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Regional Export Dependence and Business-related Popular Votes in Switzerland

Jérémie Poltier (University of Geneva)
Jeremie.Poltier@unige.ch



ABSTRACT:

This paper investigates the relationship between exposure to foreign final demand and the outcomes of popular votes that are relevant to the interests of business actors, as they relate to the issue of international competitiveness. I develop a theoretical framework that bridges the literatures on trade exposure and structural business power and use spatial modelling techniques to determine whether the degree to which a Swiss region and its neighbors are exposed to foreign demand -- that is to say, export dependent -- lead voters of that region to vote in a way that is more in line with the expressed preferences of the country's main business interest associations. With fixed effects to control for unobserved heterogeneity between regions, the results show that increases in a region's or its neighbors' exposure are indeed associated with vote outcomes more in line with the vote recommendations of these associations.

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Introduction

This paper explores how regional dependence on employment in export-oriented industries affects economic policy preferences. Drawing on the literature on structural business power as well as the literature on trade exposure, I hypothesize that the particular form of vulnerability that comes with export dependence leads citizens to align their preferences on those expressed by organized business. I test this hypothesis through a regional-level analysis of popular votes in Switzerland over the period 1995-2017. The unit of analysis in the empirical analysis is the "employment zone", as defined by the Swiss Federal Statistical Office, providing for a larger number of observations ($N=101$) and a more meaningful use of spatial models than analyses based on larger geographic units (such as Swiss cantons).

The Swiss case is an ideal case for this type of study on several counts. Owing to the country's direct democratic institutions, the citizenry is called upon to vote on various objects, including many objects that are of direct interest to business, at regular intervals. By comparison to other countries, it is important for Swiss business to convince not only policymakers but also the majority of the electorate that their specific policy demands are justified. The Swiss case thus offers repeated measurements of voter preferences that can be matched with the preferences of business as well as a context where the direct link between business interests and the electorate is substantively meaningful. As a substantial share of Switzerland's economic growth over the past decades has been driven by exports, my case selection is also most suitable for exploring the effects of export dependence.

While it is generally agreed that organized business remains a very important political actor, recent accounts describe how a series of shifts in Swiss politics have affected the manner in which the political power of business manifests itself. Overall, these shifts can be characterized as a move away from more informal ways of doing politics. With the establishment of permanent legislative committees and the decline in the use of extra-parliamentary committees, it is commonplace for students of Swiss politics to speak of a shift away from the primacy of the pre-parliamentary phase, where organized business was able to exercise strong influence through *quiet politics* processes, and towards a larger role for the parliamentary one (Sciarini, 2015) (Sciarini, 2014; Eichenberger, 2020). The shift towards a noisier mode of politics (Culpepper, 2008; Mach et al., 2021) was also accompanied by changes in the Swiss political economy that saw occasional conflicts between different fractions of business – most notably on issues related to Switzerland adjusting to European regulations (Mach et al., 2003) –, as well as the erosion of the tight networks that in the past provided the basis for the non-market forms coordination that were so common within Swiss business (Widmer, 2011a). All these changes also came with sharp increases in the frequency of direct democratic votes, including votes impinging on the core interests of business. In this new context, the power of business elites has less to do with tight networks and instrumental power and more to do with structural power.

I contend that regional dependence on employment in export-oriented industries touches upon an important dimension of the structural power of business in the Swiss context, and so that

regions where employment is most export-dependent will display economic policy preferences – by way of votes results – most closely aligned with those of organized business, as expressed in the vote recommendations made to the public by the main Business Interest Associations (BIA from this point). I operationalize export dependence by using an indicator constructed by the OECD in the context of its Trade in Value Added database (OECD, 2018), namely the share of domestic value added that is embodied in foreign final demand (FFDDVA). Contrary to the more common $\frac{Exports+Imports}{Output}$, generally coined Trade Exposure, FFDDVA is strictly focused on exports and doesn't include an import competition dimension. Considering both the fact that exports growth has been an important engine of Swiss economic growth in recent decades, that Switzerland runs a large trade surplus and that business representatives often address the issue of Switzerland's international competitiveness in their public interventions, I argue that the use of a measure of export dependence such as FFDDVA rather than one of trade exposure to touch upon the structural business power is justified.

The paper is organized in the following way, section 1 reviews the two mentioned literatures, while section 2 discusses how the literature on structural business power can bring nuance to the findings of the trade exposure literature, and formulates hypotheses regarding the association between export dependence and the outcomes of business-related popular votes in Switzerland. Section 3 presents the different data sources on which this paper rests, describes the way in which the final dataset was constructed, and presents descriptives. Section 4 discusses the statistical models specifications, the choice of Spatial Durbin Error Models as the most appropriate one, as well as the choice of spatial weights matrices and their theoretical implications. Section 5 presents the results and section 6 offers a conclusion.

1 Literature review

1.1 Structural business power

Distinct from instrumental power, where resources and access to policymakers are key, structural power is generally understood as deriving directly from the core activities of business considered to be socially necessary in a capitalist economy, viz. maintaining investment in order to ensure future economic growth and continued employment of the population. The general idea of authors like Lindblom (1977) or Block (1977) is that owing to this societal dependence on business actors, policymakers will tend to anticipate their policy demands, resulting in these demands being fulfilled even in the absence of direct lobbying by business actors. More recent work employing the concept of structural power (Culpepper and Reinke, 2014; Fairfield, 2015) emphasize that the extent to which business can be said to be structurally powerful varies across countries and over time, depending, most obviously, on the extent to which a large number of firms can plausibly exercise an "exit option" (massively redirecting investment to other fiscal jurisdictions).

Another strand of recent works using the concept emphasize instead the fact that there can be an ideational component to the structural power of business (Bell, 2012; Bell and Hindmoor, 2014).

These authors argue that structural business power is not strictly a function of objective conditions but rather is shaped subjectively and inter-subjectively, and that the beliefs of social actors are key in that regard. In other terms, mass beliefs are seen as a key link between a given set of objective conditions and the extent to which certain actors are able to exercise some form of power over others. In the words of Blyth (2003), "structures do not come with an instruction sheet" and interests are never simply given, but rather often depend on the "construction of wants as mediated by beliefs and desires (i.e. ideas)". While this is not a paper about analysing discourses, ideologies or their effects, it is important to recognize that the link between structural position and preferences is *necessarily* mediated by *something* – discourse, belief, ideology.

1.2 Trade exposure

The vote results that I analyse in the context of the present paper can also be considered as the expression of the preferences of the individuals aggregated in a certain geographical area, which calls for a link with the literature on economic and redistributive preferences as they relate to contextual economic variables. In this context, the primary variable of interest explored in this paper is the degree to which employment is exposed to foreign final demand. Although more focused on exports and export-dependence, this concept is relatively close to that of trade exposure – generally measured as $\frac{Exports+Imports}{Output}$. Trade exposure has most often been used as a predictor of free(r) trade preferences, with reference to either one of two economic models of trade, one – the Stolper-Samuelson model (Scheve and Slaughter, 2001; Mayda and Rodrik, 2005) – that assumes perfect mobility of factors across industries and for whom the determinant factor of benefiting from freer trade is being endowed with the relatively more abundant factor in the economy (skilled labor in advanced economies for instance), and the other – the Ricardo-Viner model (Hays et al., 2005) – that assumes less than perfect mobility of factors across industries, and for whom the nature of one's employment sector – more export-oriented or more import-competing – will determine whether one will gain or lose from freer trade. In both cases, preferences are more or less expected to follow directly from whether one would win or lose from freer trade.

There is also a received wisdom that trade exposure should lead individuals to seek insurance against the risks associated with it, namely uncontrollable fluctuations in world markets that could hurt their industry and, as such, their job prospects. This view somewhat corresponds to an individual level translation of the small states in world markets argument of Katzenstein (1985) or of the embedded liberalism thesis of Ruggie (1982). Balcells Ventura (2006) and Walter (2010) have argued in favor of this *compensation thesis* at the individual level, whereas others have argued that the scope conditions for its validity may no longer exist. Their arguments generally have to do with the intensification of globalization and the idea that under the new global conditions, the mechanisms that used to sustain the compensation thesis can no longer work, as the costs of the compensatory component is bound to undermine competitiveness and/or business confidence so much that they will become self-defeating (Rodrik, 1997). For instance, Colantone and Stanig (2018b,a) have demonstrated how individuals from regions more adversely affected by import

competition, and particularly the Chinese import shock, were more likely to display preferences in line with what they call *Economic Nationalism*, namely domestic free market policies (including corporate tax cuts for instance) along with strong protectionist stances, with the underlying notion that compensatory policies are no longer viewed as a realistic option. Wren and Rehm (2013, 2014) argue for the reversal of the compensation thesis on the basis that dynamic traded services have become important growth engines and that skilled workers in these sectors should be expected to oppose welfare spending, insofar as they assume that the act of insuring themselves or others against the risk of job loss actually increases the likelihood that said risk will materialize. They are able to show that high-skill workers in exposed dynamic service sectors tend to be more opposed to redistribution and other compensatory measures than high-skilled workers of other sectors. As such, regarding the association between trade exposure and redistributive preferences, whether one assumes a positive or a negative association depends on what credence one gives to the compensation thesis. Or, perhaps more accurately, what one assumes to be the dominant narrative, at a specific point in time and space, vis-à-vis measures aimed at compensating or insuring the losers or potential losers of the intensification of trade that accompanied globalization.

2 Theoretical framework

In Switzerland, the main Business Interest Associations (BIAs) are respectively *Economiesuisse* and the *SGV-USAM*. The former is a peak business association whose members are either large, often export-oriented multinationals or smaller regional and sectoral business associations, whereas the latter is a peak association that aims to promote the interests of Small and Medium Enterprises (SMEs). Both have historically been important actors in Swiss politics; in a context where both the central state and organized labor were relatively weak and where informal practices were a key aspect of political life, it is often pointed out that they played a central role in the development of the country's socioeconomic institutions (Mach et al., 2021). As mentioned in the introduction however, the past few decades have seen certain shifts within both Swiss politics and the Swiss political economy that have negatively impacted the centrality of organized business in Swiss politics. On the one hand, the decrease in importance of the pre-parliamentary phase deprived organized business from an important tool that allowed them to impact the political agenda (Sciarini, 2015). On the other hand, the erosion of firm-bank as well as inter-firm linkages, the internationalization of the profiles of top CEOs, as well as new regulatory pressures at the supranational level all reduced the capacity for non-market coordination within Swiss business (Widmer, 2010, 2011b,a). In this new configuration, organized business has had to contend more often with direct democratic institutions, be it to fight against policies that they disliked or to convince Swiss voters not to veto legislation that they did want to see implemented. A central thesis that has inspired this article is that the structural power of business has been a key aspect in business achieving its political goals in this context of noisy politics (Mach et al., 2021).

The articulation of the question of export-dependence with that of structural business power rests on the double idea that 1) in the current state of globalization and in the absence of full

employment, the vulnerability of firms or sectors that heavily rely on exports and whose exports surpluses come to represent an important source of revenue for their country's economy contributes to giving them a degree of power over their workers, their country's government, and over society at large, but that 2) at least part of this power ultimately depends on beliefs pertaining to causal relationships in the economy. Domestic political actors – including citizens – recognize that a substantial share of employment and a non negligible share of fiscal revenues depend on the overall success of export-dependent sectors, who demand that all policies be oriented towards improving or at least not harming their competitiveness (fiscal, price, innovation-based). Competitiveness arguments are typically most relevant to export-oriented firms; on the one hand, they care more strongly about the Real Effective Exchange Rate¹ (REER) as it affects the relative prices of the goods they want to sell abroad, and on the other they are more likely candidates for offshoring (exit-strategy) than the firms whose production is destined to the domestic market. Relative to that last point, Kaiser et al. (2018) find that more exposed firms – their measure is taken at the firm level and slightly different from the one used in the present paper, but it remains conceptually similar – are more likely than less exposed firms to shed employment in the face of REER increases, and also find that such exposed firms face an increased probability of market exit – which could correspond to both offshoring or the firm going bankrupt – than non-exposed firms in the context of REER increases.

As discussed in the previous section, there remains scientific controversy about some of the arguments put forth by the trade exposure literature. As such, when it comes to the study of preferences, it makes sense to consider these arguments in a more discursive space, where the reality of a posited mechanism matters less than the belief in its reality. Drawing on Bell (2012) and Bell and Hindmoor (2014), who argue that structural business power is not strictly a function of objective conditions, but rather that the beliefs of social actors are key factors in its actualization, a core part of my argument can thus be described as a “shared destiny argument” where business or a fraction of business successfully presents itself as the representative of the general interest and at least implicitly projects the idea that undesirable outcomes will ensue from not catering to their demands.

To that end, it is in the interest of business to promote an understanding of economic workings that aligns with their interests, typically seeking to convince workers and taxpayers alike that their interests are one with those of firms. There is at least anecdotal evidence for the fortune of discourses or narratives pertaining to various dimensions of the competitiveness of export-oriented firms and their policy requirements over the time period covered by my analyses. Guex (1998) cites many examples of speeches from business representatives lamenting the unsustainability of the Swiss social and fiscal model for export industries, Mach (2006) talks in details about the "neoliberal offensive" that occupied Swiss media during the 1990s and played on fears that Switzerland might "fall behind", "lose its position", etc. (Emmenegger and Marx, 2019), writing about the case of a

¹At a given Nominal Exchange Rate, a country's Real Effective Exchange Rate will increase vis-à-vis its trading partners if its domestic inflation is higher than the weighted inflation of those partners. As a result, its exports will become more expensive to those trading partners.

popular initiative aiming to tax multi-million inheritances, document how buying into the argument put forth by the BIAs that such a policy would ruin family-owned SMEs was key to determining vote choice ². Finally, Mach et al. (2021) do point to the "rhetoric of fear" developed by business representatives to counter any demands that would challenge the current economic order. Either pointing to the fact that such demands could lead to retaliation by large multinationals, or once again stating that they would make it impossible for many family-owned SMEs to survive.

For the purposes of this paper, I am thus particularly interested in the perspective according to which globalization has rendered compensatory policies largely untenable, such that those citizens who are linked to export-dependent industries ought to display anti-redistributive and pro-market preferences. The above examples provide a backdrop against which to consider the analyses presented in this paper; these make use of a measure of employment export dependence that displays variation both over time and across space and speaks to structural conditions directly related to the issue of competitiveness. They focus on the results of a selection of business-related popular votes, with the aim to test whether the outcome of those votes follows more closely the recommendations of the main BIAs, where and when regional employment is more reliant on export-oriented industries. In other words, this paper explores some of the structural conditions that foster consent or dissent with policies that cater to the interests of business among the Swiss population, at a time where said consent has arguably become more relevant to the pursuit of the political goals of business.

The posited mechanism behind these analyses is that the voting citizens that make up the aggregate results take into account both their employment prospects in an egotropic perspective – citizens active in exposed sectors, by definition more numerous in regions with exposed employment, are more likely to vote in the direction of the stated preferences of business, insofar as they become convinced that their interests align with those – as well as more sociotropic considerations, in that they care about the economic health of the regions with which they regularly interact. To address the fact that citizens are likely to interact with neighboring regions as well, I use spatial modelling techniques along with data from the STATENT³ – as well as the discontinued BZ⁴ – to analyze the relationship between the exposure of regional employment to foreign demand⁵ – including separate contributions to that measure for different groups of firms — and the outcomes of popular votes that have taken place between 1995 and 2017 in domains that are of interest to business actors.

As mentioned, from the point of view of the individual voters that make up the vote results, there is both an individual, self-interested logic and a sociotropic logic from which one can defend the

²Although the argument in question is in some ways specific to that particular campaign, I would argue that it is unlikely that the act of buying into said argument would be unrelated to more long term latent beliefs about economic causality.

³Statistique Structurelle des Entreprises, see <https://www.bfs.admin.ch/bfs/fr/home/statistiques/industrie-services/enquetes/statent.html>

⁴Business Census, see <https://www.bfs.admin.ch/bfs/en/home/statistics/industry-services/surveys/bz.html>

⁵I will regularly the shorthand term "exposure" in the rest of the paper.

aforementioned hypothesis. For one, voters from a more exposed or surrounded by more exposed regions – I will regularly use the term regional labor market to mean the same thing – are on average more likely to be active in an exposed sector. Being active in that sector, that worker is likely to be subjected to discourses about upcoming votes that adopt the firm’s point of view, and as such will become more likely of supporting policies that, according to said discourses, are good for their future employment prospects. By the same token, if a worker is active in a sector that, over time, comes to be more reliant on exports, then it seems likely that the discourses to which they are exposed will intensify, as the stakes of any relevant vote become greater. In the sociotropic logic, voters are expected to favor policies that they believe will be favorable to the economic landscape of the regions they interact with on a regular basis. If their region or the neighboring regions are particularly exposed, I would expect them to vote in way that is more in line with the recommendations of business, irrespective of their individual work situation and for fear that their region may for instance lose jobs or even a whole plant, and face the problems that come with such situations. In terms of the micro-level mechanism, we can also assume that in an exposed region, every individual voter is more likely to be connected to the type of worker described above through their social network. Local media may also cover the position of locally implemented firms, etc.

While there is no obvious reason why the argument sketched above shouldn’t apply both cross-sectionally and over time within a region, one problem that will be obvious to any student of Swiss politics before even glancing at the data is that the "everything else being equal" part of the argument is particularly hard to come by in the context of Swiss popular votes across regions, most notably because of the habitual *Röstigraben*, which typically sees the french speaking cantons voting more towards the left option than the German speaking cantons. While spatial error models can help with this issue somewhat, I will focus on models with Regions Fixed Effects, meaning models that focus on the dynamics within regions over time, in order to evacuate the problems associated with unobserved heterogeneity.

The trade exposure literature also sometimes differentiate between different groups of firms or sectors, with both Jensen et al. (2017) and Wren and Rehm (2013) for instance highlighting the difference between high-skill services and low-skill manufacturing, with workers in high-skill tradable services sectors being more opposed to generous redistributive policies and more satisfied with the *status quo* trajectory of trade intensification. Furthermore, Mach et al. (2021) emphasize in particular the structural power of large multinationals, whose nuisance capacity in the eventuality of retaliation against an undesirable political outcome is bound to be greater than that of SMEs. Based on the above, in addition to computing measures of the exposure of employment in a given region overall, I will furthermore disaggregate that figure between the respective contributions of 1) services and industry firms and 2) SMEs and large firms. Following both of the above cited papers, the contribution of services to overall exposure should be a particularly important predictor. This is also consistent with the fact that it is generally easier for a firm active in tradable services to materialize threats of relocating to another jurisdiction than for a manufacturing firm, as the

former is less reliant on immobilized physical capital. Hence the expectation that the contribution of services to exposure should push the vote results towards the preferred outcome of business, more so than the contribution of industry firms. Regarding firm size, on the one hand, large multinationals are typically strong economic engines for the region in which they are implanted and the effects of them opting to disinvest would be particularly devastating for any region. On the other hand, materializing a threat to disinvest is a highly consequential decision for a firm, the more so the larger it is, and voters are not guaranteed to believe that a firm would exercise that option following a popular vote defeat. Moreover, as previously mentioned, rhetoric appealing to the sympathy of voters for family-owned SMEs is also commonplace in business-related vote campaigns. There exist therefore potentially countervailing effects when it comes to the exposure contribution of firms of different sizes; if voters buy into the "rhetoric of fear" of large firms retaliating, then the contribution of large firms to exposure ought to dominate that of SMEs; if, however, they are more sensitive to calls for sympathy for SMEs, or simply become convinced that SMEs would be less able than larger firms to withstand the consequences of an adverse legislative outcome, the contribution of SMEs to exposure could dominate that of large firms.

In addition to these expectations relative to the effect of the contribution to exposure of different groups of firms, it is also relevant to think about variations in the relevance of exposure across different policy domains. As will be discussed in more details below, the votes considered in the context of this paper pertain to policy domains that ought to be of direct interest to business actors. These include votes on issues of Foreign Economic Policy, Economy, Public Finances and Social Insurance. I plan to test for differences in the coefficient of exposure using dummy interactions involving Social Insurance and Public Finances votes. For Social Insurance, the idea is that it is a domain that has a direct impact on people's disposable income while having only an indirect impact on issues related to competitiveness – through reservation wages, inflationary pressures, etc. On the other hand, votes pertaining to public finances and in particular corporate taxes can be said to affect people's disposable income only indirectly through the fiscal capabilities of the Federal and local governments, whereas they relate to issues of competitiveness very directly. As such, I argue that exposure ought to be most relevant for votes on Public Finances and less relevant on votes on Social Insurance.

3 Data

3.1 Votes selection

The question of choosing the votes on which to conduct the analysis comes down to a trade-off between selecting only the best and most clearly relevant votes – for instance, votes on reforming corporate taxation – and having only a limited number of observations as a result or casting a wider net and having more observations, at the risk that some votes might be less relevant than others. I opt in favor of the second option, with votes being selected with the help of the Swissvotes (2021) dataset and being required to meet the following criteria for inclusion :

- The vote needs to have as first or secondary domain⁶ one of the following domains defined in the Swissvotes dataset:
 - 2.6 Foreign Economic Policy
 - 4 Economy
 - 6 Public Finances
 - 10.2 Social Insurance
- The vote in question needs to be of interest to business, meaning both Economiesuisse and the SGV-USAM must have made explicit vote recommendations in favor or against the object. In addition, only votes where these two BIAs agree on their vote recommendation are included, so as to only include instances where business presents a united front.
- It is also important that the votes in question be at least somewhat polarizing, so in addition to all of the above criteria, there needs to be at least one of the left-oriented union confederations making an explicit vote recommendation the opposite way⁷.

Applying these criteria, the final dataset consists of 49 popular votes taking place between 1995 and 2017⁸, split between 6 mandatory referenda, 18 optional referenda, 22 popular initiatives and 3 direct counter-projects to popular initiatives⁹. Table 1 presents a series of characteristics of the different groups in terms of overall turnout and of the Percent vote Eco variable, which equals the yes percentage share in those cases when Economiesuisse and SGV-USAM made a favorable vote recommendation and equals 100 minus the yes percentage share in those cases where the recommendation was negative. The table also specifies how the different types of popular votes cover the selected domains; in order to be counted in the table, the vote needs to have the domain in question listed either as its first or secondary domain, hence why these generally sum to more

⁶The variables in the Swissvotes dataset are respectively d1e1, d1e2, d1e3 for the first domain and d2e1, d2e2, d2e3 for the second.

⁷It could be either one of the SGB or Travail.Suisse.

⁸There were no votes satisfying the conditions in 2018.

⁹While the different institutional forms of popular votes are less relevant to this paper’s argument than the policy domains, it is nonetheless useful to provide details on their differences:

- Certain acts passed by parliament, such as revisions of the Constitution or pertaining to Switzerland’s membership in supranational organizations, are subject to a vote of the people and the cantons – with a double majority rule applying. This is the **mandatory referendum**.
- Other acts passed by parliament become subject to a vote of the people – no double majority rule – if 50’000 citizens or 8 cantons ask for it. This is the **optional referendum**.
- If 100’000 citizens support a certain modification of the Constitution, it will become subject to a vote of the people and the cantons – with a double majority rule applying. This is the **popular initiative**.
- Before the popular vote on a popular initiative, the Federal Assembly emits a vote recommendation, and can propose a **counter-project** to the popular initiative, which will typically be subject to the vote of the people and the canton next to the initiative itself, along with a subsidiary question asking voters whether they prefer the initiative or the counter-project. Fringe situations can arise with counter-projects, which needn’t be mention here.

than N. A complete list of the selected votes along with the date on which they took place is available in table D.17 in the Appendix.

Table 1: Summary statistics by Type of Popular Vote

Vote Type	Mandatory referendum	Optional referendum	Popular Initiative	Direct counter-proposal
Percent vote Eco	70.3	47.2	65.2	46.5
Turnout	41.9	45.0	46.0	44.8
N Foreign Eco	0	0	1	0
N Economy	0	6	7	0
N Public Finances	6	5	6	2
N Social Insurance	2	10	11	1
N	6	18	22	3

In order to construct the dependent variable, I simply added together the municipal counts for yes, no and valid ballots for each vote in all regions, as well as cast ballots and registered voters. All votes are coded so that a higher number corresponds to more people voting in the same direction as the BIAs' vote recommendation. In all of my models, I use vote dummies, because there is a lot of variation in the average or national votes results that I cannot fruitfully take into account in my analysis due to the heterogeneity of vote objects. What I am interested in is not why on a given vote, the business position received 70 or 50 % of the votes nationally, but rather the support this position obtained in a particular region relative to its performance in other regions, as well as how regions situate themselves vis-à-vis the national average over time.

Needless to say perhaps, the correlation between the vote recommendations of the main center-right party (FDP, the Liberals) and the two main BIAs – in particular when these two agree – is very high. This is not a problem for present purposes, for my argument does not posit a causal influence of the BIA vote recommendation on regional vote outcomes. The argument is rather that export dependence generates congruence between the preferences expressed by business actors and those of the citizens in a given region, as reflected in the regional vote outcome. The votes selection criteria described above mainly serve the purpose to insure that the selected votes satisfy certain conditions in terms of salience, business unity, as well as overall polarization between organized business and labor.

3.2 Constructing the main independent variables

As mentioned previously, I am theoretically interested in a specific feature of the regional landscapes of firms, namely export dependence or exposure to foreign demand, which I measure as the share of domestic value added that is embodied in foreign final demand (FFDDVA), rather than as $\frac{Exports+Imports}{Output}$, generally coined Trade Exposure. The latter measure explicitly takes imports into consideration, and thus encapsulates both import competition and export dependence, whereas the former measure, according to the OECD, can be considered as a measure of an industry's reliance on foreign final demand, in terms of both its role as an exporter of final goods and services or

that of a producer of intermediate goods and services that reach final consumers abroad (OECD, 2018). Although the two measures are highly correlated, the one based on FFDDVA ought to be considered conceptually more relevant to the case of Switzerland, as it is a country with large export surpluses that has become heavily reliant on its exports to generate growth.

In order to compute the quantities of interest at the year-region level, I use two different datasets; the Business Census (BZ) for the years 1995, 1998, 2001, 2005 and 2008 and the Statistique Structurelle des entreprises (STATENT), which replaced the BZ in 2011 and has been computed on a yearly basis ever since. These allow me to compute the distribution of Full-Time-Equivalent jobs (FTEs) across regions, firm sizes and sectors (using a sectoral classification that encompasses 34 sectors), which I can then use in conjunction with data from the OECD Trade in Value Added (OECD, 2018) database in order to compute the extent to which employment in a given region is more or less strongly exposed to foreign final demand.

Conceptually, the BZ and STATENT datasets are distinct in more than one way, the BZ was based on a survey of all enterprises active for more than 20 hours per week and individual jobs of more than 6 hours per week, whereas the STATENT makes use of registry data based on Old-Age and Survivors's Insurance (OASI) contributions¹⁰. In addition, the BZ doesn't contain any firms that are classified as part of the "Agriculture, hunting, forestry and fishing" sector, which are included in the STATENT. This means that the universe of firms targeted by the two datasets do not coincide perfectly, with the STATENT having a sensibly lower threshold for inclusion than the BZ. As I am generally more interested in firms that at least satisfy the size requirements for the SME category – at least ten full-time equivalent jobs –, this is a target population where systematic coverage differences are less likely between the two datasets, which allows me to merge the series without too much hesitation. On another note, I use the Workplaces datasets rather than the institutional units datasets, as it gives a better indication of where the jobs are effectively located, rather than where the firms book their profits.

The exact procedure that I follow in order to prepare my full 1995-2017 dataset is described in appendix A; the general idea behind the procedure is to obtain a full series of FTEs stratified by region, firm size and sector, and then use the sectoral FTEs as weights in conjunction with FFDDVA data from OECD TiVA in order to obtain a figure that summarizes employment export dependence at the region-year level, with the option to then compute separate contributions to that overall measure by groups of firms – SMEs and large firms, Services and Industry, as well as a combination of these categories.

While I have mentioned the generic term "regions" a lot so far, I am actually conducting my analyses using a region concept created by the Swiss Federal Statistical Office (FSO), the 2018 Employment Zones (N = 101)¹¹ (OFS, 2019). In additional robustness tests present in the appendix, I furthermore use an older classification, the Regions MS (N = 106), where MS stands for

¹⁰More details are available in the FAQ, which can be downloaded on the following webpage: <https://www.bfs.admin.ch/bfs/fr/home/statistiques/industrie-services/enquetes/statent.assetdetail.9526502.html>

¹¹Bassins d'emploi

Spatial mobility¹², from 2000 (OFS, 2005). Both of these are analytical rather than administrative constructs, which is best for the purpose of the analyses proposed in this paper¹³. Note that in order to match a given municipality at a certain point in time to both region concepts, I used the Historical list of municipalities in Switzerland¹⁴ in order to keep track of mergers over time.

3.3 Descriptives

Table 2: Descriptive statistics of the data for Employment Zones 2018 and FFD DVA Exposure measure

Statistic	N	Mean	St. Dev.	Min	Max
Regional exposure (FFD DVA)	4,949	0.40	0.09	0.18	0.68
SME R.exp contrib	4,949	0.31	0.07	0.16	0.57
Large firms R.exp contrib	4,949	0.09	0.07	0.00	0.41
Services firms R.exp contrib	4,949	0.18	0.07	0.03	0.37
Industry firms R.exp contrib	4,949	0.23	0.13	0.01	0.62
Share pub employment	4,949	15.82	7.20	2.23	44.47
Eco yes share (Reg - Nat)	4,949	0.27	9.33	-36.66	28.35
Turnout (Reg - Nat)	4,949	-1.20	6.45	-21.84	38.62
Total SME and LF FTEs	4,949	24,052.24	34,451.77	1,135.32	298,430.10
Jobs per km^2	4,949	0.19	0.70	0.002	6.74
<i>Demeaned Variables by Employment Zones</i>					
Regional exposure (FFD DVA)	4,949	0.00	0.03	-0.12	0.10
SME R.exp contrib	4,949	0.00	0.03	-0.12	0.10
Large firms R.exp contrib	4,949	0.00	0.02	-0.14	0.16
Services firms R.exp contrib	4,949	0.00	0.03	-0.09	0.07
Industry firms R.exp contrib	4,949	0.00	0.02	-0.12	0.09
Share pub employment	4,949	0.00	2.36	-10.45	17.87
Eco yes share (Reg - Nat)	4,949	0.00	7.25	-43.23	27.57
Turnout (Reg - Nat)	4,949	0.00	7.64	-30.85	39.51
Jobs per km^2	4,949	0.00	0.08	-0.72	1.05

To give a better idea of the data, table 2 present a series of descriptives relative to the different exposure variables used in the paper, as well as some characteristics of the employment zones. Note that all variables are presented here before being standardized. In the statistical models, the coefficient will correspond to a change equal to the standard deviation value featured in this table. There are a few things to note relative to this table; the first is the considerable "size" discrepancy

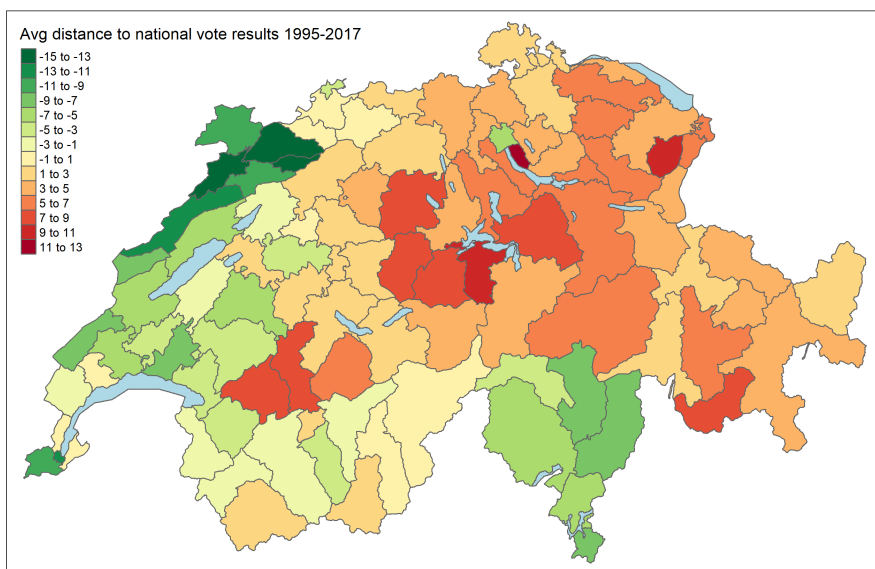
¹²Mobilité Spatiale

¹³Indeed, the use of an administrative construct such as districts would have been less appropriate, since the principles governing the division of a canton between different districts vary from one canton to the next. In addition, the aforementioned analytical regions are not limited by cantonal boundaries, which would be the case for districts.

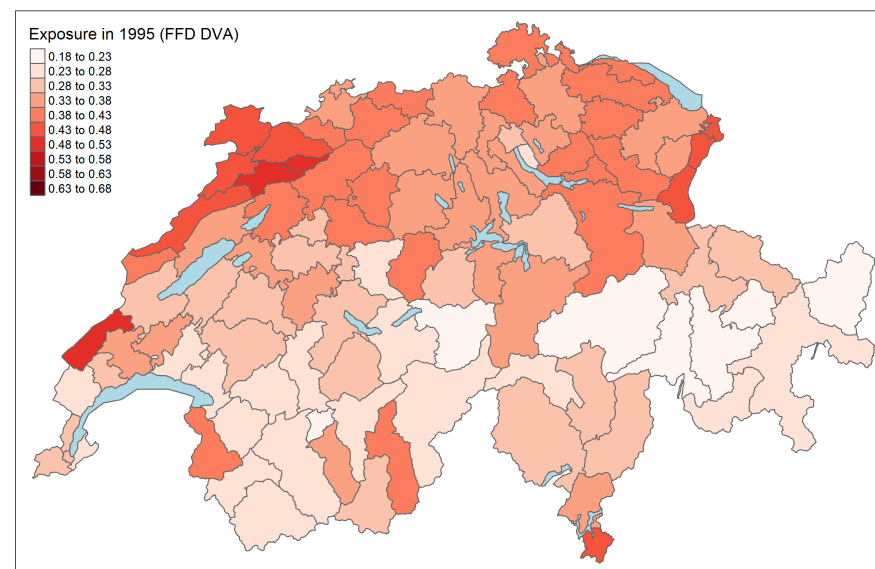
¹⁴<https://www.bfs.admin.ch/bfs/fr/home/bases-statistiques/repertoire-officiel-communes-suisse/liste-historisee-communes.assetdetail.20844507.html>

between regions in terms of the total number of FTEs across SMEs and large firms, this will be an important aspect when discussing the construction of the spatial matrices, in particular those related to the spatial lag of the independent variable(s). Regarding the distribution of the regional votes results and turnout, the above zero mean for the former implies that the larger regions – as the subtraction of the national vote share underestimates the weight that should be theirs – tend to be more often in negative territory – less on the side of business –, whereas the below zero turnout mean means that they participate more in the popular votes considered.

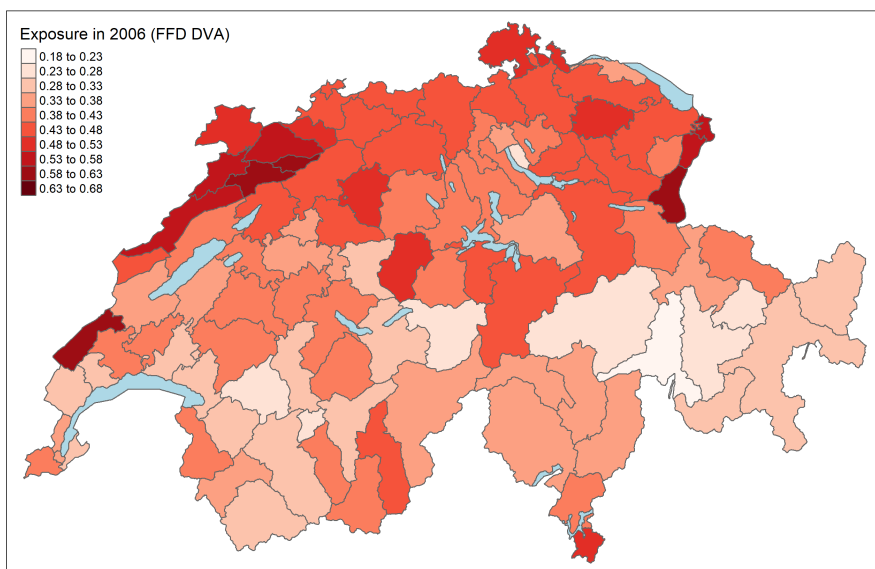
In addition to this table, the four panels in figure 1 present plots of this data using the map of Switzerland as a background with divisions pertaining to the 2018 Employment Zones. Again, I restrict myself to a few plots; one showing the average regional distance to the score of the Economiesuisse recommendation at the national level over our 49 votes of interest; this is of course a very coarse representation, as not all votes display a similar distribution, and some regions prove more volatile than others. It does, however, emphasize once more that *on average*, the Eastern German speaking part of Switzerland is much more likely to vote in accordance with the preferences of business, whereas the Western French speaking and Southern Italian speaking parts are less likely to vote in favor of those stated preferences. The other three plots display the FFD DVA measure of exposure for 1995, 2006 and 2017 respectively. With the same scale being used in all three years, we can see that exposure did increase pretty much everywhere over the period considered, which is not surprising considering both the intensification of global trade over the past decades and the profile of Switzerland as an economy that is predominantly export-led. Within the country itself, the North generally displays higher values of exposure, while most of the regions situated within the Graubünden appear as the least exposed overall. This last aspect may be somewhat misleading, in part due to the assumption of sectoral homogeneity across the whole country; it does indeed seem fair to assume that the Accommodation and food services (D55T56) sector would have a fairly different demand structure from region to region, with tourism regions such as Graubünden more dependent on the demand brought on by international tourists.



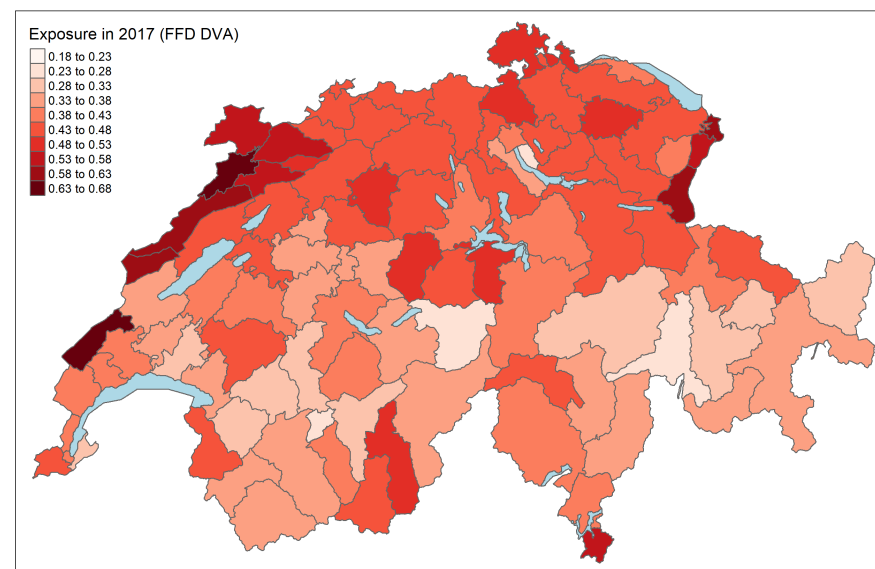
(a)



(b)



(c)



(d)

Figure 1: Maps of variables of interest

Finally, in addition to the map evidence provided above, table 3 presents the Moran’s I statistic of spatial autocorrelation – which effectively measures the correlation between a given variable X and its own spatial lag WX – for the dependent variable and the main independent variable that I have used in the maps above, in both regular and demeaned forms – used in regions Fixed Effects models. This shows that however one looks at the data, it is extremely clear that there is a very high degree of spatial autocorrelation for both variables, with the DV showing more spatial autocorrelation than Exposure in its regular form, whereas the Exposure variable shows especially high autocorrelation in its demeaned form, which means that neighboring regions also tend to display similar trends over time in terms of exposure. This highlights the importance of the presence of a spatial error term even in Regions Fixed effects models in order to make the proper inferences.

Table 3: Tabulation of Moran’s I for the DV and main IV, including in demeaned form

	DV	DV within	R.Exp(FFD)	R.Exp(FFD) within
Observed Moran I	0.65566	0.68176	0.51949	0.76914
Expectation	-0.00020	-0.00020	-0.00020	-0.00020
Variance	0.00009	0.00009	0.00009	0.00009
Standard deviate	67.37336	70.06140	53.38235	79.03086
p-value	< 0.001	< 0.001	< 0.001	< 0.001

4 Statistical model specifications

All models presented in the paper are effectively two-way Fixed Effects models focusing on within-region and within-vote variation. This serves to evacuate the issue posed by unobservable differences across regions that are beyond the capabilities of control variables – as one can control for language and whether a region is more rural or more urban, but there are cultural differences that go beyond those factors –, as well as unobserved heterogeneity across vote objects. In addition, as I am dealing with spatially correlated data on both the dependent and the main independent variables, a spatial modelling approach is warranted. Regarding the specifics of the spatial modelling to undertake, there are two important questions: one pertains to the specific type of spatial model to use, the other to the decision of how to determine the weights of the spatial weights matrix.

Regarding the first point, the General Nesting Spatial Model framework can correspond to seven different models – including OLS where all three spatial parameters are set to zero –, dependent on the zero or non-zero value taken by three parameters that relate the adjacency matrix W to y , X or u , the error (Elhorst, 2014; Di Salvatore and Ruggeri, 2021). In the present case, I am first and foremost interested in how the firms and employment characteristics of a given region as well as those of neighboring geographical units are associated with the outcome of business-related popular votes in that region, which implies at least a spatial lag of X . In addition, the preliminary inquiries presented above pertaining to the geographical distribution of my variables across space

make it clear that some sort of a statistical correction for that aspect is essential. The choice is thus between a spatial autocorrelation of y and adding a spatial component to the error term. For theoretical reasons, I prefer the latter proposition, as it seems more likely to assume that the observed spatial autocorrelation has to do with unobserved shared characteristics – for instance all that relate to the aforementioned *Röstigraben* and the underlying cultural and linguistic differences across Swiss regions – rather than mutual influence as such, which would call for a spatial lag of y . This would imply that the type of spatial model to implement would be a Spatial Durbin Error Model, which has the following form:

$$\begin{aligned} Y &= \alpha + \beta \mathbf{X} + W \mathbf{X} \theta + u \\ u &= \lambda W u + \epsilon \end{aligned}$$

From here, a lot rests upon the definition of the spatial weights matrix – or rather matrices, as the one multiplying \mathbf{X} has arguably stronger theoretical implications than the one multiplying u (Neumayer and Plümper, 2016). Indeed, as far as the spatial error matrix is concerned, it reflects the fact that unobserved characteristics tend to jointly affect regions that are neighbors, such that a simple standardized contiguity matrix does the job just fine. For the spatial lag of \mathbf{X} matrix, an important issue is that it is meant to describe the relevance of neighboring labor markets from the point of view of the people living in a given region – I will use the term labor market to signify the labor market within a given geographical unit, and thus the term neighboring labor markets to describe the labor markets of the geographical units adjacent to it –, and it makes sense to imagine that this relevance would be a function of the relative sizes of the different neighboring labor markets amongst themselves, as well as the relative size of those labor markets vis-à-vis the local labor market. If an individual lives in a region with a very large labor market and that is surrounded by small labor markets, then the fate of those small markets is likely to be irrelevant to them. If however, the opposite is true, with an individual living in a region with a small labor market but next to a large one, then that large neighboring labor market will likely be most relevant to them. These insights ought to be reflected in the weights structure of the matrix for the overall model to be meaningful.

My preferred strategy starts from the simple adjacency matrix and adjusts the neighbors' weights in accordance with the relative labor market sizes of regions within a neighborhood. As already mentioned, the standard approach of row-standardizing the spatial matrix is not satisfactory here, because we need neighbors of large (small) local labor markets to have relatively less (more) influence on the dependent variable. This is obtained by defining neighbor weights as $\frac{\text{Neighbor labor market}}{\text{Total labor market}}$, where Total labor market is defined as the sum of the local and neighboring markets. This results in very small units having a row of neighbor weights whose sum is just inferior to 1, whereas the sum of weights for very large units can be well under 0.5. This is generally in line with how I would expect the spatially lagged \mathbf{X} 's to affect the outcome, with larger units being much less concerned with what's going on in neighboring units than smaller ones, so that this construct is theoretically motivated. Further information about the overall procedure behind the construction of the weight matrix can be found in Appendix B.

I estimate my models using the `errorsarlm` function of the R package `spatialreg` (Bivand et al., 2021). I also estimate my models using both the overall exposure of SMEs and large firms grouped together and splitting the contributions by firm size, between firms active in services and industry sectors, as well as according to a 4-way classification combining the above (see C.1). In terms of control variables, the most important one is a variable capturing the share of votes for left parties¹⁵ in the region in the last national election, as popular votes are often strongly predicated on the left-right cleavage. My assumption is that the issue of exposure favoring the business preferred vote outcome cuts at least partly across the left-right cleavage. I construct the region – Employment zones 2018 – level vote results by using results at the level of municipalities and assigning municipalities to the relevant region¹⁶. In addition to that arguably highly important control variable, I control for the share of public employment in the region, computed from the same BZ and Statent data sources, a variable capturing the density of employments (jobs per km^2), and regional level turnout. All of these variables vary at least somewhat over time – although some more than others – and as such can be included in FE specifications.

Finally, as alluded to towards the end of section 2, I also interact the exposure variables with a series of dummy variables to determine whether the effect uncovered are consistent across different groups of votes; these dummy-interaction models are based on the different policy domains presented in section 3, one will be for votes whose first domain is Social Insurance (45% of all votes) and one for those where it is Public finances (20%). To reiterate, the expectation is that exposure will prove less relevant on Social Insurance votes, and more relevant on Public Finances votes.

5 Results

As a reminder and prior to discussing specific results, all models below use vote dummies, such that any and all heterogeneity across votes is controlled for. In addition, all variables except for the dependent variable were standardized, such that the coefficient displayed corresponds to the effect of a 1 standard deviation change in the independent variables on the dependent variable, whose scale is in percentage points. Note that the demeaned (within-unit) variables were also subjected to this transformation, such that the coefficient displayed in the table always correspond to a degree of variation that is easily found in the data. Regarding the interpretation of the direct and spatial lag coefficient respectively, a positive value on the first one implies that as employment in a given region becomes more exposed to foreign final demand (more export-dependent), the vote share in that region will lean more in favor of the business-preferred option, relative to the national average and relative to that region’s position vis-à-vis the national average in other votes. The interpretation of the lag coefficient doesn’t differ in any meaningful way, it just points to the voting outcome being sensitive to the weighted trajectories of neighboring regions in terms of employment

¹⁵I used the share of the total votes going to the following parties: PS, AdI, PST, PES, Sol.

¹⁶I also developed a measure of the regional-level median voter position using data from the Manifesto Project (Volkens et al., 2021) on the left-right position of national parties. This measure, however, proved to be highly volatile due to the changing scores of parties from election to election, leading me to prefer the usage of the simpler left vote share.

Table 4: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects – FFD DVA and Employment Zones 2018

	Model 1	Model 2	Model 3
Regional exposure (R.exp)	0.32** (0.12)	0.32*** (0.12)	0.31** (0.12)
lag(R.exp)	0.45** (0.21)	0.39* (0.22)	0.32 (0.22)
Left vote share in last election		-0.26*** (0.08)	-0.26*** (0.08)
Share of public employment			0.06 (0.27)
Jobs per km ²			-1.26 (0.78)
Regional turnout			-0.03 (0.02)
λ	0.81*** (0.01)	0.81*** (0.01)	0.81*** (0.01)
Intercept	24.20*** (2.25)	24.00*** (2.24)	23.51*** (2.25)
Num. obs.	4949	4949	4949
Parameters	53	54	57
Log Likelihood	-14614.14	-14608.37	-14605.89
AIC (Linear model)	33431.42	33414.26	33386.26
AIC (Spatial model)	29334.27	29324.73	29325.77
LR test: statistic	4099.15	4091.53	4062.49
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

export-dependence. On average, I do not see a reason why these coefficients should differ, although it could be plausible for the lag to have no effect; this would point to a situation where voters only respond to their own region's trajectory, while paying no mind to that of neighboring regions.

Table 4 shows the results of 3 Spatial Durbin Error Model with the step-wise inclusion of different control variables. Model 1 only contains the exposure variable and its spatial lag, with both coefficients displaying the hypothesized sign. As employment in a region and in its neighborhood becomes more exposed, the results of business-related popular votes lean more towards the preferred outcome of business – note that this is always to be understood relative to the vote outcome in all other regions – or the unweighted national average –, because of the vote dummies. In model 2, I introduce the share of votes for left parties in the previous national election in that region; this is an important control because votes related to business interests more often than not see the left mobilized against the position defended by business, such that it represents a good test for the robustness of my results. While the coefficient of the main exposure variable is unaffected, the spatial lag is no longer significant at the $p < 0.05$ threshold in that model, but only at the $p < 0.10$ threshold. Model 3 introduces additional control variables, namely the share of public employment, the number of jobs per km^2 and a measure of regional vote turnout, none of these variables appear to be statistically significant in a FE setting .

We then move to the second set of models, aimed at testing whether the contribution of large

Table 5: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects, SME and LF disaggregated – FFD DVA and Employment Zones 2018

	Model 4	Model 5	Model 6
SME R.exp (contribution)	0.43*** (0.13)	0.46*** (0.13)	0.45*** (0.14)
Large firms R.exp (contribution)	0.22** (0.10)	0.22** (0.10)	0.21** (0.10)
lag(SME R.exp)	0.54** (0.22)	0.50** (0.22)	0.43* (0.23)
lag(LF R.exp)	0.16 (0.10)	0.13 (0.10)	0.10 (0.10)
Left vote share in last election		-0.28*** (0.08)	-0.28*** (0.08)
Share of public employment			-0.06 (0.28)
Jobs per km ²			-1.19 (0.78)
Regional turnout			-0.03 (0.02)
λ	0.81*** (0.01)	0.81*** (0.01)	0.81*** (0.01)
Intercept	24.59*** (2.26)	24.45*** (2.25)	23.98*** (2.26)
Num. obs.	4949	4949	4949
Parameters	55	56	59
Log Likelihood	-14612.30	-14605.89	-14603.47
AIC (Linear model)	33427.23	33409.40	33384.86
AIC (Spatial model)	29334.60	29323.78	29324.94
LR test: statistic	4094.63	4087.62	4061.92
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

firms – 250 or more FTEs – to exposure differs systematically from that of SMEs, and if one is a more relevant predictor than the other. Quickly put, these results point to vote outcomes being more sensitive to the trajectory of SMEs than large firms; in model 5 – the preferred model since the other controls variables once more do not appear to be warranted – both the contribution of SMEs and the spatial lag for that variable are significant with the expected coefficient – and the t-value of the direct coefficient for SME is quite a bit larger than for large firms. Going back to the hypotheses formulated in section 2, this would suggest that citizens are more concerned about the vulnerability of SMEs than they are about the risk of large firms retaliating.

The next set of models proceeds in a manner similar to the previous one, but this time disaggregating regional exposure between the contribution of Services firms and Industry firms. The model with only left vote share as a control variable – model 8 – remains the preferred model, and the expectation that exposure among Services firms is overall more relevant to voters is confirmed. Both the direct effect and the spatial lag are highly significant, while for the contribution of Industry firms, only the direct effect is significant, and with a much smaller t-value. Regions where export-dependence becomes more strongly driven by Services, i.e. where firms active in

Table 6: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects, Services and Industry disaggregated – FFD DVA and Employment Zones 2018

	Model 7	Model 8	Model 9
Services R.exp (contribution)	0.80*** (0.17)	0.79*** (0.17)	0.79*** (0.18)
Industry R.exp (contribution)	0.22** (0.09)	0.22** (0.09)	0.22** (0.09)
lag(Services R.exp)	1.15*** (0.26)	1.08*** (0.26)	1.07*** (0.27)
lag(Industry R.exp)	−0.01 (0.13)	−0.06 (0.13)	−0.05 (0.13)
Left vote share in last election		−0.26*** (0.08)	−0.26*** (0.08)
Share of public employment			−0.01 (0.27)
Jobs per km ²			−0.13 (0.81)
Regional turnout			−0.03 (0.02)
λ	0.81*** (0.01)	0.81*** (0.01)	0.81*** (0.01)
Intercept	25.96*** (2.28)	25.73*** (2.27)	25.45*** (2.29)
Num. obs.	4949	4949	4949
Parameters	55	56	59
Log Likelihood	−14599.02	−14593.42	−14592.24
AIC (Linear model)	33426.24	33410.18	33381.88
AIC (Spatial model)	29308.05	29298.85	29302.48
LR test: statistic	4120.19	4113.33	4081.40
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

typically high-skill tradable services become more active, typically see the outcomes of business related votes shift in favor of the outcome preferred by business. In order to determine whether some of the results presented in the two previous tables might have resulted from compositional effects, Appendix C.1 replicates the same type of model by disaggregating the contributions to exposure of four different groups of firms; SMEs active in Services, SMEs active in Industry, Large firms active in Services and Large firms active in Industry. These results tend to confirm that the contribution of Services firms is more important than that of Industry firms, with this being true for both SMEs and large firms. Industry contribution also appear to be only locally relevant, with no effect whatsoever of the spatial lag. Regarding the SMEs vs large firms distinction, the differences are less substantively meaningful than they seemed in table 5, although the effect sizes remain larger on average for SMEs.

The next models explore the extent to which the association uncovered above are conditioned by vote-level characteristics. To test this, I replicate the middle model of each of the above tables including an interaction term between the exposure variables and a dummy variable representing votes pertaining to either Social Insurance Policy or Public Finances. Note that since vote dummies

are already present in previous models, we are only interested in the change in the slope of exposure across a particular group of votes, it is perfectly normal that there is no coefficient associated with the dummy, as it would add no information on top of vote dummies.

Table 7 presents models where the exposure variables is interacted with a dummy that identifies whether the main policy domain of a vote is Social Insurance. While not perfectly aligned with expectations, these results do correspond to the general direction sketched above, in model 10, it appears that both exposure variables are good predictors for non social policy votes, whereas for the latter, things are murkier; the interaction with direct exposure is clearly non-different from zero, but the interaction with the spatially lagged term is significant at the $p < 0.10$ threshold and brings the point estimate of the effect to effectively zero. This pattern where the lagged exposure coefficient is negatively affected by the dummy interaction repeats itself in model 11 – see the $lag(SMER.exp)*Soc.Policy$ coefficient, as well as in model 12, where $lag(ServicesR.exp)*Soc.Policy$ is statistically significant; with the effect of the spatial lag of Services exposure apparently divided by 3 for social policy votes. I do not, however, have a perfect explanation for the discrepancy in the interaction coefficient across the direct measurement of exposure and its spatially lagged value. The similar magnitude of the two coefficients was a nice feature of previous models, as there are no good ways to quantify the extent to which they should be expected to differ. The above interaction models, however, suggest that in the context of social policy votes, exposure in one own Employment zone is weighted more strongly than exposure in the surrounding ones, which could be consistent with the following voter priorities : Local labor market > Own egotropic perspective on Social Insurance > Neighborhood labor market, which in turn could be construed as broadly consistent with stated expectations.

Table 8 replicates 7, this time using a Public Finances dummy instead of a Social Policy dummy. Not completely surprisingly, the results somewhat mirror those of the previous tables, with significant main effects, non-significant interaction of the main effect and the dummy, non-significant spatial lag effects and strongly significant coefficients for the interaction between the spatial lag and the dummy. Once again, although not straightforward to interpret, these effects do go in the expected direction and together the two tables seem to confirm that while not irrelevant to a policy domain such as social policy, exposure is a comparatively better predictor for votes pertaining to public finances. On such votes, voters appear to consider their economic surroundings more broadly than on votes pertaining to Social Insurance, taking into account export-dependence in both their local and neighborhood labor markets.

Appendix C replicates the above results while varying a number of conditions as robustness tests. Of course, core aspects such as those surrounding the construction of the spatial lag of X should not undergo changes so drastic as to undermine the theoretical ground on which they stand. Tables in section C.2 use a slightly different definition of the spatial weights matrix that halves the weight of neighboring regions that do not share the same majority language. Tables in section C.3 use an altogether different definition of regions, the already mentioned MS classification from 2000. And finally tables in section D.17 relax the left-right polarization in the votes selection, leading to 14

Table 7: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects, Social Policy interaction – FFD DVA and Employment Zones 2018

	Model 10	Model 11	Model 12
Regional exposure (R.exp)	0.33** (0.17)		
lag(R.exp)	0.75** (0.29)		
Regional exposure (R.exp) * Soc. Policy	−0.03 (0.25)		
lag(R.exp) * Soc. Policy	− 0.77* (0.43)		
SME R.exp (contribution)		0.43** (0.18)	
Large firms R.exp (contribution)		0.24* (0.13)	
lag(SME R.exp)		0.89*** (0.30)	
lag(LF R.exp)		0.23* (0.13)	
SME R.exp (contribution) * Soc. Policy		0.06 (0.27)	
Large firms R.exp (contribution) * Soc. Policy		−0.05 (0.20)	
lag(SME R.exp) * Soc. Policy		− 0.81* (0.44)	
lag(LF R.exp) * Soc. Policy		−0.23 (0.20)	
Services R.exp (contribution)			0.79*** (0.23)
Industry R.exp (contribution)			0.22* (0.12)
lag(Services R.exp)			1.57*** (0.35)
lag(Industry R.exp)			0.10 (0.17)
Services R.exp (contribution) * Soc. Policy			−0.01 (0.35)
Industry R.exp (contribution) * Soc. Policy			−0.01 (0.18)
lag(Services R.exp) * Soc. Policy			− 1.04** (0.51)
lag(Industry R.exp) * Soc. Policy			−0.32 (0.26)
Left vote share in last election	− 0.26*** (0.08)	− 0.27*** (0.08)	− 0.26*** (0.08)
λ	0.81*** (0.01)	0.81*** (0.01)	0.81*** (0.01)
Intercept	24.80*** (2.30)	25.32*** (2.32)	26.72*** (2.35)
Num. obs.	4949	4949	4949
Parameters	56	60	60
Log Likelihood	−14606.76	−14603.48	−14591.18
AIC (Linear model)	33416.40	33415.03	33416.04
AIC (Spatial model)	29325.52	29326.97	29302.36
LR test: statistic	4092.88	4090.06	4115.68
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table 8: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects, Public Finances interaction – FFD DVA and Employment Zones 2018

	Model 13	Model 14	Model 15
Regional exposure (R.exp)	0.37*** (0.14)		
lag(R.exp)	0.03 (0.25)		
Regional exposure (R.exp) * Pub. Finances	−0.19 (0.29)		
lag(R.exp) * Pub. Finances	1.52*** (0.50)		
SME R.exp (contribution)		0.39** (0.15)	
Large firms R.exp (contribution)		0.29** (0.11)	
lag(SME R.exp)		0.03 (0.25)	
lag(LF R.exp)		0.02 (0.11)	
SME R.exp (contribution) * Pub. Finances		0.35 (0.32)	
Large firms R.exp (contribution) * Pub. Finances		−0.26 (0.23)	
lag(SME R.exp) * Pub. Finances		2.06*** (0.52)	
lag(LF R.exp) * Pub. Finances		0.42* (0.23)	
Services R.exp (contribution)			0.76*** (0.20)
Industry R.exp (contribution)			0.26** (0.10)
lag(Services R.exp)			0.61** (0.29)
lag(Industry R.exp)			−0.22 (0.15)
Services R.exp (contribution) * Pub. Finances			0.16 (0.41)
Industry R.exp (contribution) * Pub. Finances			−0.13 (0.21)
lag(Services R.exp) * Pub. Finances			2.01*** (0.61)
lag(Industry R.exp) * Pub. Finances			0.68** (0.30)
Left vote share in last election	−0.27*** (0.08)	−0.28*** (0.08)	−0.26*** (0.08)
λ	0.81*** (0.01)	0.81*** (0.01)	0.81*** (0.01)
Intercept	26.25*** (2.45)	28.10*** (2.49)	28.89*** (2.56)
Num. obs.	4949	4949	4949
Parameters	56	60	60
Log Likelihood	−14603.34	−14595.59	−14587.40
AIC (Linear model)	33379.70	33368.00	33374.62
AIC (Spatial model)	29318.69	29311.17	29294.79
LR test: statistic	4063.01	4058.83	4081.83
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

additional votes being included in the sample. All these specifications retain the most important aspects of the above results regarding the coefficients associated with exposure.

6 Conclusion

In this paper, I have shown that although the extent to which regional employment is exposed to foreign demand is by no means the most determinant factor in Swiss politics, it is nonetheless a relevant one at the margins, especially when one takes into consideration the exposure of a region's whole neighborhood using the tools of spatial analysis. Ultimately, regional vote outcomes are the result of the aggregation of individual votes, and I have stressed that the individuals behind those votes may be motivated by self-interested – for instance their own employment prospects – or sociotropic reasons – they want to see their region thrive economically – when casting their ballots. I further stated that I expect individuals will on average be sensitive to the discourses of business actors – which most often refer to one or several dimensions of international competitiveness –, and have argued that the more a region and its neighbors are export-dependent – or become more so as time passes –, the more these structural conditions should make the prevalent business discourse both relevant and salient in that region.

To test that hypothesis, I have selected 49 popular votes spanning the years 1995 through 2017 that satisfied a series of criteria – BIAs united, some degree of polarization vis-à-vis labor organizations, as well as domain restrictions. I then sought to explain the distance of a region's vote to the national average using its own degree of exposure to foreign demand as well as that of its neighbors, using a spatial weights matrix that would account for the expected relevance of neighboring labor markets vis-à-vis the local one based on their relative sizes.

Of course, it is quite clear that the way in which the spatial weights matrix is constructed matters a lot for my results, but then again, the choices relative to the construction of the weight matrix are theoretically motivated, which follows the recommendations of Neumayer and Plümper (2016) regarding the construction of W . Two of the robustness tests conducted in the appendix nonetheless address this issue to an extent, one the one hand by introducing a small variation in the construction of the weight matrix, on the other by applying the scheme to an altogether different partition of the Swiss territory.

Furthermore, there are limits imposed by the fact that my data constitutes an unbalanced panel, where the next nearest vote may occur at the exact same point in time, during the same year, or two years later. This prevents me from accounting for temporal dependence in a meaningful and consistent manner like it could be done with a properly balanced panel of observations, where the lagged value of Y would make its way to the right-hand side of the equation.

Another important criticism that could be levied towards the present paper is that what acts as the dependent variable does not truly qualify as repeated observations of a comparable phenomenon, as unique votes on specific policies find themselves bundled together in a single variable. I sought to alleviate this criticism by adding votes dummies, and thus focusing on the distance to the national average rather than the vote percentage. I also tested whether the respective

contributions to exposure of 1) SMEs and Large Firms and 2) Services firms and Industry firms differed systematically; interestingly, the contribution of SMEs to exposure appears to be a more robust predictor than that of large firms, although part of the initially uncovered difference turned out to be due to compositional effects, with large firms being relatively more active in industry than SMEs. The contribution of Services firms, as expected, trumps that of Industry firms. In particular, the effect of the exposure of Industrial firms to foreign demand appears to be a more localized one, whereas that of services firms is both local and diffuse, for both SMEs and large firms.

Finally, I also investigated whether systematically different patterns vis-à-vis exposure could be identified for different groups of votes – namely votes on social insurance or public finances –, and found this to be the case. In particular, votes belonging to the Public finances domain appear to be the main drivers behind the positive sign of the spatial lag in the Regions FE models, a result that is very much in line with the outlined expectations, and that tends to suggest that the direct effect and the spatial lag could be subjected to different underlying mechanisms, or at least to a different weighting of the posited mechanisms. What is clear however is that when the overall neighborhood of a region becomes more dependent upon foreign demand, the reaction of the electorate as measured in popular votes is to shift in the direction of the preferences expressed by business, and the interaction models tell us that this overall effect is weaker for social insurance votes and stronger for Public finances votes. Considering the relatively strongly export-led nature of the Swiss economy over the past few decades, this could be an important result in terms of what we can expect from business-related popular votes in the future, in particular for the regions that contributed the most to that trend.

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Appendices

A 1995-2017 dataset construction

Here is the procedure that I follow in order to prepare my full 1995-2017 dataset. First off, I exclude firms with less than ten FTEs from both datasets as well as firms belonging to the D01T03 sector in the STATENT dataset; I then compute the regional share of public employment and the total regional FTEs within this group of firms. I then exclude public firms and split the sample between SMEs – 10 to less than 250 FTEs – and large firms – more than 250 FTEs – and compute the respective shares. Then, I further disaggregate by sector of activity using the already mentioned classification. For the BZ, once I have the region-firm size-sector FTE figures, I linearly interpolate these figures for the missing years, and follow the same process to bridge between the 2008 BZ and the 2011 Statent. This provides me with a full series of FTEs stratified by region, firm size and sector. Using this dataset along with a dataset constructed using the OECD TiVA 2021 dataset, I can compute regional exposure by firm size groups using the distribution of FTEs across sectors as weights for a sector’s contribution to overall regional exposure¹⁷. For both variables, the value for each year T results from the average of the values in $T - 1$ and T ¹⁸. In the end, and for both of my variable, I thus have a summary value of the regional exposure of employment for SMEs and large firms separately and of both groups of firms taken together. In models where I use separate measures for SMEs and large firms, I actually use the respective contributions of both groups to overall exposure, which is the product of the exposure within that group and the share of FTEs associated with it. This allows for a simple synthetic measure that can be interpreted in the same way across different regions, irrespective of whether large firms represent a large share of the region’s jobs or a tiny one. In addition to size, I also disaggregate firms by broad groups of sectors, namely industry and services, following the partition used by the OECD¹⁹, in order to be able to compute separately each group’s contribution to overall exposure.

B Some details about the spatial weights matrices

As should be obvious from the description of my data, the unit of analysis is effectively votes within regions – 4949 observations for the Employment zones 2018 and 5194 for the Regions MS. Although the data is spread over the years 1995-2017 (as there were no votes satisfying the selection criteria in 2018), this is far from a balanced panel, with five votes in 2005 and none in 2003, 2009 and 2011. The simple standardized contingency matrix that is used for the error term is fixed and doesn’t change over time, but the W matrix in WX does, as the relative sizes of local and neighboring change from year to year.

¹⁷This of course assumes that sectors are homogeneous across regions as well as across firm sizes, which is a simplification that one is forced to make in that context

¹⁸Note that since the TiVA 2021 dataset starts in 1995, the value for 1995 is simply that of that year.

¹⁹Industry encompasses sectors D5T39, meaning Mining, manufacturing and utilities, whereas services encompasses the other sectors with the exception of agriculture.

Concretely, the way I proceeded was the following:

- I start from the simple non-standardized contingency matrix and set its diagonal elements to equal 1 instead of 0.
- The data is sorted so that it is organized by votes – and as a result by year – and within each vote bloc, with regions following an order consistent with that of the contingency matrix.
- Sequentially for each vote, I then multiply each row of the contingency matrix by the vector – of the same length – corresponding to the Total FTE employment of SMEs and LF by regions, transpose the resulting matrix – so that the row sums would correspond to the size of the Total labor market as defined in section A, and subsequently divide the contents of each row by the sum of that row. I would then set the diagonal elements back to zero. For each regions organized in rows, this results in the weights of each neighboring labor market being a reflection of their size relative to what I call the Total Labor market.
- These matrices are then be diagonally pasted together in sequence until obtaining a $(N^{Regions} \times N^{Votes}) \times (N^{Regions} \times N^{Votes})$ bloc matrix.
- I can then use matrix multiplication between the relevant variables – $1 \times N$ vectors – by this $N \times N$ matrix to obtain $W\mathbf{X}$ as a new $1 \times N$ column vector in the data, which I enter in my regression models as the spatial lag.

C Robustness tests

C.1 Replication of main results with disaggregation by firm size *and* Services vs Industry sector

Table C.1: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects, contribution disaggregated by firm size and Services vs Industry – FFD DVA and Employment Zones 2018

	Model A1	Model A2	Model A3
SME Services R.exp (contribution)	0.69*** (0.17)	0.70*** (0.17)	0.70*** (0.17)
SME Industry R.exp (contribution)	0.26*** (0.10)	0.27*** (0.10)	0.28*** (0.10)
lag(SME Services R.exp)	1.01*** (0.27)	0.99*** (0.26)	0.98*** (0.28)
lag(SME Industry R.exp)	−0.02 (0.13)	−0.05 (0.13)	−0.04 (0.13)
LF Services R.exp (contribution)	0.34*** (0.08)	0.31*** (0.08)	0.32*** (0.09)
LF Industry R.exp (contribution)	0.20** (0.09)	0.20** (0.09)	0.20** (0.09)
lag(LF Services R.exp)	0.25*** (0.09)	0.22** (0.09)	0.22** (0.09)
lag(LF Industry R.exp)	0.01 (0.09)	−0.01 (0.09)	−0.01 (0.09)
Left vote share in last election		−0.27*** (0.08)	−0.26*** (0.08)
Share of public employment			−0.00 (0.03)
Jobs per km^2			−0.09 (0.82)
Regional turnout			−0.03 (0.02)
Intercept	25.94*** (2.28)	25.76*** (2.28)	25.50*** (2.30)
Num. obs.	4949	4949	4949
Parameters	59	60	63
Log Likelihood	−14597.71	−14591.87	−14590.67
AIC (Linear model)	33417.54	33398.31	33372.22
AIC (Spatial model)	29313.42	29303.74	29307.34
LR test: statistic	4106.12	4096.57	4066.88
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

C.2 Alternative weight matrix specification, neighbor weight halved if different majority language

The following tables make use of a slightly modified version of the spatial weights matrix that accounts for the fact that neighboring regions may sometimes have a different majority language. Starting from the standard contiguity matrix that sets neighbor value to 1, I instead set a value of 0.5 to those neighboring regions that do not share the same majority language - relying on data from the 2000 Swiss Census. This seems like a reasonable compromise, as while it is likely that a shared language plays an important role in cross-region mobility, setting the weight to zero would be going to far, implying that said mobility is equal to zero. This modified contiguity matrix is used only in the construction of WX , the simple standardized contiguity matrix is used for the spatial error term.

Table C.2: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects – FFD DVA and Employment Zones 2018

	Model A4	Model A5	Model A6
Regional exposure (R.exp)	0.32** (0.12)	0.32*** (0.12)	0.31** (0.12)
lag(R.exp)	0.41* (0.21)	0.35 (0.21)	0.27 (0.22)
Left vote share in last election		-0.27*** (0.08)	-0.26*** (0.08)
Share of public employment			0.01 (0.03)
Jobs per km^2			-1.29* (0.78)
Regional turnout			-0.03 (0.02)
λ	0.81*** (0.01)	0.81*** (0.01)	0.81*** (0.01)
Intercept	24.09*** (2.25)	23.91*** (2.24)	23.41*** (2.25)
Num. obs.	4949	4949	4949
Parameters	53	54	57
Log Likelihood	-14614.54	-14608.65	-14606.12
AIC (Linear model)	33432.56	33415.29	33387.72
AIC (Spatial model)	29335.07	29325.31	29326.24
LR test: statistic	4099.49	4091.99	4063.48
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table C.3: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects, SME and LF disaggregated – FFD DVA and Employment Zones 2018

	Model A7	Model A8	Model A9
SME R.exp (contribution)	0.43*** (0.13)	0.46*** (0.13)	0.45*** (0.14)
Large firms R.exp (contribution)	0.22** (0.10)	0.22** (0.10)	0.21** (0.10)
lag(SME R.exp)	0.48** (0.22)	0.46** (0.22)	0.38* (0.22)
lag(LF R.exp)	0.15 (0.10)	0.11 (0.10)	0.09 (0.10)
Left vote share in last election		-0.28*** (0.08)	-0.28*** (0.08)
Share of public employment			-0.01 (0.03)
Jobs per km^2			-1.23 (0.78)
Regional turnout			-0.03 (0.02)
λ	0.81*** (0.01)	0.81*** (0.01)	0.81*** (0.01)
Intercept	24.46*** (2.26)	24.35*** (2.25)	23.88*** (2.26)
Num. obs.	4949	4949	4949
Parameters	55	56	59
Log Likelihood	-14612.85	-14606.28	-14603.79
AIC (Linear model)	33428.24	33410.24	33386.15
AIC (Spatial model)	29335.70	29324.55	29325.58
LR test: statistic	4094.54	4087.69	4062.57
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table C.4: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects, Services and Industry disaggregated – FFD DVA and Employment Zones 2018

	Model A10	Model A11	Model A12
Services R.exp (contribution)	0.80*** (0.17)	0.79*** (0.17)	0.79*** (0.18)
Industry R.exp (contribution)	0.21** (0.09)	0.22** (0.09)	0.22** (0.09)
lag(Services R.exp)	1.11*** (0.25)	1.05*** (0.25)	1.05*** (0.27)
lag(Industry R.exp)	−0.04 (0.13)	−0.08 (0.13)	−0.08 (0.13)
Left vote share in last election		−0.26*** (0.08)	−0.26*** (0.08)
Share of public employment			−0.00 (0.03)
Jobs per km^2			−0.14 (0.81)
Regional turnout			−0.03 (0.02)
λ	0.81*** (0.01)	0.81*** (0.01)	0.81*** (0.01)
Intercept	25.89*** (2.28)	25.68*** (2.27)	25.40*** (2.29)
Num. obs.	4949	4949	4949
Parameters	55	56	59
Log Likelihood	−14598.92	−14593.06	−14591.91
AIC (Linear model)	33427.40	33411.34	33383.44
AIC (Spatial model)	29307.84	29298.11	29301.82
LR test: statistic	4121.56	4115.23	4083.62
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table C.5: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects, Social Policy interaction – FFD DVA and Employment Zones 2018

	Model A13	Model A14	Model A15
Regional exposure (R.exp)	0.33** (0.17)		
lag(R.exp)	0.66** (0.29)		
Regional exposure (R.exp) * Soc. Policy	−0.03 (0.25)		
lag(R.exp) * Soc. Policy	−0.67 (0.42)		
SME R.exp (contribution)		0.42** (0.18)	
Large firms R.exp (contribution)		0.24* (0.13)	
lag(SME R.exp)		0.78*** (0.30)	
lag(LF R.exp)		0.21 (0.13)	
SME R.exp (contribution) * Soc. Policy		0.07 (0.27)	
Large firms R.exp (contribution) * Soc. Policy		−0.05 (0.20)	
lag(SME R.exp) * Soc. Policy		−0.67 (0.44)	
lag(LF R.exp) * Soc. Policy		−0.21 (0.20)	
Services R.exp (contribution)			0.79*** (0.23)
Industry R.exp (contribution)			0.21* (0.12)
lag(Services R.exp)			1.51*** (0.35)
lag(Industry R.exp)			0.05 (0.17)
Services R.exp (contribution) * Soc. Policy			−0.00 (0.35)
Industry R.exp (contribution) * Soc. Policy			−0.00 (0.18)
lag(Services R.exp) * Soc. Policy			− 0.96* (0.51)
lag(Industry R.exp) * Soc. Policy			−0.27 (0.25)
Left vote share in last election	− 0.26*** (0.08)	− 0.28*** (0.08)	− 0.26*** (0.08)
λ	0.81*** (0.01)	0.81*** (0.01)	0.81*** (0.01)
Intercept	24.61*** (2.30)	25.09*** (2.32)	26.58*** (2.35)
Num. obs.	4949	4949	4949
Parameters	56	60	60
Log Likelihood	−14607.40	−14604.33	−14591.11
AIC (Linear model)	33418.13	33416.65	33417.73
AIC (Spatial model)	29326.80	29328.66	29302.23
LR test: statistic	4093.33	4089.99	4117.51
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table C.6: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects, Public Finances interaction – FFD DVA and Employment Zones 2018

	Model A16	Model A17	Model A18
Regional exposure (R.exp)	0.37***		
	(0.14)		
lag(R.exp)	−0.02		
	(0.24)		
Regional exposure (R.exp) * Pub. Finances	−0.18		
	(0.29)		
lag(R.exp) * Pub. Finances	1.54***		
	(0.50)		
SME R.exp (contribution)		0.39**	
		(0.15)	
Large firms R.exp (contribution)		0.28**	
		(0.11)	
lag(SME R.exp)		−0.01	
		(0.25)	
lag(LF R.exp)		−0.00	
		(0.11)	
SME R.exp (contribution) * Pub. Finances		0.35	
		(0.32)	
Large firms R.exp (contribution) * Pub. Finances		−0.25	
		(0.23)	
lag(SME R.exp) * Pub. Finances		2.03***	
		(0.51)	
lag(LF R.exp) * Pub. Finances		0.44*	
		(0.23)	
Services R.exp (contribution)			0.76***
			(0.20)
Industry R.exp (contribution)			0.25**
			(0.10)
lag(Services R.exp)			0.59**
			(0.29)
lag(Industry R.exp)			−0.25*
			(0.15)
Services R.exp (contribution) * Pub. Finances			0.17
			(0.41)
Industry R.exp (contribution) * Pub. Finances			−0.12
			(0.21)
lag(Services R.exp) * Pub. Finances			1.99***
			(0.60)
lag(Industry R.exp) * Pub. Finances			0.71**
			(0.30)
Left vote share in last election	−0.27***	−0.29***	−0.27***
	(0.08)	(0.08)	(0.08)
λ	0.81***	0.81***	0.81***
	(0.01)	(0.01)	(0.01)
Intercept	26.20***	27.99***	28.85***
	(2.45)	(2.49)	(2.56)
Num. obs.	4949	4949	4949
Parameters	56	60	60
Log Likelihood	−14603.40	−14596.07	−14586.91
AIC (Linear model)	33382.20	33371.21	33377.69
AIC (Spatial model)	29318.81	29312.14	29293.83
LR test: statistic	4065.39	4061.07	4085.87
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

C.3 Alternative region definition: Regions MS 2000

The following models use exactly the same methodology as the main models, only opting for a different regions classification. The Regions MS 2000 classification predates the 2018 Employment zones classification and is also an analytic rather than an administrative classification (OFS, 2005). It divides Switzerland in 106 different geographical units, whereas the 2018 Employment Zones divide the country in 101 units.

Table C.7: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects – FFD DVA and Regions MS 2000

	Model A19	Model A20	Model A21
Regional exposure (R.exp)	0.28** (0.11)	0.28** (0.11)	0.25** (0.11)
lag(R.exp)	0.53*** (0.19)	0.52*** (0.19)	0.34* (0.20)
Left vote share in last election		0.05 (0.07)	0.08 (0.07)
Share of public employment			0.61** (0.29)
Jobs per km^2			-4.84*** (1.50)
Regional turnout			-0.04** (0.02)
λ	0.79*** (0.01)	0.79*** (0.01)	0.79*** (0.01)
Intercept	23.00*** (2.01)	22.99*** (2.01)	22.11*** (2.01)
Num. obs.	5194	5194	5194
Parameters	53	54	57
Log Likelihood	-15253.66	-15253.36	-15244.65
AIC (Linear model)	34429.62	34427.35	34389.57
AIC (Spatial model)	30613.32	30614.73	30603.29
LR test: statistic	3818.30	3814.62	3788.27
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table C.8: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects, SME and LF disaggregated – FFD DVA and Regions MS 2000

	Model A22	Model A23	Model A24
SME R.exp (contribution)	0.42*** (0.12)	0.42*** (0.12)	0.38*** (0.12)
Large firms R.exp (contribution)	0.13 (0.09)	0.13 (0.09)	0.12 (0.09)
lag(SME R.exp)	0.66*** (0.20)	0.66*** (0.20)	0.45** (0.21)
lag(LF R.exp)	0.13 (0.08)	0.13 (0.08)	0.09 (0.08)
Left vote share in last election		0.05 (0.07)	0.08 (0.07)
Share of public employment			0.47 (0.30)
Jobs per km^2			-4.63*** (1.53)
Regional turnout			-0.04** (0.02)
λ	0.79*** (0.01)	0.79*** (0.01)	0.79*** (0.01)
Intercept	23.51*** (2.02)	23.50*** (2.02)	22.55*** (2.02)
Num. obs.	5194	5194	5194
Parameters	55	56	59
Log Likelihood	-15249.39	-15249.14	-15241.71
AIC (Linear model)	34429.33	34427.42	34392.04
AIC (Spatial model)	30608.77	30610.28	30601.43
LR test: statistic	3822.56	3819.14	3792.62
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table C.9: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects, Services and Industry disaggregated – FFD DVA and Regions MS 2000

	Model A25	Model A26	Model A27
Services R.exp (contribution)	0.55*** (0.15)	0.55*** (0.15)	0.52*** (0.16)
Industry R.exp (contribution)	0.15* (0.09)	0.15* (0.09)	0.14 (0.09)
lag(Services R.exp)	0.91*** (0.23)	0.91*** (0.23)	0.71*** (0.25)
lag(Industry R.exp)	0.06 (0.13)	0.06 (0.13)	0.06 (0.13)
Left vote share in last election		0.05 (0.07)	0.08 (0.07)
Share of public employment			0.63** (0.30)
Jobs per km^2			-3.44** (1.58)
Regional turnout			-0.04** (0.02)
λ	0.79*** (0.01)	0.79*** (0.01)	0.79*** (0.01)
Intercept	23.77*** (2.02)	23.75*** (2.02)	22.93*** (2.03)
Num. obs.	5194	5194	5194
Parameters	55	56	59
Log Likelihood	-15246.48	-15246.21	-15239.95
AIC (Linear model)	34426.76	34424.60	34384.51
AIC (Spatial model)	30602.96	30604.41	30597.91
LR test: statistic	3825.80	3822.19	3788.60
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table C.10: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects, Social Policy interaction – FFD DVA and Regions MS 2000

	Model A28	Model A29	Model A30
Regional exposure (R.exp)	0.25* (0.15)		
lag(R.exp)	0.60** (0.26)		
Regional exposure (R.exp) * Soc. Policy	0.06 (0.23)		
lag(R.exp) * Soc. Policy	-0.16 (0.39)		
SME R.exp (contribution)		0.38** (0.17)	
Large firms R.exp (contribution)		0.11 (0.11)	
lag(SME R.exp)		0.86*** (0.27)	
lag(LF R.exp)		0.13 (0.11)	
SME R.exp (contribution) * Soc. Policy		0.08 (0.24)	
Large firms R.exp (contribution) * Soc. Policy		0.05 (0.17)	
lag(SME R.exp) * Soc. Policy		-0.44 (0.40)	
lag(LF R.exp) * Soc. Policy		0.03 (0.17)	
Services R.exp (contribution)			0.45** (0.20)
Industry R.exp (contribution)			0.12 (0.12)
lag(Services R.exp)			1.09*** (0.31)
lag(Industry R.exp)			0.05 (0.17)
Services R.exp (contribution) * Soc. Policy			0.24 (0.31)
Industry R.exp (contribution) * Soc. Policy			0.07 (0.18)
lag(Services R.exp) * Soc. Policy			-0.35 (0.45)
lag(Industry R.exp) * Soc. Policy			0.03 (0.25)
Left vote share in last election	0.05 (0.07)	0.05 (0.07)	0.05 (0.07)
λ	0.79*** (0.01)	0.79*** (0.01)	0.79*** (0.01)
Intercept	23.10*** (2.07)	23.81*** (2.08)	23.86*** (2.09)
Num. obs.	5194	5194	5194
Parameters	56	60	60
Log Likelihood	-15253.19	-15248.06	-15245.08
AIC (Linear model)	34429.39	34429.43	34430.37
AIC (Spatial model)	30618.38	30616.13	30610.16
LR test: statistic	3813.00	3815.30	3822.22
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table C.11: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects, Public Finances interaction – FFD DVA and Regions MS 2000

	Model A31	Model A32	Model A33
Regional exposure (R.exp)	0.23* (0.13)		
lag(R.exp)	0.30 (0.22)		
Regional exposure (R.exp) * Pub. Finances	0.19 (0.27)		
lag(R.exp) * Pub. Finances	0.97** (0.46)		
SME R.exp (contribution)		0.28** (0.14)	
Large firms R.exp (contribution)		0.14 (0.10)	
lag(SME R.exp)		0.37 (0.23)	
lag(LF R.exp)		0.07 (0.09)	
SME R.exp (contribution) * Pub. Finances		0.64** (0.29)	
Large firms R.exp (contribution) * Pub. Finances		−0.05 (0.20)	
lag(SME R.exp) * Pub. Finances		1.32*** (0.47)	
lag(LF R.exp) * Pub. Finances		0.24 (0.20)	
Services R.exp (contribution)			0.51*** (0.18)
Industry R.exp (contribution)			0.13 (0.10)
lag(Services R.exp)			0.60** (0.26)
lag(Industry R.exp)			−0.01 (0.14)
Services R.exp (contribution) * Pub. Finances			0.22 (0.36)
Industry R.exp (contribution) * Pub. Finances			0.11 (0.20)
lag(Services R.exp) * Pub. Finances			1.35** (0.54)
lag(Industry R.exp) * Pub. Finances			0.33 (0.30)
Left vote share in last election	0.05 (0.07)	0.04 (0.07)	0.05 (0.07)
λ	0.79*** (0.01)	0.79*** (0.01)	0.79*** (0.01)
Intercept	24.90*** (2.22)	26.46*** (2.26)	26.01*** (2.28)
Num. obs.	5194	5194	5194
Parameters	56	60	60
Log Likelihood	−15251.09	−15241.66	−15242.96
AIC (Linear model)	34398.17	34394.61	34398.07
AIC (Spatial model)	30614.18	30603.32	30605.91
LR test: statistic	3785.99	3793.29	3794.16
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

C.4 Alternative votes selection: Absent polarization condition

The following models replicate the methodology used for the main models, only opting for a different selection of votes by relaxing the condition that the selected votes need to display polarization between the BIAs and at least one of the left-leaning unions. This results in 14 more votes being added to the sample, where both unions either abstained from giving out a vote recommendation or made the same recommendation as the BIAs.

Table C.12: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects – FFD DVA and Employment Zones 2018

	Model A34	Model A35	Model A36
Regional exposure (R.exp)	0.24** (0.12)	0.24** (0.12)	0.20* (0.12)
lag(R.exp)	0.50** (0.20)	0.47** (0.20)	0.38* (0.21)
Left vote share in last election		-0.13* (0.07)	-0.13* (0.07)
Share of public employment			0.07*** (0.03)
Jobs per km^2			-1.54** (0.71)
Regional turnout			-0.00 (0.02)
λ	0.79*** (0.01)	0.79*** (0.01)	0.79*** (0.01)
Intercept	22.79*** (2.21)	22.70*** (2.21)	22.25*** (2.22)
Num. obs.	6363	6363	6363
Parameters	67	68	71
Log Likelihood	-19197.43	-19195.75	-19190.24
AIC (Linear model)	43438.64	43438.58	43420.58
AIC (Spatial model)	38528.86	38527.50	38522.47
LR test: statistic	4911.79	4913.08	4900.10
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table C.13: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects, SME and LF disaggregated – FFD DVA and Employment Zones 2018

	Model A37	Model A38	Model A39
SME R.exp (contribution)	0.38*** (0.13)	0.39*** (0.13)	0.32** (0.13)
Large firms R.exp (contribution)	0.16* (0.09)	0.16* (0.09)	0.14 (0.09)
lag(SME R.exp)	0.62*** (0.21)	0.60*** (0.21)	0.50** (0.22)
lag(LF R.exp)	0.16* (0.09)	0.14 (0.09)	0.12 (0.09)
Left vote share in last election		-0.15** (0.07)	-0.15** (0.07)
Share of public employment			0.06** (0.03)
Jobs per km^2			-1.46** (0.71)
Regional turnout			-0.00 (0.02)
λ	0.79*** (0.01)	0.79*** (0.01)	0.79*** (0.01)
Intercept	23.29*** (2.22)	23.22*** (2.22)	22.70*** (2.23)
Num. obs.	6363	6363	6363
Parameters	69	70	73
Log Likelihood	-19194.71	-19192.59	-19188.24
AIC (Linear model)	43428.95	43428.59	43417.79
AIC (Spatial model)	38527.43	38525.19	38522.47
LR test: statistic	4903.53	4905.40	4897.32
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table C.14: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects, Services and Industry disaggregated – FFD DVA and Employment Zones 2018

	Model A40	Model A41	Model A42
Services R.exp (contribution)	0.71*** (0.17)	0.70*** (0.17)	0.63*** (0.17)
Industry R.exp (contribution)	0.17* (0.09)	0.17* (0.09)	0.15* (0.09)
lag(Services R.exp)	1.10*** (0.25)	1.07*** (0.25)	1.02*** (0.26)
lag(Industry R.exp)	0.07 (0.12)	0.05 (0.12)	0.05 (0.13)
Left vote share in last election		-0.13* (0.07)	-0.13* (0.07)
Share of public employment			0.06** (0.03)
Jobs per km^2			-0.66 (0.73)
Regional turnout			-0.00 (0.02)
λ	0.79*** (0.01)	0.79*** (0.01)	0.79*** (0.01)
Intercept	24.43*** (2.24)	24.32*** (2.24)	23.92*** (2.25)
Num. obs.	6363	6363	6363
Parameters	69	70	73
Log Likelihood	-19185.05	-19183.48	-19180.27
AIC (Linear model)	43434.46	43434.77	43419.38
AIC (Spatial model)	38508.11	38506.96	38506.55
LR test: statistic	4928.35	4929.81	4914.84
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table C.15: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects, Social Policy interaction – FFD DVA and Employment Zones 2018

	Model A43	Model A44	Model A45
Regional exposure (R.exp)	0.26* (0.15)		
lag(R.exp)	0.96*** (0.26)		
Regional exposure (R.exp) * Soc. Policy	-0.07 (0.24)		
lag(R.exp) * Soc. Policy	-1.32*** (0.42)		
SME R.exp (contribution)		0.37** (0.16)	
Large firms R.exp (contribution)		0.19 (0.12)	
lag(SME R.exp)		1.12*** (0.27)	
lag(LF R.exp)		0.30*** (0.12)	
SME R.exp (contribution) * Soc. Policy		0.04 (0.26)	
Large firms R.exp (contribution) * Soc. Policy		-0.09 (0.19)	
lag(SME R.exp) * Soc. Policy		-1.32*** (0.43)	
lag(LF R.exp) * Soc. Policy		-0.44** (0.19)	
Services R.exp (contribution)			0.70*** (0.21)
Industry R.exp (contribution)			0.18 (0.11)
lag(Services R.exp)			1.71*** (0.31)
lag(Industry R.exp)			0.26* (0.16)
Services R.exp (contribution) * Soc. Policy			-0.01 (0.35)
Industry R.exp (contribution) * Soc. Policy			-0.04 (0.18)
lag(Services R.exp) * Soc. Policy			-1.68*** (0.51)
lag(Industry R.exp) * Soc. Policy			-0.56** (0.25)
Left vote share in last election	-0.13* (0.07)	-0.15** (0.07)	-0.13* (0.07)
λ	0.79*** (0.01)	0.79*** (0.01)	0.79*** (0.01)
Intercept	23.82*** (2.24)	24.42*** (2.26)	25.60*** (2.29)
Num. obs.	6363	6363	6363
Parameters	70	74	74
Log Likelihood	-19190.77	-19186.41	-19177.36
AIC (Linear model)	43437.39	43430.52	43436.42
AIC (Spatial model)	38521.54	38520.83	38502.72
LR test: statistic	4917.85	4911.70	4935.70
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table C.16: Spatial Durbin Error Models of Regional vote outcomes including regions Fixed Effects, Public Finances interaction – FFD DVA and Employment Zones 2018

	Model A46	Model A47	Model A48
Regional exposure (R.exp)	0.21 (0.13)		
lag(R.exp)	0.28 (0.23)		
Regional exposure (R.exp) * Pub. Finances	0.15 (0.28)		
lag(R.exp) * Pub. Finances	0.93* (0.50)		
SME R.exp (contribution)		0.29** (0.14)	
Large firms R.exp (contribution)		0.15 (0.11)	
lag(SME R.exp)		0.31 (0.23)	
lag(LF R.exp)		0.11 (0.10)	
SME R.exp (contribution) * Pub. Finances		0.52* (0.31)	
Large firms R.exp (contribution) * Pub. Finances		0.06 (0.22)	
lag(SME R.exp) * Pub. Finances		1.56*** (0.53)	
lag(LF R.exp) * Pub. Finances		0.17 (0.22)	
Services R.exp (contribution)			0.67*** (0.19)
Industry R.exp (contribution)			0.14 (0.10)
lag(Services R.exp)			0.82*** (0.28)
lag(Industry R.exp)			-0.03 (0.14)
Services R.exp (contribution) * Pub. Finances			0.16 (0.41)
Industry R.exp (contribution) * Pub. Finances			0.12 (0.21)
lag(Services R.exp) * Pub. Finances			1.30** (0.62)
lag(Industry R.exp) * Pub. Finances			0.38 (0.30)
Left vote share in last election	-0.13* (0.07)	-0.15** (0.07)	-0.13* (0.07)
λ	0.79*** (0.01)	0.79*** (0.01)	0.79*** (0.01)
Intercept	24.56*** (2.43)	26.52*** (2.49)	26.66*** (2.56)
Num. obs.	6363	6363	6363
Parameters	70	74	74
Log Likelihood	-19193.99	-19186.94	-19181.06
AIC (Linear model)	43425.65	43414.19	43423.50
AIC (Spatial model)	38527.97	38521.88	38510.11
LR test: statistic	4899.68	4894.31	4915.38
LR test: p-value	0.00	0.00	0.00

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

D Additional tables and figures

Table D.17: All 49 votes considered in the analysis

vote_id	date	titel_off_f
421	1995-03-12	Arrêté fédéral instituant un frein aux dépenses
422	1995-06-25	Loi fédérale sur l'assurance-vieillesse et survivants (LAVS). Modification du 7 octobre 1994 (10e révision de l'AVS)
423	1995-06-25	Initiative populaire «pour l'extension de l'AVS et de l'AI»
433	1996-12-01	Loi fédérale sur le travail dans l'industrie, l'artisanat et le commerce (Loi sur le travail), modification du 22 mars 1996
435	1997-06-08	Initiative populaire «pour l'interdiction d'exporter du matériel de guerre»
437	1997-09-28	Arrêté fédéral sur le financement de l'assurance-chômage
439	1998-06-07	Arrêté fédéral instituant des mesures visant à équilibrer le budget
444	1998-09-27	Initiative populaire «pour la 10e révision de l'AVS sans relèvement de l'âge de la retraite»
457	1999-06-13	Loi fédérale sur l'assurance-invalidité
458	1999-06-13	Loi fédérale sur l'assurance-maternité
4651	2000-09-24	Initiative populaire «pour l'introduction d'un centime solaire (initiative solaire)»
4652	2000-09-24	Article constitutionnel sur une redevance pour l'encouragement des énergies renouvelables (contre-projet à l'initiative populaire «pour l'introduction d'un centime solaire (Initiative solaire)»)
466	2000-09-24	Article constitutionnel relatif à une redevance incitative sur l'énergie en faveur de l'environnement
469	2000-11-26	Initiative populaire «pour un assouplissement de l'AVS - contre le relèvement de l'âge de la retraite des femmes»
470	2000-11-26	Initiative populaire «pour une retraite à la carte dès 62 ans, tant pour les femmes que pour les hommes»
480	2001-12-02	Arrêté fédéral concernant un frein à l'endettement
481	2001-12-02	Initiative populaire «pour garantir l'AVS - taxer l'énergie et non le travail!»
484	2001-12-02	Initiative populaire «pour un impôt sur les gains en capital»
486	2002-03-03	Initiative populaire «pour une durée du travail réduite»
4891	2002-09-22	Initiative populaire «pour le versement au fonds AVS des réserves d'or excédentaires de la Banque nationale suisse (Initiative sur l'or)»

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vote_id	date	titel_off_f
492	2002-11-24	Modification de la loi fédérale sur l'assurance-chômage obligatoire et l'indemnité en cas d'insolvabilité (Loi sur l'assurance-chômage, LACI)
507	2004-05-16	Modification de la loi fédérale sur l'assurance-vieillesse et survivants (LAVS) (11e révision de l'AVS)
508	2004-05-16	Arrêté fédéral sur le financement de l'AVS/AI par le biais d'un relèvement de la taxe sur la valeur ajoutée
509	2004-05-16	Loi fédérale sur la modification d'actes concernant l'imposition du couple et de la famille, l'imposition du logement et les droits de timbre
514	2004-11-28	Arrêté fédéral concernant la réforme de la péréquation financière et de la répartition des tâches entre la Confédération et les cantons (RPT)
521	2005-11-27	Modification de la loi fédérale sur le travail dans l'industrie, l'artisanat et le commerce (Loi sur le travail)
523	2006-09-24	Initiative populaire «Bénéfices de la Banque nationale pour l'AVS»
528	2007-03-11	Initiative populaire «Pour une caisse maladie unique et sociale»
529	2007-06-17	Modification de la loi fédérale sur l'assurance-invalidité (LAI)
531	2008-02-24	Loi fédérale sur l'amélioration des conditions fiscales applicables aux activités entrepreneuriales et aux investissements (loi sur la réforme de l'imposition des entreprises II)
534	2008-06-01	Article constitutionnel «Qualité et efficacité économique dans l'assurance-maladie»
536	2008-11-30	Initiative populaire «Pour un âge de l'AVS flexible»
550	2010-03-07	Modification de la loi fédérale sur la prévoyance professionnelle vieillesse, survivants et invalidité (LPP) (Taux de conversion minimal)
551	2010-09-26	Modification de la loi fédérale sur l'assurance-chômage obligatoire et l'indemnité en cas d'insolvabilité (loi sur l'assurance-chômage, LACI)
553	2010-11-28	Initiative populaire «Pour des impôts équitables. Stop aux abus de la concurrence fiscale (Initiative pour des impôts équitables)»
557	2012-03-11	Initiative populaire «6 semaines de vacances pour tous»
559	2012-03-11	Loi fédérale sur la réglementation du prix du livre (LPL)
565	2012-09-23	Initiative populaire «Protection contre le tabagisme passif»

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vote_id	date	titel_off_f
574	2013-09-22	Modification de la loi fédérale sur le travail dans l'industrie, l'artisanat et le commerce (Loi sur le travail, LTr)
575	2013-11-24	Initiative populaire «1:12 – Pour des salaires équitables»
583	2014-05-18	Initiative populaire «Pour la protection de salaires équitables (Initiative sur les salaires minimums)»
584	2014-05-18	Loi fédérale sur le fonds d'acquisition de l'avion de combat Gripen (Loi sur le fonds Gripen)
586	2014-09-28	Initiative populaire «Pour une caisse publique d'assurance-maladie»
587	2014-11-30	Initiative populaire «Halte aux privilèges fiscaux des millionnaires (abolition des forfaits fiscaux)»
594	2015-06-14	Initiative populaire «Imposer les successions de plusieurs millions pour financer notre AVS (Réforme de la fiscalité successorale)»
606	2016-09-25	Initiative populaire «AVSplus: pour une AVS forte»
611	2017-02-12	Loi fédérale sur l'amélioration des conditions fiscales en vue de renforcer la compétitivité du site entrepreneurial suisse (Loi sur la réforme de l'imposition des entreprises III)
614	2017-09-24	Arrêté fédéral sur le financement additionnel de l'AVS par le biais d'un relèvement de la taxe sur la valeur ajoutée
615	2017-09-24	Loi fédérale sur la réforme de la prévoyance vieillesse 2020