noting that, while developments differed somewhat between cities and regions, the general pattern was for a network of intellectuals to persuade the big cities' magistrates (the members of the 200-or-so-strong councils) of the Reformation, who would then impose it on the rest of the people. As historian Bruce Gordon (2002) writes,

> "There was nothing inevitable about what happened in Zurich in the 1520s. Opposition to the reformer remained strong and it was only through a few close relationships ... that Zwingli was able to sustain his position". (Gordon, 2002)

In particular, even within the city councils, an individual's view on the Reformation often had less to do with his income than with his views, as evidenced by the fact that while the guilds tended to support the Reformation, rich merchants and urban patricians would rather oppose it. However, while some regions ended up adopting the Reformation, others remained Catholic. The distribution of the two confessions which resulted from that process, along with several subsequent wars fought between the two camps, has then persisted until today. When seeking to find out why some regions did adopt the Reformation when others did not, the first factor that stands out are geostrategic considerations:

> "With Zwingli leading from Zurich, there was no chance of the movement making any headway in Uri, Schwyz, Unterwalden, Zug, and Lucerne. Bad memories of Zurich's earlier hegemonic aspirations quickly reappeared. That is why the principal battlegrounds were not in any of the Confederates ... but in the Mandated Territories which they administered jointly" (Gordon, 2002).

However, economic factors cannot be fully excluded either, given a tendency for the more rural/mountainous regions to oppose the Reformation, and which might at least partly be attributed to the fact that Zwingli was a fierce critic of mercenary, on which the more rural regions depended for their income flows. And while we can control for such characteristics as altitude, distance from the biggest cities and community type today (rural, urban, commuter, etc), it is always possible that we are failing to control for all relevant factors underlying this pattern.Therefore we need a quasi-experiment like the one we present below to allow us to be confident in the results we obtain. At the same time, we will subsequently also present results for all of Switzerland to show that the results obtained on the basis of the experiment are not specific to that relatively small region, but possess also External Validity. [15]

4.3 Our "Lab": The region north of Lake Geneva

For the experiment to be valid, participation in the "treatment" of Protestantism should not be correlated with any other factor that might also influence present-day preferences for redistribution or intervention. To check whether this requirement is met, we first analyze whether treatment and control group were indeed identical with respect to possible confounding factors at the baseline, i.e. before the experiment took place. Secondly, and strengthening the first argument, we show that furthermore, not only was the choice of religion not undertaken by a region's inhabitants or its local rulers – as we have shown above to hold already for most of Switzerland – but furthermore we have overwhelming evidence that both citizens and local rulers did at first actively oppose the choice made for them, while the choice of those who made the assignment was not led by factors that would appear otherwise related to present-day PfR or PfI. In total, this suggests that individuals in those municipalities that were made Protestant did not in any sense have more "Protestant" views ex ante.

Here we show equality on many dimensions at the baseline. First, we look at geography: While the region is bounded naturally by Lake Geneva in the South, Lake Neuchâtel in the North, the Jura mountains in the West and the Alps in the East, it is quite homogeneous in terms of elevation, waters and climate, as can

[15] Further accounts of the assignment of religion in Switzerland in general can be found in Moeller (1978) , Schaab (1997), and Schindling and Ziegler (1993)

be seen from Figure 3. Apart from a small outlier of 1314m in the Southeast of the Protestant treatment region, both groups are entirely situated within the hilly, but not mountainous Swiss plateau ("Mittelland" in German or "plateau suisse" in French): In particular, altitude in the Protestant region ranges from 374m to 1314m, with an average of 598m, whereas the range of the Catholic region is from 433m to 996m, with an average of 662m. Neither does either region possess waters that would have acted as either a significant barrier or as a means for transport. Climate is obviously the same, as the full North-West extension comprising both groups together reaches only around 100km (see Figure 1). These common geographic and climatic conditions made both parts of the region quite conducive to healthy economic development, in particular for agricultural activities, producing food to be exported to many other parts of the Swiss Confederacy.

Secondly, it is worth looking at the other major cultural divide that is characteristic of Switzerland, namely language: Here, both regions lie almost entirely within the francophone part of Switzerland, apart the Fribourg district (Swiss administrative level between municipality and canton) of Sense[16]. To ensure this does not bias our results, we control for this difference in all our regressions with the covariate "oldgerman". This is a dummy for a municipality's traditional primary language, and we use this rather than today's share of inhabitants with German as first language in order to avoid picking up recent migration patterns, which must be considered as largely endogenous to present-day outcomes. As far as language is concerned, we have also run the same regressions excluding the two traditionally German-speaking districts and doing so yields qualitatively the same results.

Thirdly and importantly, we have looked at the traditional governance structures of respectively treatment and control group. Both have from the same year (1513) onwards entirely been Subject Territories, with the exception of the city (but not the rest of the canton) of Fribourg, which for this reason we exclude from the sample. This can be seen well from Figure 2 in the appendix, where our Laboratory comprises the entire light-grey area in the West, except for the part south of Lake Geneva, which today belongs to France, and apart for the very light grey spots within it denoted as "Commons". Those were Common Lordships, and we shall come back to them below. Looking at the evolution of the governance structure prior to the Reformation in more detail, developments were as follows: Before the Reformation, both areas stood under the rule of the duke of Savoy. However, in 1476 the eight Swiss confederates, together with their allies, defeated Burgundy and its ally Savoy in the Burgundy Wars. As outcome of the subsequent peace negotiations, by 1513 most of the territory that today makes up the canton of Fribourg fell to the then autonomous city republic of the same name. On the other hand, most of what is now the canton of Vaud, conquered in the same set of battles, was initially returned to Savoy, in spite of a clear interest in the region of the city republic of Berne, one member of the victorious Confederacy. The reason for this was that the other allies were hesitant to give Berne too much territory, given that the Confederation agreements would then have obliged them to assist Berne in case one of the enemy states tried to reconquer it. However, in 1536 expansion-hungry Berne took the territory nonetheless, as this was after all the only nearby territory that did not yet belong to one of their allies.

In short, the region was quasi-identical in the early 16th century in terms of geography, climate, economic structure and profitability, language and governance structures. At the same time, until the early 16th century, both stood equally under the influence of the Roman Catholic variant of Christian religion. But of course one might think there was still some other factor not observed by us and correlated with the new

[16] As well as the Murten (now part of the District du Lac), which however we exclude for other reasons, see below.

assignment of religion. However, that this was clearly not the case is demonstrated by overwhelming evidence for who made this assignment and why, and how the citizens affected reacted to it.

When what is now the canton of Vaud was finally overtaken by the city republic of Berne in 1536, which had recently become Protestant, the new rulers – in order to facilitate governance of their new territories – imposed Zwinglian Protestantism everywhere, so that the new religious authorities would all be based in Berne rather than Rome, and could more easily be pursuaded to preach citizens to obey also the worldly authorities of Berne. However, the imposed change was met with significant opposition from all layers of the population: Peasants in particular are reported to have repeatedly violently opposed Protestant preaching, and many members of the hitherto powerful local authorities lost their positions to those educated in the new dogma. After all, the deliberative assembly of the Vaud had as lately as 1534, when meeting at Moudon, explicitly decided to stick to Catholicism[17] — a choice that was furthermore shared by all other parts of Europe speaking Latin-based languages, which is argued by Feller (1953, p. 383) to have made them tied more closely to Rome. As Bruening (2006) writes:

> "[The Reformers] found little sympathy for the evangelical cause in Vaud. Late medieval Catholicism was alive and well in the region, where the people did not even seem to be aware of the Reformation before 1525... [and] much less enthusiastic about its central messages". (Bruening, 2006)

A major reason for the fact that up until the sudden imposition most people had not even been aware of the Reformation was no doubt language: After all, most of the Reformation documents were published in German and those few Lutherian pamphlets that had so far been published in French had all been printed in either Paris or Antwerp, but none of them in the Suisse romande. Furthermore, the Catholic duke of Savoy, while defeated by Berne, lingered constantly on horizon, threatening to take back the territory and restore religious obedience to Rome:

> "Catholicism was deeply ingrained among the people of Vaud, and the possibility of returning to Savoyard rule encouraged them in their resistence to the new government and religion." (Bruening, 2006)

In short, neither the population nor the authorities of the Vaud were initially more welcoming to Reformed Protestant thought than were the inhabitants of neighbouring Fribourg, allowing us to consider the Imposition of Protestantism on most of the Vaud as amounting to a Random Assignment.

What is more, control was in fact complicated somewhat in the early years of Bernese rule by a shortage of francophone Protestant preachers, so that the Bernese authorities had to hire as preachers many religious refugees from France. These however stood under the influence of Geneva-based reformer Jean Calvin, who — apart from teaching a "more rigorous" version of Predestination theology — argued for greater decentralization of the Church and greater autonomy from worldly authorities. As this would however have undermined Bernese control over the Vaud, the Bernese authorities forbid any Calvinist teaching and expelled anyone spreading Calvinist thought. For a while, they even saw the Calvinist variety of Reformed Protestantism as a greater enemy than Catholicism. While this infighting within Reformed Protestantism

[17] For details, see Feller(1954) , p.379

decreased later on and is in present-day Switzerland arguably much less pronounced than the divide between Reformed Protestantism as a whole and Catholicism, it shows that the motivation for Berne to impose (Zwinglian) Reformed Protestantism upon the region was to facilitate political control. Arguably, if Berne had been Catholic, it would with equal force have imposed Catholicism.

At the same time, not only in the subject territories of Fribourg (our control group), but even within the city republic of Fribourg it was by no means fully clear that they would remain Catholic. Thus Guggisberg (1987) writes that, just as in cities that were to become Protestant, "*the cultural and educational aspirations of the Fribourg patricians were based on the general humanist philosophy of the period*". However, in 1519 their leading figure, Peter Falck, suddenly died of plague during his 2nd journey to Jerusalem and "*Falck's death severely weakened Fribourg humanism. . . : this was not a favourable precondition for disseminating the ideas of the Reformation*". Nonetheless, he suggests that: "t*he numerous repressive measures taken by the authorities [of Fribourg] reflect the presence of a lively reforming opposition*", as evidenced by the fact that "I*n 1522 some council members who tended towards the new faith tried to appoint Oswald Myconius, suspended from his teaching post in Lucerne, as schoolmaster in Fribourg. This attempt failed because of the Catholic majority in the council, but it does illustrate that the friends of the Reformation felt quite powerful*".

Before we conclude this section, we need to deal in more detail with one particular subset of the region under investigation, namely three "Common Lordships". Those were territories around places where important battles in the Burgundy Wars had taken place and which for that reason were from the subsequent peace agreements onwards jointly ruled first by allm Confederates and then, after the others had been bought out, together by the Protestant city republic of Berne and the Catholic one of Fribourg. Within the treatment region, this concerns the present-day districts of Grandson and Echallens-Orbe, and within the control group the present-day district of Murten. All three are painted in lighter grey than the surrounding areas in Figure 2, marked by pins in Figure 3,.and coloured in yellow in Figure 4. In these three areas, the two rulers took five-year-turns in providing the bailiffs, although whoever was currently not in power nonetheless always had a right to appeal. As a consequence, these areas initially had neither religion imposed on them, but instead the two Lords compromised on leaving it to the municipalities to choose for themselves, and so they did. Grandson and Echallens, surrounded by now Protestant areas, chose within the next two generations to adjust to their surroundings and become Protestant, too. Murten, bordered in the South by the still Catholic subject territories of Fribourg, but in the North by the Protestant ones of Berne, chose altready in a 1530 referendum to turn Protestant. This means that for those three districts the requirement that choice of religion should not be correlated with any characteristics relevant for today's political preferences is likely to violated. Therefore, although the three districts account only for a small fraction of the total region and would thus only have a small impact on total results, we have chosen to exclude all three districts from the sample in order to keep the experiment clean. The setup is also illustrated in Figure 4, in which the treatment group assigned Protestantism is coloured in blue, the control group assigned Catholicism in red, and the three Common Lordships are coloured in yellow. However, an analysis of the Common Lordships is of course also very interesting on its own, to see whether and if so how the marginal effect of Protestantism differs there. Considerations and results for this are described in section 6.2.

18

[18] Another excellent account of Bernese rule of the Vaud, on which we have drawn significantly, is provided in Holenstein (2006), see References below.

5 Results

5.1 The Effect of Assigned religion on Actual religion

The persistence of the 16th century assignment of religion until today is shown in Table 1, where columns 1 and 2 show the results for the share of Protestants in 1980 and columns 3 and 4 show those for 2000. The values for 1990, which we also use, are in between. We show both the 1980 and the 2000 values because it is only from the 1980s onwards that some significant domestic migration started losening somewhat the old patterns, so that the distribution of religions in 2000 is slightly less homogeneous than that in 1980, and the coefficients are hence somewhat lower. Furthermore, columns 1 and 3 use as controls only those two covariates that clearly existed before the Confessionalization, whereas columns 2 and 4 use also those that may be considered as results rather than determinants of today's distribution of religions. As can be seen from the table however, the results do not differ much and even after the migration that took place in the years prior to 2000, the initial religious assignment is still a strong predictor of religion today. In particular, in a traditionally Protestant region, we expect the share of Protestants today to be between 45 and 67 percentage points higher than in a region that remained Catholic during the times of Confessionalization. The table also suggests that the two districts that were traditionally German-speaking now have larger shares of Protestants, inter alia because they have attracted more migrants from other German-speaking parts of Switzerland, which for the reasons pointed out above are on average more likely to be Protestant than the French- or Italian-speaking parts of the country. Furthermore, altitude is associated with having a negative effect on the share of Protestants today as long as we use the long list of controls, but a positive one otherwise.

5.2 The Effect of Religion on Preferences

We have conducted the analysis separately for each of the 8 referenda, and for each of the two topics for two summary measures, the average support across the 4 referenda each, and their principal component, normalized to lie between 0 and 1 to facilitate interpretation. Within this section we discuss the results for the summary measures, but those for each individual referendum are shown in the appendix. Since, as we have argued above, control and treatment group can be considered as identical prior to the treatment, the best estimate of the effect of the different confessionalizations is the one obtained by comparing Protestant and Catholic municipalities without using further controls, because any other differences between them, such as in population density, education, income or the like are to be seen as largely the consequences of the different religious compositions, rather than as independent causes of preferences today. The results for PfR are shown in Table 2a: Columns (1) and (2) show the results obtained with OLS, (3) and (4) show those obtained when instrumenting the present-day share of Protestants with whether or not the region was forced to become Protestant in the early 16t century. In both cases, we display the results both for those regressions using as dependent variable the simple average of PfR-referenda, $\overline{pfr}$, and those using their first principal component, $\widehat{pfr}$. As can be seen OLS estimates suggest that in an entirely Protestant municipality support for redistribution can be expected to be between 12 and 19 percentage points lower than in an entirely Catholic one. IV-results are respectively 3 and 5 percentage points smaller, but they remain quite significant economically: Given that the average value of support lies very frequently close to the critical threshold of 50%, such differences are clearly sufficient to change the outcome one way or the other. The

same goes for the results obtained for Preferences-for-Intervention, which are displayed in analogous order in Table 2b: Here the OLS estimates suggest that support for intervention should be expected to be between 21 and 29 percentage points lower in Protestant municipalities, and again IV estimates are only respectively about 3 and 4 percentage points smaller.

As further evidence that the results of our first and second stage are not mere constructs, we provide also the Reduced-Form Regressions, in which we relate preferences today directly to the initial religious assignment, and which in the impact evaluation literature are known as "Intention-to-Treat Effects". These are displayed in Table 2c: All signs remain as expected and coefficients remain significant, albeit smaller than in the second stage alone, which is to be expected in that the hypothesized relationship is now diluted by other influences in two stages.

For a better understanding of how other factors are predicted to be associated with support for redistribution and government intervention, and to see what effect of Protestantism on our measures of preferences remains after controlling for all other differences between municipalities on which we have data, and which we have argued should be seen as channels rather than confounding factors, Table 2d shows the same regressions as in respectively 2a and 2b (for illustration only the OLS results), but including the full set of covariates. As the average year of the referenda on redistribution is 1998 and that of those on government intervention is 1992, we take the control variables from the closest census to each, i.e. respectively 2000 and 1990.census. On the other hand, for the regressions with individual referenda also shown in the appendix, we use for each covariate the observation closest and prior to the respective referendum, so for example for the 1981 referendum on consumer protection we use the census data from 1980 rather than those from 1990. Interestingly, even with the full set of covariates an effect of Protestantism of between -6.8% and -10.6% on PfR and of between -15.1% and -21.1% on preferences for government intervention remain, a size which would still be expected to be pivotal when the support before acounting for religion but after accounting for many other covariates is predicted to lie not to far from the 50% threshold. Here, as with the other covariates dealt with below, we observe that typically coefficients in the pfr regressions have the same signs as those in the pfi ones, which fits with the fact that $\overline{pfr}$ and $\overline{pfi}$ have a correlation of 0.63. This surely makes sense intuitively in that someone with relatively less trust in the efficiency and/or fairness of market forces and relatively more trust in the operation of government would also be expected to demand more government intervention ex post. Such a relationship has also been found previously, for instance in Alesina and Glaeser (2006), who relate different PfR between the two sides of the Atlantic to different attitudes as to whether market outcomes represent differences in effort or rather just differences in brute luck. At the same time, the Weberian hypothesis whereby Protestant ideology has contributed to furthering market capitalism would also suggest that Protestants should exhibit relatively greater trust in market forces than Catholics, or equivalently that they should more strongly opposed government intervention.

The coefficients on the other covariates are also interesting, even though no claim of causality can be made for them. To interpret them, one ought to start from the constant which gives the expected support for redistribution or government intervention for the "base-line scenario", a hypothetical municipality that is 100% Catholic, 100% German-speaking, an urban centre, located in canton Zurich, with 0% of residents having education beyond secondary school, with average annual income of 1000 Swiss Francs (so that the log of income, in 1000s CHF, is 0), a zero unemployment rate, and so on. This scenario is of course purely

hypothetical, because no municipality exists in Switzerland that is for instance located in canton Zurich and at the same time has 0% German-speakers. This scenario is of course purely hypothetical, because no municipality exists in Switzerland that is for instance located in canton Zurich and at the same time has 0% German-speakers, so it is not surprising that on some specifications the constant takes a value outside the range between 0 and 1. However, starting from this hypothetical scenario, the various coefficients tell us how voting behaviour would *be predicted* to differ if the respective characteristics of the municipality differed.

This said, we can now interpret the coefficients on the other covariates and, where applicable, see how they compare to those obtained in previous studies, although we should caution once more that other than for the impact of religion, for the other variables we cannot be confident to what extent the observed relationships represent causal ones. If nonetheless we write of, for instance, the "effect of education", it is merely to facilitate exposition. Starting with the coefficients on the shares of other religions (mainly "Old Catholics", the Eastern Church, Jewish and Muslims) and of inhabitants without affiliation ("secularized"), the estimates suggest that these groups would be predicted to prefer more redistribution than Catholics. Next, we look at the other great cultural factor that divides Switzerland, namely language, where we observe that having a higher share of German speakers is associated with less support for redistribution, whereas the coefficients for government intervention are insignificant in both specifications. It is important to stress here that, since most of the area was initially French-speaking, part of the share of German-speakers will actually represent recent migrants from German-speaking Switzerlad. Beyond that observation however, it is not so clear how language itself would be expected to affect PfR, or which unobserved factors correlated with language would affect it. One possible explanation is that on average different ideology is spread in German–speaking literature, media, etc than in the French- and Italian-speaking ones, but it might as well be that language only picks up some other factors here. The other coefficients are all largely in line with what one would have expected and/or with what other studies, such as Alesina and Giuliano (2008) have found. Thus support both for redistribution and for government intervention is predicted to be lower in municipalities that are richer, where the first effect may be taken to express simple self-regarding preferences in the spirit of our analytical framework from section 2, and the second may, in terms of the greater success these people have had themselves, express greater optimism about the benefits of the market. For the coefficient on the unemployment rate we need to stress that since no official unemployment figures were available at the municipality level, we have computed instead a proxy from survey replies on socio-economic status, which must be seen as only an imperfect measure of the true unemployment rate. This may explain why the coefficient on unemp in both PfR-regressions is not statistically significant. That in the government intervention ones on the other hand is significantly positive, likely expressing greater pessimism of the unemployed about the functioning of markets alone. The coefficients on mean age and the shares of those aged above 60 or below 20 are generally not significant. The impact of education, after controlling for income, is particularly interesting, as is pointed out in Alesina and Giuliano: On the one hand intuition might tell us that that it will make people more optimistic about Prospects of Upward Mobility, on the other hand it is often suspected that higher education might transmit more often a left- than a right-of-centre ideology. Alesina and Giuliano for instance, using survey data from the US' General Household Survey, find the former effect to dominate. We also find a robustly negative effects both of the share of those with non-university and those with university-education higher education (i.e. beyond secondary school), although for redistribution the effect of university education is predicted to be weaker than that of non-university education, which might be seen to reflect some counter-veiling effect of more leftist ideology. Also a standard

result is the finding that citizens desire less redistribution the higher the share of foreign residents, because even in Switzerland the majority of foreigners can be expected to earn below the average, and while they are not eligible to vote they would nonetheless benefit from a range of possible transfer schemes. Finally, the coefficients on the nine municipality types (urban, semi-urban, commuter, etc), not shown in the table, suggest that – after controlling for income and the like – people are most strongly in favour of redistribution in urban centres and less so the more we move to the countryside. One explanation for this is that in the more densely populated city centres the externalities from the well-being of an individual's neighbours are much stronger than in the country-side, another is the standard observation that urban populations tend to be more open to leftist ideology than those in the country-side. As for the sizes of all these coefficients, we believe that one ought to be careful with interpretation, since – as we show in the appendix – the marginal effect of demographic variables is often non-linear (in fact likely decreasing) so that coefficients estimated on the basis of typically small shares of people in the population, such as that on unemployment, must be expected to be biased upwards in size. At the same time, observing plausible signs on all control variables in our regression is comforting in that it can be taken to suggest that we have decent measures of all these variables.

5.3 The Effect of PfR on actual progressiveness of the tax system

Next, we look at how the above PfR affect the actual progressiveness of the tax system within each municipality. Other than in Tables 1-2, we now need to control for other likely determinants of the outcome, because while we argued above that religion was assigned in an ignorable way, PfR were not and furthermore other factors likely relevant for the choice of the tax system, such as average income, are likely to also vary with the treatment. For instance, if we believe in Max Weber's 1905 hypothesis of the Protestant Ethic, we would expect Protestant regions to be richer on average, which is likely to enter the constraint of the tax rate choice problem. The estimates in Table 3 have thus been obtained using a long list of controls, as motivated by our analytical framework from Section 2 and common sense. It shows that even after controlling for such factors as average income and income inequality[19], a higher measure of PfR is associated also with a more progressive tax system within the municipality: In particular, an increase in PfR by 1 SD (on the limited sample we use here,.0542 for $\overline{pfr}$ and .0930 for $\widehat{pfr}$) is associated with changes in $\widehat{taxprog}$ of respectively 0.24 and 0.20 standard deviations.

Other than when running the same regressions for the full Swiss sample, however, we obtain relatively large (robust) standard errors, so that the coefficient is not statistically significant at the conventional levels of significance. This may be for two reasons. Firstly, much of the variation in taxprog occurs at the canton level, so that restricting attention to merely the two cantons of our Lab, Vaud and Fribourg, limits the total variation in the dependent variable. Secondly, for this last step our sample is restricted not only to those two cantons, but also within the two cantons in that observations on marginal tax rates are available only for the 78 largest municipalities therein, or 77 after excluding the city of Fribourg. Nonetheless the sign is as expected and our estimates for the full Swiss sample, in section 7 below, shows that the relationship can be estimated with statistically significant coefficients once we have enough variation in the dependent variable. In addition, one must carry in mind that restricting the sample to the more urbanized municipalities likely

[19] In line with the standard argument in political economy models, whereby the voter with median income is also the median voter, these have been computed as the normalized difference between mean and median income.

also leads to somewhat smaller coefficients than would have been expected for the average-sized municipality, because traditional relationships between cultural variables and economic behaviour are likely to be weaker in the "melting pots" of the more urban municipalities.

Here again, it is informative to look also at the coefficients obtained for the other covariates and in particular inequality. In a static political economy model of redistribution, as the one presented in section 2 above, one would expect the chosen degree of redistribution to increase in the present degree of inequality, but we find a negative coefficient. The reason is presumably reverse causality in that municipalities that do have a lot of redistribution may for that very reason have less inequality. This issue shows of course that, as long as we cannot also instrument the relevant constraints and in particular inequality, from this regression alone one ought to be careful about trying to separate the relative effects of said constraints and those of what we have called PfR (i.e. preferences) on tax progressiveness. In that sense, we show some evidence of one pausible channel through which the religious assignment in the 16th century has affected progressiveness of the tax system today, but we cannot claim being able to separate its relevance relative to other possible channels, and in particular constraints.

6 Further analyses

6.1 Extending the analysis to all of Switzerland

While only the Lab setting exploited above allows us to make causal inference, we have also run the same set of regressions for all of Switzerland, and in all three steps found essentially the same results to be true as in the Lab. For once, this shows some degree of External Consistency beyond the small region of our Lab. At the same time, given validity of our Lab setting, it shows that assignment of religion in the whole of Switzerland can also be considered as ignorable with respect to other factors that might influence preferences for redistribution or government intervention. This is a finding we expected to some extent given the history of Confessionalization across th country, as described in section 4, but which we could not be sure about. For space reasons we are not displaying all the same tables as previously presented for the Lab, although we will happily provide these upon request. We are however presenting here the last step, on the relationship between PfR and actual progressiveness of the tax system, because as indicated above this differs in an important respect from the finding obtained for our Lab alone. As can be seen from Table 4, in the larger sample with greater variation in the dependent variable tax progressiveness the coefficient on our measure of PfR is now not only positive, as before, but also statistically significant at the 5% level for $\overline{pfr}$ and at the 1% level for $\widehat{pfr}$. While this is no conclusive evidence that the last effect is also causal, because the validity of all of Switzerland has not been argued for, given that the other results for all of Switzerland are much the same as for our Lab this does back up our suspicion that the lack of significance of the coefficient on PfR within our Lab was due to an insufficient sample rather than an expression of a lack of such a relationship within the underlying population.

6.2 Analysing the Common Lordships

Here we include in the sample also the three Common Lordships, the background for which has been given above. We then repeat the OLS regressions from Tables 2a and 2b, but now include dummies for the

Common Lordships, both a constant dummy and an interaction with the prot-variable. In fact, there is intuition both for expecting the marginal effect to be smaller and for expecting it to be larger. For on the one hand, the Murten part of the Common Lordships at least was, while being Protestant itself, in the South always bordered by Catholic territories and from 1798 onwards was part of the Catholic canton of Fribourg, so that one would expect the attitudes of its present-day citizens to be influenced also by Catholic views, even if nominally they are all Protestant. On the other hand, one might have thought that a municipality that back in 1530 chose freely to become Protestant might have more Protestant views than those who had the new dogma enforced upon them. The results, which are displayed in Table 6, show the former effect to dominate and thus suggest that the effect of 5 centuries of influence after the times of the Reformation trump whatever distribution of preferences might have been there before that.

6.3 Analysis of Non-Linearities

While for simplification we have previously assumed a "Constant Marginal Effect of Protestantism", one might expect cultural groups to emphasize their particular values much more strongly when they are in a minority. This should in fact lead us to expect the marginal effect to be decreasing for most of the range of possible Protestantism shares, but to increase again as it approaches 100% as holding 100% implies that there is no other group with the minority status just described. To see whether this is indeed so, we have rerun the regression of Table 2a, column 2 but now including as explanatory variable not only the first, but also the second and third polynomials of the share of Protestants, i.e. prot, prot^2 and.prot^3. Then we have computed the marginal effect for each possible value of *prot* as:

$marg eff\_pol3 = polyn1 + polyn2 * prot + polyn3 * prot^2$

and equivalently for the simpler estimates $marg eff\_pol1$ and $marg eff\_pol2$. The resulting values are plotted for all possible values of prot in Figure 5 in the appendix. The blue flat curve gives the estimate one would obtain if including only the first polynomial, as we have done throughout this article: It lies at -17.6%, as displayed also in Table 2a, column 2. The bent green curve however shows that when Protestants are in a minority their effect tends to be stronger than that, as is true when a municipality is close to being all Protestant. Assuming that the true marginal effect of Protestantism is best approximated by the green curve, our simplified estimates using only the first polynomial of prot still seem to provide a fair description of the effect for the average municipality in our Lab, which has a share of Protestants of slightly above 40%. As an estimate of the effect of the hypothetical scenario in which a fully Catholic municipality is turned fully Protestant however, our estimates would if anything appear to provide a lower bound, as the marginal effect for prot close to 1 is likely to be significantly larger than what we have estimated. At the same time, given that such dynamics can be expected to hold also for the influence of secularized thinking and that the share of secularized in 1990 is typically as low as 6% and nowhere greater than 26%, the preceding analysis gives us an idea for why the estimated coefficient on secul in Table 2b appears so large.

7 Conclusion

We have shown that an influence that in our Lab can be considered to have been exogenous to the economy and even to formal political institutions, can to a pivotal extent affect people's preferences about economic policy, and that these preferences can in turn affect actual policy. Even though we cannot show rigorously

that the channel we have tested, namely what we called "preferences", is the only or even the most important one, the effect of religious assignment in the 16th century on policy outcomes today is surely remarkable. The enormous persistence this implies, and which is consistent with previous findings of persistence of policy preferences in Alesina and Fuchs-Schuendeln or Alesina and Glaeser, suggests that an exogenous shock to preferences like the Reformation can forever put a country into a different equilibrium in terms of its political institutions and the individual economic behaviour that arises under such institutions.

But the contribution of our paper is not only to have thus demonstrated the possible effect on policy preferences of a factor exogenous to the economy, but also to have done so in a way that allows the clear inference of a causal effect.

Furthermore, having found such differences to persist between two varieties of the same religion, Christianity, within the same country, and in a country that one might have expected to be more secularized than the average country in the world, it seems fair to expect much bigger differences between different religions, such as Christianity and Islam or Buddhism, between different countries such as, say, England and Spain, and in less secularized regions.

More generally, our paper has empirically demonstrated the intuition that the same set of preferences cannot be assumed for all countries. This has important bearings on the way we model public policy, and even more so on the assessment of actual policies in the real world, demonstrating that not the same policy will satisfy the demands of individuals in all countries.

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Appendix

7.1 Main Regression outputs referred to in the text

T1: Effect of Religious Assignment on Religion (i.e. 1st stage)

	(1)	(2)	(3)	(4)
VARIABLES	prot1980s	prot1980s	prot2000s	prot2000s
oldprot	**0.657*** **	**0.671*** **	**0.455*** **	**0.478*** **
	(0.0128)	(0.0207)	(0.0133)	(0.0130)
oldgerman	0.0812***	0.142***	0.0370	0.0915***
	(0.0266)	(0.0334)	(0.0251)	(0.0279)
altitude	0.119***	-0.110***	0.146***	-0.0999***
	(0.0447)	(0.0422)	(0.0479)	(0.0358)
Constant	0.00294	-0.144	0.0241	-0.114
	(0.0339)	(0.271)	(0.0350)	(0.341)
Observations	462	462	462	462
R^2	0.830	0.920	0.706	0.890

*** p<0.01, ** p<0.05, * p<0.1, standard errors robust

Controls, 2&4: inc ineq unemp popden pop area young old HE_nonuni HE_uni for t_*

T2a: Effect of Prot on PfR, OLS and IV (i.e. 2nd stage)

VARIABLES	(1) $\overline{pfr}$	(2) $\widehat{pfr}$	(3) $\overline{pfr}$	(4) $\widehat{pfr}$
prot	**-0.117*** **	**-0.193*** **	**-0.081*** **	**-0.142*** **
	(0.013)	(0.025)	(0.014)	(0.025)
oldgerman	-0.006	-0.036*	0.009	-0.014
	(0.011)	(0.020)	(0.011)	(0.020)
altitude	0.001	0.027	0.003	0.030
	(0.018)	(0.030)	(0.018)	(0.030)
Constant	0.439***	0.612***	0.421***	0.586***
	(0.013)	(0.023)	(0.013)	(0.023)
Observations	462	462	462	462
R^2	0.170	0.140	0.156	0.131

*** p<0.01, ** p<0.05, * p<0.1, standard errors robust

Columns (1)-(2) OLS, (3)-(4) IV

T2b: Effect of Prot on PfI, OLS and IV (i.e. 2nd stage)

VARIABLES	(1) $\overline{pfi}$	(2) $\widehat{pfi}$	(3) $\overline{pfi}$	(4) $\widehat{pfi}$
prot	**-0.211*** **	**-0.298*** **	**-0.178*** **	**-0.252*** **
	(0.013)	(0.018)	(0.013)	(0.019)
oldgerman	-0.010	-0.016	0.005	0.006
	(0.012)	(0.018)	(0.011)	(0.016)
altitude	-0.045**	-0.063**	-0.042**	-0.058**
	(0.020)	(0.028)	(0.019)	(0.028)
Constant	0.510***	0.546***	0.491***	0.518***
	(0.015)	(0.021)	(0.014)	(0.020)
Observations	461	461	461	461
R^2	0.433	0.426	0.424	0.417

*** p<0.01, ** p<0.05, * p<0.1, standard errors robust

Columns (1)-(2) OLS, (3)-(4) IV

T2c, Reduced-Form (i.e. Intention-to-Treat Effect)

VARIABLES	(1) $\overline{pfr}$	(2) $\widehat{pfr}$	(3) $\overline{pfi}$	(4) $\widehat{pfi}$
oldprot	**-0.037*** **	**-0.064*** **	**-0.095*** **	**-0.134*** **
	(0.007)	(0.012)	(0.008)	(0.011)
oldgerman	0.006	-0.020	-0.005	-0.009
	(0.011)	(0.020)	(0.011)	(0.016)
altitude	-0.008	0.009	-0.065***	-0.091***
	(0.020)	(0.033)	(0.023)	(0.033)
Constant	0.419***	0.583***	0.487***	0.513***
	(0.014)	(0.024)	(0.017)	(0.024)
Observations	462	462	461	461
R^2	0.070	0.057	0.253	0.247

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

T2d: Full set of covariates

VARIABLES	(1) $\overline{pfr}$	(2) $\widehat{pfr}$	(3) $\overline{pfi}$	(4) $\widehat{pfi}$
prot	**-0.068*** **	**-0.106*** **	**-0.151*** **	**-0.211*** **
	(0.018)	(0.034)	(0.015)	(0.021)
secul	0.280***	0.470***	0.295***	0.426***
	(0.080)	(0.146)	(0.083)	(0.119)
otherrel	0.195	0.366	0.272	0.411
	(0.204)	(0.413)	(0.308)	(0.436)
german	-0.051***	-0.136***	-0.017	-0.027
	(0.013)	(0.023)	(0.016)	(0.023)
unemp	-0.017	-0.094	0.129	0.187
	(0.240)	(0.442)	(0.156)	(0.223)
meanage	-0.001	-0.003	-0.002	-0.003
	(0.004)	(0.008)	(0.004)	(0.005)
old	-0.102	-0.299	0.066	0.104
	(0.190)	(0.349)	(0.156)	(0.225)
young	-0.156	-0.284	-0.214	-0.316
	(0.164)	(0.311)	(0.135)	(0.194)
loginc	-0.014	-0.036	-0.039**	-0.057**
	(0.030)	(0.057)	(0.018)	(0.026)
HE_nonuni	-0.218**	-0.379**	-0.161	-0.231
	(0.101)	(0.178)	(0.100)	(0.143)
HE_uni	-0.256***	-0.357**	-0.121	-0.180
	(0.075)	(0.140)	(0.086)	(0.122)
foreign	-0.167***	-0.356***	-0.104*	-0.154**
	(0.052)	(0.099)	(0.053)	(0.076)
Constant	0.748**	1.317**	0.987***	1.250***
	(0.316)	(0.584)	(0.201)	(0.286)
Observations	462	462	461	461
R^2	0.406	0.366	0.650	0.649

*** p<0.01, ** p<0.05, * p<0.1; standard errors robust

More controls: loginc ineq unemp popdens totalpop area foreign t_*

T3: Effect of PfR on Tax Progressiveness

VARIABLES	(1) $\widehat{taxprog}$	(2) $\widehat{taxprog}$
$\overline{pfr}$	**0.626**	
	(0.509)	
loginc	0.636***	0.619***
	(0.173)	(0.166)
ineq	-1.199**	-1.135**
	(0.541)	(0.536)
unemp	1.357	1.448
	(2.150)	(2.185)
young	0.107	0.088
	(0.697)	(0.704)
old	0.788	0.808
	(0.502)	(0.511)
HE_nonuni	1.975***	1.964***
	(0.687)	(0.674)
HE_uni	-0.105	-0.186
	(0.392)	(0.395)
foreign	1.157***	1.163***
	(0.248)	(0.246)
$\widehat{pfr}$		**0.311**
		(0.258)
Constant	-6.348***	-6.098***
	(1.870)	(1.744)
Observations	77	77
R^2	0.633	0.629

*** p<0.01, ** p<0.05, * p<0.1; standard errors robust

Further controls as in Table 2b.

T4a: Effect of religion on PfR, All Switzerland

VARIABLES	(1) $\overline{pfr}$	(2) $\widehat{pfr}$	(3) $\overline{pfr}$	(4) $\widehat{pfr}$
prot	**-0.048*** **	**-0.073*** **	**-0.053*** **	**-0.085*** **
	(0.006)	(0.010)	(0.006)	(0.011)
german	-0.061***	-0.169***	-0.060***	-0.167***
	(0.005)	(0.008)	(0.005)	(0.008)
loginc	-0.037***	-0.066***	-0.037***	-0.066***
	(0.010)	(0.018)	(0.010)	(0.018)
Constant	0.839***	1.423***	0.830***	1.400***
	(0.125)	(0.231)	(0.125)	(0.231)
Observations	2602	2602	2602	2602
R^2	0.419	0.500	0.418	0.499

*** p<0.01, ** p<0.05, * p<0.1, standard errors robust

Full set of controls; 1-2 OLS, 3-4 IV

T4b: Effect of religion on PfI, All Switzerland

VARIABLES	(1) $\overline{pfi}$	(2) $\widehat{pfi}$	(3) $\overline{pfi}$	(4) $\widehat{pfi}$
prot	**-0.045*** **	**-0.065*** **	**-0.072*** **	**-0.102*** **
	(0.006)	(0.009)	(0.007)	(0.010)
german	-0.010	-0.016*	-0.003	-0.007
	(0.006)	(0.009)	(0.006)	(0.009)
loginc	-0.082***	-0.119***	-0.081***	-0.117***
	(0.013)	(0.018)	(0.013)	(0.018)
Constant	0.928***	1.175***	0.888***	1.119***
	(0.146)	(0.208)	(0.145)	(0.207)
Observations	2595	2595	2595	2595
R^2	0.348	0.353	0.342	0.348

*** p<0.01, ** p<0.05, * p<0.1, standard errors robust

Full set of controls; 1-2 OLS, 3-4 IV

T5: Effect of PfR on Tax Progressiveness, all Switzerland

VARIABLES	(1) $\widehat{taxprog}$	(2) $\widehat{taxprog}$
$\overline{pfr}$	**0.264****	
	(0.107)	
loginc	-0.086***	-0.086***
	(0.030)	(0.030)
ineq	-0.410***	-0.395***
	(0.120)	(0.119)
unemp	0.982	0.835
	(0.756)	(0.761)
young	0.514*	0.535**
	(0.263)	(0.261)
old	0.641***	0.654***
	(0.209)	(0.208)
HE_nonuni	0.516*	0.581*
	(0.303)	(0.299)
HE_uni	0.733***	0.648***
	(0.148)	(0.153)
foreign	0.250**	0.252***
	(0.097)	(0.097)
$\widehat{pfr}$		**0.170*****
		(0.054)
Constant	1.252***	1.256***
	(0.366)	(0.353)
Observations	769	769
R^2	0.176	0.179

*** p<0.01, ** p<0.05, * p<0.1; st. errors robust

Further controls as in T.2b

T6: Analysing the Common Lordships

VARIABLES	(1) $\overline{pfr}$	(2) $\widehat{pfr}$	(3) $\overline{pfi}$	(4) $\widehat{pfi}$
prot	**-0.121*** **	**-0.204*** **	**-0.207*** **	**-0.292*** **
	(0.014)	**(0.025)**	**(0.013)**	**(0.018)**
prot_com	**0.053**	**0.131**	**0.089***	**0.127***
	(0.051)	**(0.110)**	**(0.049)**	**(0.070)**
common	**-0.025**	**-0.075**	**-0.039**	**-0.056**
	(0.027)	(0.058)	(0.030)	(0.042)
oldgerman	-0.019*	-0.068***	-0.000	-0.002
	(0.011)	(0.020)	(0.012)	(0.017)
altitude	0.017	0.060*	-0.043**	-0.060**
	(0.018)	(0.032)	(0.019)	(0.027)
Constant	0.432***	0.600***	0.506***	0.539***
	(0.013)	(0.023)	(0.014)	(0.021)
Observations	531	531	530	530
R^2	0.157	0.140	0.398	0.391

*** p<0.01, ** p<0.05, * p<0.1

Robust standard errors in parentheses

7.2 Summary Statistics and Regression Outputs for Individual Referenda

Table 1: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
totalpop1990	-0.734	1.237	-3.612	4.853	554
unemprate1990	0.02	0.018	0	0.218	554
prot1990s	0.495	0.264	0.009	0.925	554
noreligion1990s	0.067	0.042	0	0.262	554
inc_1990	16893.88	4456.37	5336.217	43381.816	554
altitude	0.617	0.157	0.374	1.314	531
tcentre	0.013	0.114	0	1	531
t_suburban	0.09	0.287	0	1	531
t_highinc	0.041	0.199	0	1	531
t_periurban	0.16	0.367	0	1	531
t_touristic	0.009	0.097	0	1	531
t_industrial_service	0.07	0.255	0	1	531
t_commuter	0.279	0.449	0	1	531
t_semiagrarian	0.23	0.421	0	1	531

Continued on next page...

... table 1 continued

Variable	Mean	Std. Dev.	Min.	Max.	N
t_agrarian	0.107	0.31	0	1	531
german1990	0.124	0.225	0	0.985	554
meanage1990	36.823	2.861	27.354	49.571	554
aged_u20_1990	0.259	0.038	0.122	0.402	554
aged_a60_1990	0.186	0.054	0.042	0.375	554
area	7.44	11.437	0.32	113.64	554
popden1990	-2.26	1.064	-4.891	1.908	554
ineq	0.08	0.083	0.007	1	536
oldgerman	0.088	0.234	0	1	554
oldprot	0.690	0.463	0	1	554
HE_nonuni	0.101	0.039	0	0.282	554
HE_uni	0.06	0.048	0	0.285	554
foreign1990	0.112	0.085	0	0.504	554
otherrel1990	0.011	0.013	0	0.09	554

T7: The T2b regressions for individual referenda

	(1)	(2)	(3)	(4)
VARIABLES	poor1992	av1997	ahv1995	iv2007
prot	**-0.069*** **	**-0.091*** **	**-0.036**	**-0.058** **
	(0.020)	(0.025)	(0.023)	(0.025)
oldgerman	0.105***	-0.099***	0.029*	-0.054**
	(0.017)	(0.021)	(0.017)	(0.021)
unemp	-0.040	0.072	-0.140	0.107
	(0.217)	(0.339)	(0.273)	(0.317)
meanage	0.001	0.005	-0.009	-0.004
	(0.004)	(0.006)	(0.008)	(0.007)
old	-0.045	-0.576**	0.327	-0.352
	(0.200)	(0.279)	(0.420)	(0.289)
young	-0.364**	-0.195	-0.524***	-0.298
	(0.177)	(0.224)	(0.194)	(0.252)
loginc	-0.037	-0.062*	-0.006	-0.085**
	(0.025)	(0.032)	(0.043)	(0.042)
HE_nonuni	-0.100	-0.184	-0.030	-0.090
	(0.135)	(0.197)	(0.159)	(0.139)
HE_uni	-0.384***	-0.004	-0.244**	-0.229*
	(0.122)	(0.156)	(0.124)	(0.118)
foreign	0.053	-0.045	-0.053	-0.323***
	(0.072)	(0.094)	(0.082)	(0.084)
Constant	0.727***	1.262***	0.748*	1.682***
	(0.274)	(0.322)	(0.430)	(0.449)
Observations	462	462	462	462
R^2	0.382	0.238	0.117	0.257

*** p<0.01, ** p<0.05, * p<0.1

Robust standard errors in parentheses

T7 continued

VARIABLES	(1) consumerp1981	(2) tenantp1986	(3) farmp1998	(4) rentp2003
prot	**-0.238*** **	**-0.193*** **	**-0.033*** **	**-0.059*** **
	(0.024)	(0.022)	(0.013)	(0.022)
oldgerman	0.042	-0.021	0.066***	-0.094***
	(0.027)	(0.023)	(0.011)	(0.017)
unemp	0.397	0.053	0.028	0.250
	(0.284)	(0.318)	(0.168)	(0.381)
meanage	-0.005	-0.004	0.002	-0.013*
	(0.007)	(0.006)	(0.003)	(0.007)
old	-0.076	0.087	-0.042	0.355
	(0.310)	(0.277)	(0.137)	(0.305)
young	-0.598**	-0.352*	-0.121	-0.467*
	(0.250)	(0.210)	(0.111)	(0.252)
loginc	-0.010	-0.079***	0.001	-0.088**
	(0.032)	(0.027)	(0.017)	(0.037)
HE_nonuni	-0.285	-0.082	-0.034	-0.483***
	(0.194)	(0.173)	(0.080)	(0.141)
HE_uni	0.222	-0.110	0.053	-0.198*
	(0.174)	(0.153)	(0.074)	(0.118)
foreign	0.127	0.115	-0.012	-0.318***
	(0.111)	(0.090)	(0.044)	(0.076)
Constant	1.119***	1.729***	0.084	1.900***
	(0.338)	(0.306)	(0.191)	(0.453)
Observations	461	462	462	462
R^2	0.504	0.488	0.302	0.432

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

7.3 Overview over Referenda

Referendum	Official Title
poor1992	Volksinitiative "Für eine finanziell tragbare Krankenversicherung"
av1997	Bundesbeschluss über die Finanzierung der Arbeitslosenversicherung
ahv1995	Volksinitiative "Zum Ausbau von AHV und IV"
iv2007	Bundesgesetz über die Invalidenversicherung
consumerprotect1981	Volksinitiative "zur Absicherung der Rechte der Konsumenten"
tenantprotect1986	Volksinitiative "für Mieterschutz"
farmprotect1998	Volksinitiative "für preisgünstige Nahrungsmittel und ökologische Bauernhöfe"
rentprotect2003	Volksinitiative "Ja zu fairen Mieten"

Referendum	Content
poor1992	Allow the Poor to pay lower health insurance contributions
av1997	(Reject) 3% Cut of daily Unemployment Allowance
ahv1995	Make oldage and disability insurance obligatory and universal
iv2007	(Reject) Cut of Benefits for the Disabled
consumerprotect1981	Ask government to prevent firms from abusing market
tenantprotect1986	Ask government to protect tenants from excessive rent prices
farmprotect1998	Farm subsidies to further ecological farming and lower prices
rentprotect2003	Regulate more strongly how and which rent rates can be charged

7.4 Maps and Graphs

Figure 1: The structure of Swiss governance between the 13th and the 19th century.

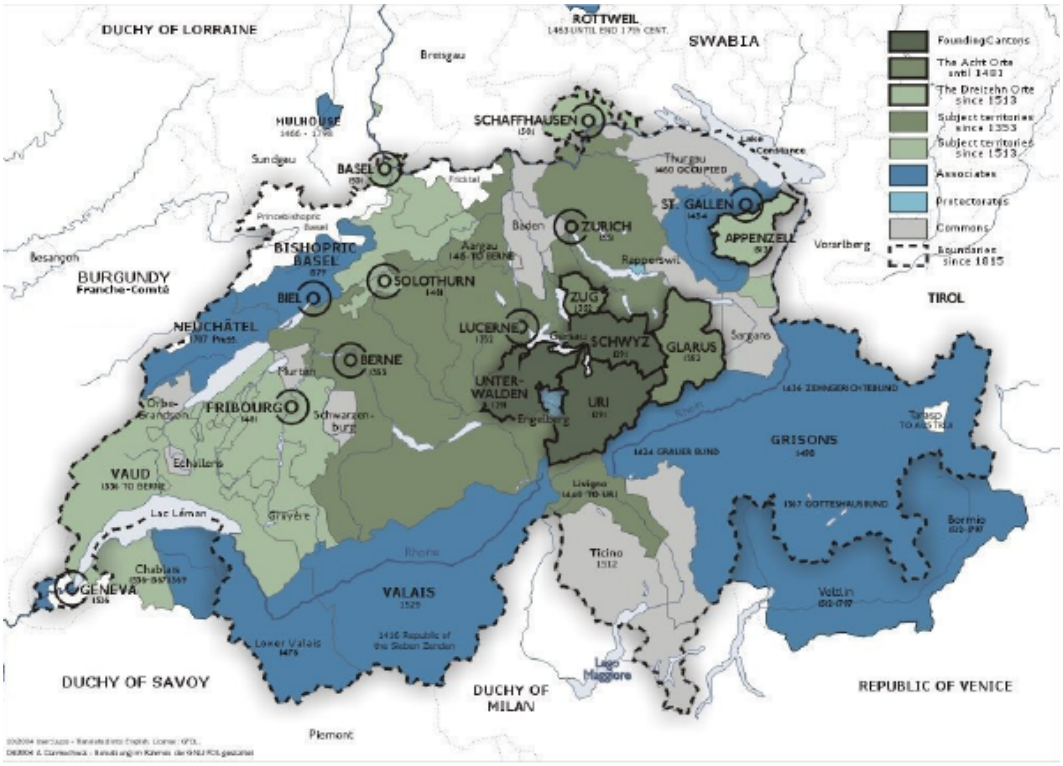

Figure 2: Historic integration of the different subject territories into the Swiss Confederation

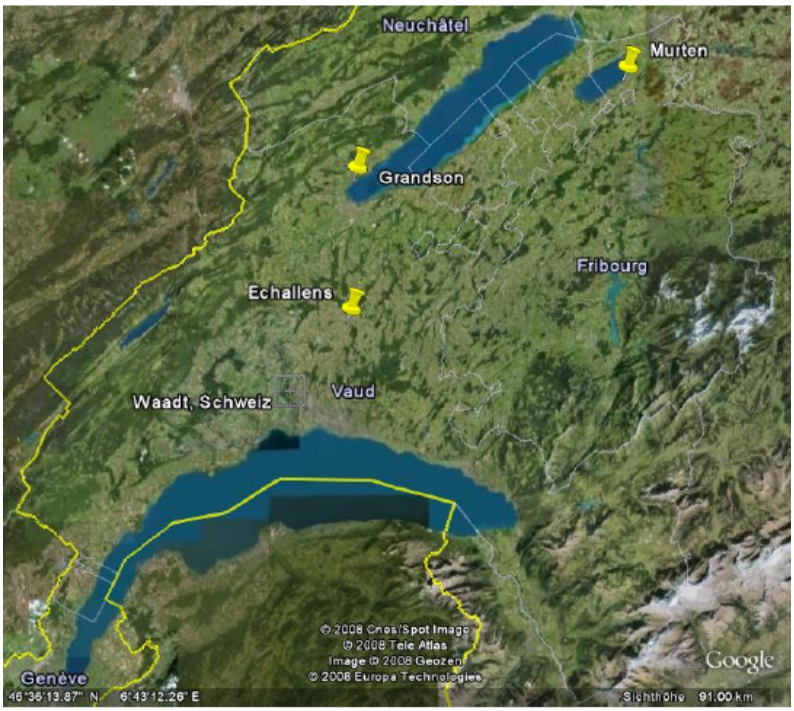

Figure 3: Satellite image of our Lab region in Western Switzerland

Figure 4: Historic Map of the Lab: Region with Imposed Protestantism ("treatment") in blue, Catholic region ("control") in red, Common Lordships in yellow.

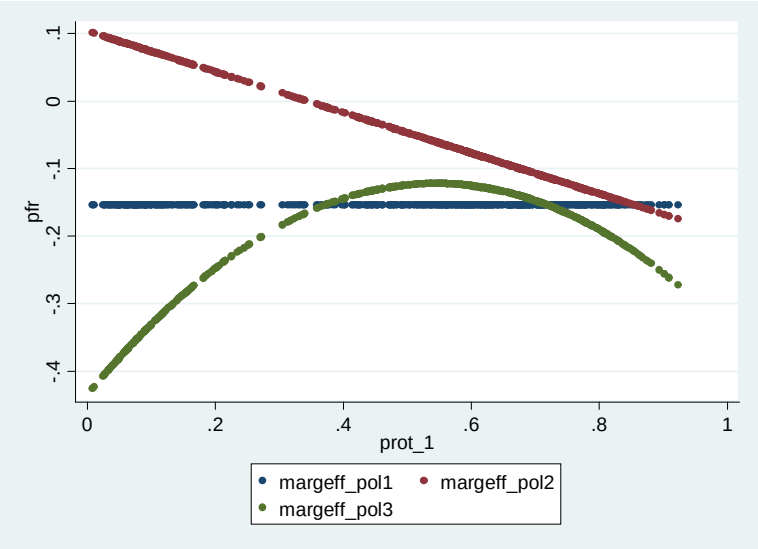

Figure 5: The Nonlinear Marginal Effect of Protestantism on Preferences-for-Redistribution.