

# Beyond Work Ethic: Religion, Individual and Political Preferences Online Appendix

Christoph Basten and Frank Betz

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## 1 The Choice of Referenda

Table 1 gives a complete overview of all referenda used: Column (1) gives a number within our paper, column (2) gives the official number of the Federal Office of Statistics. Column (3) gives the date, (4) gives the official title in German and a brief explanation in English. (5) indicates why the referendum was triggered, as explained in Section 4 of the paper, 5 indicates the preference area under which we have classified the referendum <sup>1</sup> and (7) indicates in which cases we have used the fraction voting against instead of the fraction voting for the proposal. Table 2 displays the coefficients for each individual referendum.

In referendum 508, which proposed to close funding shortages in the pension and disability insurance system by raising the VAT rate, classification was not unambiguous a priori. On the one hand this may be seen as favoring bigger

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<sup>1</sup>Referenda 329, 352, 354, 469, 470 and 486 on leisure are also used in Bruegger et al [2009]. Referenda 469 and 470 (again), as well as 354, 398, 416, 437, 492 and 528 are used as indicators of preferences for redistribution in Eugster et al [2011]. The latter does additionally use 3 referenda on maternity leave, see their Table 3.

government, on the other hand as favoring greater fiscal responsibility (seeing that without the policy the system would continue to accumulate a deficit) or as rejecting the more redistributive alternative of raising instead the income tax rate. We have classified it as favoring bigger government, which turns out to be the more conservative choice with a view to our hypothesis, in that Protestants turn out to have predominantly voted for rather than against. If we had made the opposite choice, the summary coefficient on Preferences for Redistribution would have become a bit bigger. In general however, how we classify any individual referendum does not matter too much given the great number of referenda.

## **2 Further Explanations of our RDD Methodology**

In the paper we have already argued for a distance measure that takes into account actual travel distances on the ground as opposed to mere air line distances. Adding to this, we have in particular chosen walking as opposed to driving distance, because this seems to us the best proxy also for historical travel networks: Thus any historic paths, which were not transformed into bigger roads will still be counted if they do constitute the shortest connection to the border.

A second issue to consider is whether to use distance to the nearest municipality across the border as in Bruegger et al [2009] or distance to the nearest point right on the border. While the two measures are of course highly correlated and regression results differ only little when we use one or the other, we think that a priori distance to the border itself is the preferable measure. While indeed this choice does not affect which municipalities are in the treatment and which ones are in the control group, the choice will still affect our estimates of the control functions on both sides and hence will affect our estimator of the treatment effect. Since we think that what should matter here is distance to the nearest houses inhabited by members of the other confession, as opposed to distance to the official municipality midpoint, we have thus chosen distance to the border as our preferred measure.

## 3 Additional Robustness Checks

### 3.1 Testing Smoothness of Covariates

One question that arises in the context of any Regression Discontinuity Design is whether individuals are able to manipulate which side of the threshold they are on. In our case, our units of observation are municipalities which cannot move, but it is possible that migration in recent decades has been selective, in particular immigration of foreign residents. To check whether there is any evidence on this, Table 4 repeats our Regression Discontinuity analyses with Imbens-Kalyanaraman Optimal Bandwidth for a number of demographic variables. We find no statistically significant differences at the border in population density, the share of foreign or married residents or the share of males. Despite the apparently different attitudes toward government, we find no evidence of differential turnout at the referenda we consider. This is different from Gerber et al [2010] who find that in the US church attendance tends to increase turnout, and more so amongst Catholics than amongst Protestants. We find some evidence that Protestants have on average higher degrees, a finding discussed in more detail below.

### 3.2 Differential Secularization?

A particularly interesting covariate is the share without religion, displayed in Table 4, column (6). In the paper we have argued that religiously rooted preferences may continue to be transmitted also after religion itself has become less important, and this is indeed what our main results suggest. There might however be a problem in our results if the degree of secularization differed between formerly Catholic and formerly Protestant areas: Then preferences ascribed to Protestantism or Catholicism might in reality be directly due to secularization. To test whether this is the case we can check for a discontinuity in the share of inhabitants no more affiliated with any religion (other religions like Islam or Judaism

are recorded separately in the census, but the fractions with such affiliations are negligible in our sample). While this is not a perfect measure of secularization, Hout and Fischer [2002] find that in the US formal affiliation is indeed correlated with other measures of religiosity. This relationship can be expected to be even stronger in Switzerland, because those affiliated must pay church taxes and thus have an incentive to leave their church if they are no more convinced. As column (6) shows, we find no evidence of a discontinuity in secularization, neither in 1980 as displayed, nor in 1970, 1990 or 2000, for which we also have data, suggesting that our results are not driven by selective secularization.

### 3.3 Triangular Kernel

An alternative to assigning equal weight to all observations, as we have done in the baseline specification underlying all results in our main paper is to assign more weight the closer an observation is to the threshold. Results from using such a triangular or edge kernel, which Fan and Gijbels [1996]<sup>2</sup> showed to be optimal for estimating local linear regressions at the boundary, are presented in Table 5 and are found not to differ in any significant way from the results obtained with the simpler rectangular or uniform kernel.

### 3.4 Forcing Variable Air Line Distance

While we have argued in the paper and above for using walking distance as preferred forcing variable, Table 6 shows that in our specific context the results obtained with air line distance as forcing variable do not differ much from those obtained when using walking distance. When we follow Dell [2010] in controlling separately for longitudinal and latitudinal distance from the border, as displayed in Table 7, our results remain broadly unchanged. We think that this does likely reflect insufficiencies in the control function for our present context and prefer to

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<sup>2</sup>Fan, J. and I. Gijbels [1996]. *Local Polynomial Modelling and Its Applications*. London: Chapman and Hall.

stick with the more conservative estimates presented and discussed in the main part of our paper.

### **3.5 Coincidence of the Assignment with Present-Day Cantons: Exploiting the “Common Lordships”**

The validity of the identification mechanism may be questioned because the assignment described above has led not only to differences in present-day religion, but has in addition implied that the two areas became separate Swiss cantons (states) in 1803. To the extent to which present-day differences between the two cantons are a consequence of the different assignment of religions, this is part of what we are investigating. We do however need to ask whether at any point between the natural experiment and today there were shocks that affected one canton differently from the other and that could cause voting behavior to differ across the two regions for reasons other than religion. If so, the exclusion restriction of our instrumental-variable design would be violated.

Fortunately, we can examine this issue empirically: While in general the agreement between the city republics Berne and Fribourg was that within its subject territory each could choose which religion its citizens were supposed to follow, the territory under consideration knew three exceptions from this rule in the “Common Lordships” Grandon, Echallens-Orbe and Murten. These were places where the Swiss Confederates had won major battles of the Burgundy Wars. In 1476 they thus became joint territories of all Swiss Confederates, and with the 1484 Treaty of Beromuenster they fell exclusively to Berne and Fribourg who paid the others off.

Henceforth the two cities ruled them jointly by taking five-year-turns in nominating the bailiff. Importantly, the agreement implied at least initially that the citizens of these territories would remain free to choose their religion, rather than having to choose that of either of their two rulers. Later developments were then

somewhat asymmetric. In Grandson and Echallens-Orbe, both surrounded by Protestant Vaud, citizens remained free to choose, but the more powerful Berne managed to enforce a clear bias toward Protestantism: If the majority of citizens voted for abolishing the Catholic mass, it would be irrevocably abolished; if by contrast they voted for keeping it, then the Protestant minority remained free to practice Protestantism and could after some time ask for a new vote on the issue. As a consequence, in the course of the 16th and early 17th century most municipalities did nonetheless adopt the same Protestant religion as the rest of the Vaud.

Things were different in the bailiwick of Murten<sup>3</sup>, situated in the Northern part of the present-day canton of Fribourg. Despite being largely surrounded by Catholic territory – except for the North, where it bordered Protestant Berne – pressure from Berne meant that this territory did soon also adopt the Reformation. At the same time, it became a regular part of the canton of Fribourg, when that was formed in 1803. This provides us with an area whose religious situation was very much like that of Vaud, but which nonetheless became a part of the canton of Fribourg, thus allowing us to separate the effect of Protestantism from that of being situated in the canton of Vaud. We do so by conducting a within-canton comparison, first of the share of Protestants in 1980 and then of our three preference measures as well as income mean and inequality, between Murten and Catholic Fribourg. Since all of Murten has traditionally been German-speaking, we use as comparison group only the other German-speaking municipalities of Fribourg, although a comparison with the entire canton yields qualitatively the same results. For further details on the three Common Lordships, see the entries on Murten, Grandson and Echallens in *Historisches Lexikon der Schweiz* [2009] , as well as the longer list of references given therein.

Table 8 shows the summary statistics of this comparison. Since we are now

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<sup>3</sup>The bailiwick of Murten comprised the present-day municipalities of Haut-Vully, Bas-Vully, Fraeschels, Kerzers, Galmiz, Ried bei Kerzers, Muntelier, Buechslen, Gempenach, Murten, Lurtigen, Ulmiz, Jeuss, Courlevon, Courgevoux, Meyriez and Greng.

talking of a rather small sample, comprising only 18 Protestant and 28 Catholic municipalities, all of which are situated in the two Northern-most districts (Lake District and Sense District) of the canton of Fribourg, these summary statistics do effectively give us the local intention-to-treat effect of Protestantism within the canton of Fribourg. The resulting coefficients on Protestantism go all in the same direction as those in our main paper. Thus these comparisons suggest that our results are indeed due to the effect of Protestantism and cannot be explained by some unobserved other factors effective at the canton level.

## 4 Differences in Retirement Behavior

Finally, we investigate whether there is evidence that the preferences expressed in the working time referenda are also mirrored by actual economic behavior. This is unlikely to show up in weekly hours, which are regulated both by law and by collective agreements, which are often binding for all companies and employees in a sector. With regulation imposing a certain degree of uniformity in the number of hours worked, the major margin expected to matter is work intensity, which however we do not observe. The observable dimension where employees have comparatively more leeway to behave differently is early retirement, to which we now turn. To study determinants of early retirement we draw on data from the Swiss Labour Force Survey (SLFS). The SLFS is an annual labor force survey first fielded in 1991, and our analysis is based on the 1991-2009 waves of the survey. While there is no information on individual religious affiliation, the survey does contain a municipality identifier by which we can merge in distance from the religious border and thus implement our Spatial Regression. If we wish to impose the same conservative bandwidth restrictions as in our main estimates, we need to exploit data from all survey waves to obtain a reasonable sample size. The survey is a rotating panel, with respondents participating in up to five waves. We can thus follow individuals through time and use discrete time duration models

to model retirement behavior. In addition to labor market activity the SLFS contains information on demographic characteristics such as age, language, marital status, nationality and education. The sample consists of men between age 50 and 65. We estimate discrete time duration models with a logistic link function and a baseline hazard that is piecewise constant in age.<sup>4</sup> The estimates in Table ?? refer to marginal effects, which represent the percentage point change in the retirement hazard. We do not present estimates of the baseline hazard, which as expected displays strong positive duration dependence. The specifications presented in Panel A condition on distance to the frontier as in the rest of the paper. As the SLFS does not have information on religious affiliation we compare retirement hazards across the traditionally Protestant and Catholic regions. Panel A shows that retirement hazards in the Protestant region are on average lower, though size and significance of the effect are sensitive with respect to bandwidth. The lack of significance at the IK optimal bandwidth may be attributed to the small number of retirees, which in this case equals 78. Only at a bandwidth of 20km are differences in retirement hazards significant at a ten percent level. The estimates range from 3 to 6 percentage points, which is fairly large given unconditional hazards of about 10 percentage points. However, conclusions remain somewhat tentative given the large variance of the estimates. To put the results in perspective we compare them to other potential determinants of retirement decisions. The specifications include indicators for German mother tongue, being married, foreign and tertiary education. Panel A shows that among these variables only the German language indicator is significant at a bandwidth of 20km. Given the large variance of the estimate one has to be cautious when judging their magnitude. Still, the results suggest if anything a comparatively stronger role for religion. Panel B presents estimates without conditioning on distance to the frontier. Retirement hazards in the Protestant region are now significantly

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<sup>4</sup>See: Jenkins, S., *Easy Estimation Methods for Discrete-Time Duration Models*, Oxford Bulletin of Economics and Statistics, 1995.

lower for bandwidths 5.03km and 10km, but no longer for 20km. Regarding the other covariates, the pattern resembles that of Panel A.

## 5 A Role for Education?

Work by Becker and Woessmann [2009] found that in 19th century Prussia (Lutheran) Protestant counties had higher literacy rates than Catholic ones, which they trace back to Luther’s demand that everyone be able to read the Bible. Furthermore they show that this difference in literacy can explain most of the difference in economic prosperity and argue that this leaves little role for a Protestant work ethic. While we have argued above that Weber’s “work ethic” hypothesis applied specifically to Reformed Protestantism and while the arguments put forward by Becker and Woessmann [2009] refer specifically to Luther’s demand to read the Bible, we need to ask whether similar demands by Swiss Reformers could matter also in our setting.

A priori, the demand to read the Bible that Becker and Woessmann [2009] have found to increase literacy rates in the 19th century need not increase education beyond the literary level, when near-universal literacy has already been achieved. But it is indeed conceivable that Protestant areas acquired some headway in education in the past and have then retained it. A comparison of Becker and Woessmann [2009] and Cantoni [2009] however tends to suggest otherwise, for the effect of Lutheran Protestantism on income ceases to exist in Cantoni’s more urban sample, where literacy is already higher for other reasons. This idea is then confirmed by findings in specifically about Switzerland in Boppart et al [2008] and Boppart et al [2011]. The former finds that, in the 19th century in Switzerland as a whole, inter-confessional differences in education did only exist in rural environments, but disappear in economically more advanced ones, making them conclude that “religious denomination ceases to matter for human capital formation if the economy is sufficiently advanced”. The latter find that

where Protestants are educationally more advanced than Catholics, they are so not only in reading but also in other fields<sup>5</sup> and interpret this as evidence against the “Reading the Bible” hypothesis and as suggesting instead that “Protestants may have been more aware than Catholics that educational investment pays off economically”.

Directly testing this in our own data is not possible because even if we find a discontinuity also in education, it is not clear which causality it reflects: Is it that more education strengthens the “work ethic” or does to the contrary a stronger “work ethic” induce individuals to get more or better education? The existing literature on the issue appears to favor the latter direction of causality: Thus Cunha and Heckman [2008] found that “non cognitive skills promote the formation of cognitive skills but [...] cognitive skills do not promote the formation of non cognitive skills”, and similar findings are made for instance in Cunha et al [2010] or Bowles and Gintis [2002]. It is also possible that higher parent income enables children to spend more time in education, rather than having to start a salaried job early on.

Nonetheless it is interesting to investigate what evidence there is of differences in educational achievement across the religious border. The Federal Office of Statistics provides data on education based on the 2000 census.<sup>6</sup> which tell us for each municipality the number of inhabitants in different education categories. Ignoring those whose education is unknown or who are still in obligatory school, we can then compute the shares with respectively education above or below high school level. Results for these have been added to Table 4. The point estimates here give some evidence that Protestants attain higher degrees, since according to the Wald estimates the fraction finishing their education below high-school level is 3.5 percentage points lower and the fraction completing more than high

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<sup>5</sup>The instrumental-variable results in Table 3 reveal the difference in mathematics scores to be bigger than those in reading, and Table 4 shows differences in both mathematics and history that are significantly bigger than those in reading.

<sup>6</sup><http://www.pxweb.bfs.admin.ch/Dialog/statfile.asp?lang=1&prod=01>

school is about 2.4 percentage points higher on the Protestant side of the border, although the results are statistically significant only at the 10% level.

At the same time however, Table 10 shows that the Protestant side has lower rather than higher standardized PISA test scores across all subjects<sup>7</sup>. It also has lower rather than higher education spending, both in per capita terms and as percentage of income.<sup>8</sup>, although we must caution that both figures are not available at the municipality but only at the canton level (PISA scores in the case of Fribourg are for the French-speaking part only, which corresponds in this dimension to our estimation sample). Overall then, the evidence as to whether one side has more education than another – as a direct consequence of their different religions or in turn as a consequence of differences in income or preferences – seems at best mixed. It does not appear that part of the effect of Protestantism on preferences found in this paper is operating mainly through the education channel.

## Tables

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<sup>7</sup>We thank Alina Matei of the Pedagogical Research Institute at Neuchatel University for providing us with the data at canton level. For more information, see [http://www.irdp.ch/recherche/pisa/ocde\\_pisa.html](http://www.irdp.ch/recherche/pisa/ocde_pisa.html)

<sup>8</sup>In 2004, public spending on education was 3,014 CHF per capita in Catholic Fribourg, compared to 2,841 CHF in Protestant Vaud. As a percentage of income, it amounted to 7.8% in Catholic Fribourg and to 5.5% in Protestant Vaud. Source: Federal Office of Statistics, National Accounts, Statistics of Finances and Costs in the Education Sector.

Table 1: Full List of all Referenda Considered

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	FSO	Date	Original title in German & Content	Type	Area	“No”
(1)	307	14/06/1981	BB über die VI 'zur Absicherung der Rechte der Konsumenten' Regulate price setting	O	IN	
(2)	311.1	28/11/1982	VI 'zur Verhinderung missbräuchlicher Preise' Regulate price setting	VI	IN	
(3)	311.2	28/11/1982	GE zur VI 'zur Verhinderung missbräuchlicher Preise' Regulate price setting	GE	IN	
(4)	329	10/03/1985	VI 'für eine Verlängerung der bezahlten Ferien' (Ferien-Initiative) Prolong vacations	VI	LE	
(5)	342	07/12/1986	BB über die VI 'für Mieterschutz' Regulate rental market	O	IN	
(6)	352	12/06/1988	VI 'zur Herabsetzung des AHV-Rentenalters auf 62 Jahre für Männer und 60 Jahre für Frauen' Lower retirement age	VI	LE	
(7)	354	04/12/1988	VI 'zur Herabsetzung der Arbeitszeit' Cut weekly working time	VI	LE	
(8)	373	16/02/1992	VI 'für eine finanziell tragbare Krankenversicherung' (Krankenkasseninitiative) Progressively financed health insurance	VI	RE	
(9)	397	26/09/1993	BB über befristete Massnahmen gegen die Kostensteigerung in der Krankenversicherung Higher health insurance fees, including for the poor	F	RE	1
(10)	398	26/09/1993	BB über Massnahmen in der Arbeitslosenversicherung Strengthen incentives to return to work	F	RE	1
(11)	415	04/12/1994	BG über die Krankenversicherung (KVG) More redistribution toward the sick and the poor	F	RE	
(12)	416	04/12/1994	VI 'für eine gesunde Krankenversicherung' Obligatory accident and health insurance, progressively financed	VI	RE	
(13)	418	12/03/1995	GE zur VI 'für eine umweltgerechte und leistungsfähige bäuerliche Landwirtschaft' Regulation of agriculture	O	IN	

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	FSO	Date	Original title in German & Content	Type	Area	"No"
(14)	422	25/06/1995	BG über die Alters- und Hinterlassenenversicherung, Änderung vom 7. Oktober 1994 (10. AHV Revision) Raise retirement age	F	LE	1
(15)	423	25/06/1995	VI 'zum Ausbau von AHV und IV' Expand old-age and disability insurance	VI	RE	
(16)	430	09/06/1996	GE zur VI 'Bauern und Konsumenten - für eine naturnahe Landwirtschaft' Regulation of agriculture	O	IN	
(17)	437	28/09/1997	BB vom 13. Dezember 1996 über die Finanzierung der Arbeitslosenversicherung Cut UI benefits	F	RE	1
(18)	443	27/09/1998	VI 'für preisgünstige Nahrungsmittel und ökologische Bauernhöfe' Interventions in agriculture	VI	IN	
(19)	469	26/11/2000	VI 'für eine Flexibilisierung der AHV - gegen die Erhöhung des Rentenalters für Frauen' Oppose rise in female retirement age	F	LE	1
(20)	470	26/11/2000	VI 'für ein flexibles Rentenalter ab 62 für Frau und Mann' More flexibility to retire early	VI	LE	
(21)	475	04/03/2001	VI 'für tiefere Arzneimittelpreise' Deregulate access to Swiss pharmaceutical market	VI	IN	1
(22)	484	02/12/2001	VI 'für eine Kapitalgewinnsteuer' Capital gains tax	VI	RE	
(23)	486	03/03/2002	VI 'für eine kürzere Arbeitszeit' Cut working time	VI	LE	
(24)	489.1	22/09/2002	VI 'Überschüssige Goldreserven in den AHV-Fonds' Use central bank profits to finance old-age insurance	VI	RE	
(25)	489.2	22/09/2002	Gold für AHV, Kantone und Stiftung (GE zur Goldinitiative) Use central bank profits to finance old-age insurance	GE	RE	
(26)	492	24/11/2002	BG über die obligatorische Arbeitslosenversicherung und die Insolvenzschiädigung Lower UI contributions; lower maximum UI duration	F	RE	1
(27)	497	18/05/2003	VI 'Ja zu fairen Mieten'	VI	IN	

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	FSO	Date	Original title in German & Content	Type	Area	“No”
			Regulation of rental market			
(28)	499	18/05/2003	VI 'Gesundheit muss bezahlbar bleiben' Progressively financed health insurance through not-for-profits	VI	RE	
(29)	505	02/08/2004	Obligationenrecht (Miete). Änderung Regulate rental market	F	IN	
(30)	507	16/05/2004	BG über die Alters- und Hinterlassenenversicherung (11. AHV Revision) Raise female retirement age	F	LE	1
(31)	508	16/05/2004	BB über die Finanzierung der AHV/IV durch Anhebung der Mehrwertsteuersätze * Finance old age and disability insurance through higher VAT	O	RE	
(32)	512	26/09/2004	VI 'Postdienst für alle' Guarantee postal service everywhere; tax-financed	VI	RE	
(33)	515	28/11/2004	BB über eine neue Finanzordnung Make use of VAT permanent; remove capital taxes imposed on legal entities	O	RE	1
(34)	520	27/11/2005	VI 'für Lebensmittel aus gentechnikfreier Landwirtschaft' Forbid genetically modified agriculture	VI	IN	
(35)	521	27/11/2005	Arbeitsgesetz (Ladenöffnungszeiten in Zentren des öffentlichen Verkehrs) Allow for longer shop opening times in public transport buildings	F	IN	1
(36)	523	24/09/2006	VI 'Nationalbankgewinne für die AHV' Use central bank profits to finance old-age insurance	VI	RE	
(37)	528	11/03/2007	VI 'Für eine soziale Einheitskrankenkasse' Progressively financed national health service	VI	RE	
(38)	529	17/06/2007	BG über die Invalidenversicherung (5. IV-Revision) Tighten access to early retirement	F	RE	1
(39)	531	24/02/2008	BG über die Verbesserung der steuerlichen Rahmenbedingungen für unternehmerische Tätigkeiten und Investitionen Lower corporate taxes	F	RE	1
(40)	534	01/06/2008	GE zur VI 'Für tiefere Krankenkassenprämien in der Grundversicherung' Lower fees for basic health insurance	O	RE	

(1)	(2)	(3)	(4)	(5)	(6)	(7)
	FSO	Date	Original title in German & Content	Type	Area	“No”
(41)	543	27/09/2009	BB über eine befristete Zusatzfinanzierung der Invalidenversicherung durch Anhebung der Mehrwertsteuersätze Temporary rise in VAT to finance disability insurance	O	RE	
(42)	550	07/03/2010	BG über die berufliche Alters-, Hinterlassenen- und Invalidenvorsorge (BVG) (Mindestumwandlungssatz) Lower the minimum pension payments	F	RE	1
(43)	551	25/09/2010	BG über die obligatorische Arbeitslosenversicherung und die Insolvenzsentschädigung More pressure on jobless; Relate UI duration more to prior contributions	F	RE	1
(44)	553	28/11/2011	VI 'Für faire Steuern. Stopp dem Missbrauch beim Steuerwettbewerb' Against tax breaks for the super rich	VI	RE	

Column (1) gives for each referendum a number within this paper, and column (2) gives the official number assigned by the Federal Statistical Office (FSO). Column (3) gives the original title in German and below that a brief summary of the question put to vote. Column (5) indicates whether the referendum was about a proposal made by citizens (Volksinitiative, VI), a government's alternative suggestion in response to a citizen proposal (Gegenentwurf, GE), a federal law challenged by citizens (Fakultatives Referendum, F), or a constitutional amendment that must be voted on (Obligatorisches Referendum, O). Further abbreviations used in column (3) are BG for Bundesgesetz (Federal Law) and BB for Bundesbeschluss (Federal Decision). Column (6) indicates whether the referendum can best be classified as being about Leisure (L), Redistribution (R) or Intervention (I). Finally, column (7) indicates referenda that proposed less rather than more leisure, redistribution or intervention; In these cases we use the fraction of “No” votes rather than the fraction of “yes” votes.

Table 2: Coefficients for Individual Referenda

(1)	(2)	(3)	(4)	(5)	(6)
	FSO	10km		20km	
(1)	307	-15.61***	(3.841)	-16.32***	(2.733)
(2)	311.1	-8.035*	(3.175)	-9.580***	(2.410)
(3)	311.2	2.587	(2.852)	2.752	(1.994)
(4)	329	-11.17**	(3.601)	-11.80***	(2.625)
(5)	342	-12.65***	(3.085)	-14.05***	(2.277)
(6)	352	-16.30***	(2.941)	-14.90***	(2.180)
(7)	354	-9.921***	(2.844)	-10.51***	(2.159)
(8)	373	-6.927**	(2.415)	-7.207***	(1.786)
(9)	397	-14.63***	(2.372)	-14.08***	(1.704)
(10)	398	-9.140**	(3.118)	-7.877***	(2.235)
(11)	415	-2.411	(3.073)	-3.360	(2.164)
(12)	416	-6.603**	(2.259)	-7.052***	(1.690)
(13)	418	2.561	(2.564)	1.616	(1.883)
(14)	422	-15.06***	(2.251)	-15.61***	(1.705)
(15)	423	0.714	(2.459)	-1.745	(1.756)
(16)	430	-14.18***	(3.607)	-13.87***	(2.656)
(17)	437	-8.415**	(3.052)	-10.36***	(2.126)
(18)	443	-2.220	(1.346)	-1.653	(1.008)
(19)	469	7.477**	(2.866)	8.713***	(1.991)
(20)	470	-6.792**	(2.481)	-8.608***	(1.779)
(21)	475	-1.389	(1.496)	-0.891	(1.119)
(22)	484	-2.977	(2.767)	-2.082	(2.086)
(23)	486	-7.034**	(2.710)	-7.062***	(1.874)
(24)	489.1	-5.298	(2.769)	-4.226*	(1.986)
(25)	489.2	1.272	(2.647)	1.933	(1.921)
(26)	492	-6.280*	(2.513)	-6.818***	(1.866)
(27)	497	-5.106*	(2.429)	-5.822**	(1.782)

(1)	(2)	(3)	(4)	(5)	(6)
	FSO	10km		20km	
(28)	499	-0.0164	(2.001)	-0.741	(1.476)
(29)	505	-1.865	(2.305)	-2.612	(1.653)
(30)	507	-15.00***	(2.029)	-15.33***	(1.501)
(31)	508	11.11***	(1.842)	11.62***	(1.329)
(32)	512	-6.316*	(2.630)	-7.265***	(1.875)
(33)	515	-17.90***	(2.300)	-16.97***	(1.652)
(34)	520	-2.149	(2.473)	-2.390	(1.811)
(35)	521	-4.610	(2.642)	-6.956***	(1.891)
(36)	523	-2.329	(2.190)	-1.246	(1.629)
(37)	528	3.083	(2.031)	1.862	(1.493)
(38)	529	-7.518**	(2.597)	-8.357***	(1.901)
(39)	531	-2.068	(2.480)	-4.338*	(1.940)
(40)	534	-4.124**	(1.421)	-5.434***	(1.057)
(41)	543	0.939	(2.348)	1.819	(1.743)
(42)	550	-7.569**	(2.303)	-7.778***	(1.661)
(43)	551	-7.571**	(2.741)	-7.783***	(2.013)
(44)	553	0.188	(2.034)	-1.086	(1.460)

Column (1) gives for each referendum an identifier within this paper and (2) gives the Federal Statistical Office (FSO) identifier. Column (3) gives the coefficient based on a bandwidth of 10km, roughly the optimal bandwidth for most individual referenda, and (5) gives those for 20km. (4) and (6) give the corresponding standard errors. In both cases statistical significance is indicated by stars as follows: \*  $P < 0.10$ , \*\*  $P < 0.05$ , \*\*\*  $P < 0.01$ .

Table 3: The Income Effect in Different Years

	(1) Income 1980	(2) Income 1985	(3) Income 1990	(4) Income 1995	(5) Income 2000
BW 5km (N = 133)	1.74 (1.22)	1.59 (1.55)	2.84 (1.81)	3.95* (2.10)	5.43** (2.26)
BW 10km (N = 208)	2.93*** (.91)	3.77*** (1.25)	2.90* (1.51)	4.96*** (1.67)	4.13** (1.77)
BW 20km (N = 305)	3.85*** (1.15)	4.08*** (1.17)	4.41*** (1.64)	5.94*** (1.59)	5.73*** (1.93)

Estimates of the discontinuity in each municipality's pre-tax income divided by the number of tax payers, displayed for 4 different years and 3 different bandwidths. Robust standard errors are shown in parentheses. Statistical significance is indicated by stars as follows: \*  $P < 0.10$ , \*\*  $P < 0.05$ , \*\*\*  $P < 0.01$ .

Table 4: Smoothness of Covariates

	(1) Population per km <sup>2</sup> (2000)	(2) Share of inhabitants foreign (2000)	(3) Share of inhabitants married (2000)	(4) Share of inhabitants male (2000)	(5) Average Participation in all Referenda	(6) Share without religion (1980)	(7) Share educated below HS	(8) Share educated above HS
ITT	-43.88 (43.30)	-1.60 (2.34)	2.11 (1.73)	-71 (.84)	3.05 (2.30)	-.30 (.83)	-3.46* (1.95)	2.40* (1.43)
FS	.67*** (.03)	.67*** (.03)	.67*** (.03)	.67*** (.03)	.67*** (.03)	.67*** (.03)	.67*** (.03)	.67*** (.03)
IV	-65.41 (63.28)	-2.38 (3.43)	3.14 (2.57)	-1.07 (1.25)	4.55 (3.31)	-.45 (1.24)	-5.16* (2.94)	3.58* (2.15)
HK OB	5.01	5.01	5.01	5.01	5.01	5.01	5.01	5.01

The table shows estimates of the intention-to-treat (ITT), first-stage (FS) and instrumental-variable (IV) effects of Protestantism on the outcomes indicated in the column heads. (1) is inhabitants per km<sup>2</sup>, all other variables scaled between 0 and 100. We use the same bandwidth as for our main outcomes of interest. Robust standard errors are shown in parentheses. Statistical significance is indicated by stars as follows: \* P<0.10, \*\* P<0.05, \*\*\* P<0.01.

Table 5: Triangular Kernel

	(1) Preferences for Leisure	(2) Preferences for Redistribution	(3) Preferences for Intervention	(4) Mean Income 1980-2000	(5) Income Inequality in 1996
ITT	-9.39*** (2.00)	-3.55*** (1.34)	-4.63*** (1.15)	2.63* (1.35)	.08*** (.01)
FS	.68*** (.03)	.68*** (.03)	.68*** (.03)	.68*** (.03)	.68*** (.03)
IV	-13.75*** (2.84)	-5.20*** (1.89)	-6.78*** (1.61)	3.86* (2.02)	.11*** (.02)
IK OB	6.38	6.38	6.38	6.38	6.38

The table presents intention-to-treat (ITT), first-stage (FS) and instrumental-variable (IV) estimates of the main outcomes based on a triangular kernel. Bandwidth in km is chosen optimally following Imbens and Kalyanaraman. Robust standard errors are shown in parentheses and statistical significance is indicated by stars as follows: \*  $P < 0.10$ , \*\*  $P < 0.05$ , \*\*\*  $P < 0.01$ .

Table 6: Great-Circle Distance

	(1) Preferences for Leisure	(2) Preferences for Redistribution	(3) Preferences for Intervention	(4) Mean Income 1980-2000	(5) Income Inequality in 1996
ITT	-9.32*** (1.64)	-3.94*** (1.12)	-4.25*** (.89)	1.74 (1.21)	.06*** (.01)
FS	.72*** (.03)	.72*** (.03)	.72*** (.03)	.72*** (.03)	.72*** (.03)
IV	-13.02*** (2.22)	-5.49*** (1.50)	-5.93*** (1.22)	2.42 (1.72)	.08*** (.02)
IK OB	4.93	4.93	4.93	4.93	4.93
N	156	156	156	156	156

The table presents intention-to-treat (ITT), first-stage (FS) and instrumental-variable (IV) estimates for the main outcomes based the great-circle distance between a municipality and the closest border point. A border point is an intersection of the border line with a road or path. Bandwidth in km is chosen optimally following Imbens- and Kalyanaraman. Robust standard errors are shown in parentheses and significance is indicated by stars as follows: \*  $P < 0.10$ , \*\*  $P < 0.05$ , \*\*\*  $P < 0.01$ .

Table 7: Latitude and Longitude

	(1)	(2)	(3)	(4)	(5)
	Preferences for Leisure	Preferences for Redistribution	Preferences for Intervention	Mean Income 1980-2000	Income Inequality in 1996
Share Protestants	-11.97*** (1.20)	-5.19*** (.88)	-7.44*** (.74)	6.33*** (1.22)	.10*** (.01)
Longdis	-25.04 (36.67)	-15.24 (21.84)	20.03 (16.93)	39.31*** (13.75)	.14 (.17)
Latdis	-84.82 (56.34)	-24.03 (41.50)	-23.34 (18.53)	-33.95 (24.93)	.04 (.29)
T*Longdis	-16.23 (41.01)	5.73 (28.17)	-14.62 (22.48)	-72.04* (36.77)	-.07 (.33)
T*Latdis	37.95 (66.25)	-50.69 (52.68)	1.69 (28.34)	-110.53* (59.30)	-.73 (.52)
Constant	49.25*** (.76)	43.41*** (.41)	53.16*** (.44)	42.49*** (.48)	.29*** (.00)
IK OB	4.93	4.93	4.93	4.93	4.93
N	156	156	156	156	156

The table presents intention-to-treat (ITT) estimates of the main outcomes controlling separately for longitudinal and latitudinal distance between the municipality and the closest border point. A border point is an intersection of the border line with a road or path. Bandwidth in km is chosen optimally following Imbens and Kalyanaraman. \* P<0.10, \*\* P<0.05, \*\*\* P<0.01.

Table 8: Intracantonal variation of religion in Fribourg

	Protestant		Catholic		Comparison	
	Common Lordship Murten	German Speaking Fribourg	Mean	SD	Difference	t
Share Protestants 1980	0.85	0.12	0.15	0.1	0.7	20.26
Preferences for leisure	35.82	5.52	45.1	5.43	-9.28	-5.6
Preferences for redistribution	35.66	4.46	41.63	2.34	-5.97	-5.24
Preferences for intervention	47.1	1.88	50.31	2.4	-3.21	-5.06
Avg. Income (CHF), 1980-2000	48.89	5.85	43.85	3.9	5.04	3.15
Gini coefficient 1996	0.35	0.08	0.3	0.02	0.05	2.43

The table presents summary statistics for Protestant and Catholic areas in the German speaking part of Fribourg. The common lordship of Murten was jointly administered by Berne and Fribourg. As a result of Bernese influence the common lordship of Murten became eventually predominantly Protestant, despite being part of the predominantly Catholic canton of Fribourg. The last column presents the t-statistic from a test for the equality of means. For average pre-tax income per capita we have dropped the observation of Greng, where values were implausibly large. Including Greng, the difference would amount to about CHF 16,500 rather than CHF 5,040.

Table 9: Early Retirement

	(1) Retired	(2) Retired	(3) Retired
<i>Panel A:</i>			
<i>Conditioning on distance</i>			
T	-.06 (.06)	-.03 (.04)	-.05* (.03)
German speaking	-.02 (.04)	-.03 (.03)	-.04* (.02)
Married	.02 (.02)	-.01 (.02)	-.01 (.01)
Foreign	.02 (.03)	.02 (.02)	.01 (.01)
University degree	-.01 (.05)	.00 (.03)	-.02 (.02)
P-value of F-test: Distance + T * Distance = 0	0.94	0.60	0.24
<i>Panel B:</i>			
<i>Not conditioning on distance</i>			
T	-.04* (.03)	-.05** (.02)	-.02 (.01)
German speaking	-.02 (.04)	-.03 (.03)	-.05** (.02)
Married	.02 (.02)	-.01 (.02)	-.01 (.01)
Foreign	.02 (.03)	.02 (.02)	.01 (.01)
University degree	-.01 (.05)	.00 (.03)	-.02 (.02)
BW	5.03	10	20
Retired	78	166	448
N	770	1620	4308

Marginal effects from discrete time duration model with piecewise constant baseline hazard and logistic link. Marginal effects refer to percentage point change in hazard rate. Data come from Swiss Labour Force Survey (SLFS), waves 1991-2009. The SLFS is a rotating panel with respondents participating up to five times. The sample includes males between age 50 and 65. The dependent variable equals one if the respondent retires. Estimates of baseline hazard not shown. Standard errors robust with respect to clustering at the household level.

Table 10: PISA scores in Catholic Fribourg vs. Protestant Vaud

	(1)	(2)	(3)	(4)	(5)	(6)
	Fribourg		Vaud		Comparison	
	Mean	SE	Mean	SE	Difference	T
Mathematics	557.16	2.04	526.76	5.66	30.40	5.05
Science	521.74	2.16	496.28	2.46	25.46	7.79
Literacy	514.33	1.97	496.35	2.79	17.99	5.27

Scores amongst 9-year olds in standardized tests following the methodology of the OECD's "Programme for International Student Assessment" (PISA). Columns (1) and (2) show respectively mean and standard error for the French-speaking part of the canton Fribourg, and columns (3) and (4) display those for the canton of Vaud. Column (5) displays the difference and column (6) the T statistic for the hypothesis that this difference is zero.