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Regulation in Swiss Cantons: Data for one Century

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Regulation in Swiss Cantons: Data for one Century

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Regulation in Swiss Cantons: Data for one Century

Abstract

In this paper, we present and illustrate novel data on more than a century of regulation in Switzerland. We provide quantitative measures for Swiss cantons on the annual stock of legally binding rules from 2006-2013 and on regulatory activity as reflected in the annual changes to such regulation from 1908-2013. We measure the stock of regulation by the number of enactments and characters, and the regulatory activity by the number of changed enactments and pages. Further, we break down the measures by the level in the hierarchy of legal norms and by the issuing authority. The data reveal substantial cantonal heterogeneity in the stock of regulation and the amount and development of regulatory activity. Regulatory activity generally increased over the century, though in a non-monotonic manner, and is characterized by substantial volatility. Quantitatively, the most important is regulation at the level of decrees. When focusing on the issuing authority, it is the executive that dominates. We also construct our measures for the federal level from 2006-2013 (stock) and 1848-2013 (activity).

JEL-Codes: H100, H700, K200, Y100.

Keywords: regulation, regulatory activity.

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1. Introduction

Political commentators regularly assert a surge in regulation. Explanations range from an increase in economic and social complexity, institutional changes and special interest politics.¹ An often cited and prominent example of regulatory zeal is the U.S. Dodd-Frank Act, with 848 pages.² Given the disagreement about the causes, it comes as no surprise that there is no agreement about the consequences. While some deem it to be an adequate response to economic and social developments, others fret about a decrease in the quality of legislation and legal certainty. So far, this debate has been based mostly on anecdotal evidence. However, a rigorous analysis of the causes and consequences requires systematic and comparable data. In this paper, we present unique data, along with the major facts and trends, for one century of regulation in Swiss cantons (equivalent to U.S. states), and for the sake of completeness, at the Swiss federal level. Looking at the Swiss subnational level is particularly interesting because it allows us to compare the 26 cantons, which all share a common national institutional environment, but have considerable autonomy and feature great institutional variation across cantons and time.

Our measures capture the amount of regulation, differentiated by the authorities issuing the regulation and the hierarchy of legal norms. In the spirit of the seminal contribution of Mulligan and Shleifer (2005), we quantify regulation by the number of enactments, pages and characters. Thereby, we distinguish between the legislature, the executive and other authorities, as well as between the constitutional, statutory and other levels in the hierarchy of legal norms.

A few other papers use quantitative measures of regulation. For example, Mulligan and Shleifer (2005) show that, in a cross-section of U.S. states, the amount of regulation measured in kilobytes increases with population size. This is consistent with the notion of the fixed costs of the regulatory process. Alesina et al. (2005) analyze the scale and scope of European Union legislation by counting the number of enactments in different regulatory areas. In a time-series model at the U.S. federal level, Dawson and Seater (2013) analyze the effect of the number of pages of federal regulation on private sector output and total factor productivity. Dal Bó and Rossi (2011) and Braendle and Stutzer (2012) use, among other measures, the numbers of bills proposed or ratified and the number of interpellations to

¹ Economist, “In love with regulation,” July 31, 1997; Economist, “United States’ economy. Over-regulated America,” February 18, 2012; Neue Zürcher Zeitung, “Qualität der Gesetzgebung im Sinkflug,” February 8, 2013; Neue Zürcher Zeitung, “Für jedes neue Problem ein neues Gesetz,” November 9, 2011.

² Economist, “The Dodd-Frank act. Too big not to fail,” February 18, 2012.

investigate legislative activity. In the Swiss context, Linder, Hübeline, and Sutter (2007) and Buomberger (2014) illustrate the evolution of regulation by counting the number of enactments and pages at the Swiss federal level. In contrast to these overall measures of regulation, papers using measures of specific regulatory content abound (e.g., Djankov et al. 2002; Botero et al. 2004). Acknowledging the obvious advantages of content measures, these measures do not allow researchers to capture overall regulatory activity and often require somewhat arbitrary decisions about the considered components, the impacts of specific laws, the aggregation procedure and weights. In this sense, overall measures and measures of specific content are complementary.

The reminder of the paper is structured as follows: Section 2 introduces the measurement methodology and the sources. Section 3 illustrates the data at the cantonal level, while section 4 presents the data at the federal level. Section 5 concludes.

2. Data: Measures and sources

The amount of regulation can be quantified with two conceptually distinct measures, i.e. stock and activity. The stock captures all legally binding rules at a particular point in time (see, e.g., Mulligan and Shleifer 2005). In contrast, activity refers to new enactments, amendments, and repeals occurring during a particular time interval (see, e.g., Dal Bó and Rossi 2011). It is important to note that the activity measure is not identical to a change in stock, because it sums all changes. The measures of stock and activity allow different questions of interest to be answered.

Practically, we count the number of enactments (in the case of both the stock and activity measures), the pages (in the case of activity measures), and the characters (in the case of stock measures). The number of enactments is straightforward to count, but it provides no information on the extent of regulation. Therefore, we supplement this measure with the number of characters or pages. However, in measuring regulatory activity, the number of pages is potentially noisy because of differences in publication practices.

We always distinguish the hierarchy of legal norms and the authority issuing the regulation. We distinguish four levels of the hierarchy of norms: Constitution, statutes, decrees (decrees, ordinances, resolutions), and inter-jurisdictional treaties. Overall, the main authorities are the legislature and the executive. Typically, changes to the Constitution or to statutes originate in the legislature. In a few cantons, citizen assemblies comprise the legislature. In other cantons, popular initiatives complement the legislature as a source of new legislation at the

constitutional and statutory level. For decrees, the main sources are both the legislature and the executive. In a few cases, the legislature and the executive issue a decree jointly, or the issuing authority could not be identified. Inter-jurisdictional treaties form a separate group. They contain any treaties and agreements between cantons or regions, including regions in other countries. For the federal level, we organize international treaties in a separate category. Finally, we lump together third parties issuing decrees, such as courts and special councils.

Stock

We collect the stock measures from so-called “systematic” law collections containing the currently applicable rules. They are published in binders so that the collections can be continually updated. Collections for earlier years exist only in rare cases. Since 2006, the project LexFind (<http://www.lexfind.ch/>) hosted by the Zentrum für Rechtsinformation (hereafter ZRI) has digitally stored the collections. We commissioned an algorithm to extract the number of enactments and characters for every year.

Activity

To gather the activity measures, we rely on so-called “chronological” law collections or official journals, which are generally available back to 1908. These publications comprise all regulatory changes, i.e. new enactments, amendments, and repeals, made in a given time interval. They are typically available in libraries or cantonal archives. In later years, these collections are often published online. For practical reasons in the data collection process, we assign enactments to years according to the year of publication. In rare cases, precise information on the publication date is not available. In these cases, we also use the date of enactment. For example, between 1935 and 1950, the canton of Graubünden published three-year volumes without additional information on the publication date. Therefore, we rely on the enactment date. However, publication usually immediately follows enactment.

After test-runs to define the coding process and framework, research assistants manually recorded, from each relevant entry of the cantonal law collections and journals, the following information: publication year, type of enactment, and the page numbers or the start and end pages. For the type of enactment, the research assistants could choose from pre-defined canton-specific lists or record the exact title in case the enactment assignment was unclear. Lawyers from the ZRI, notably Dr. Marius Roth, assigned enactment types to the legal hierarchy and the issuing authority. We had to rely on legal experts because of vastly differing denominations of enactment types across cantons and over time. Legal experts also defined a

comparable core of generally binding rules, as some cantonal law collections also contain other information. Specifically, we exclude re-printed federal laws, electoral results, collective labor agreements, cantonal budgets, codes on the internal organization of public entities, various announcements, etc.

Depending on the structure of the cantonal law collection, research assistants either coded the start and end pages of enactments or manually counted page numbers. As a general rule, every enactment counts at least one page, even if a canton published more than one enactment on one page. Similarly, every started page is fully counted. We do not account for layout differences across cantons and over time, except in one very pronounced case. The canton of Jura publishes its journal in a format that is almost twice the normal size, but is structured in two columns per page. Therefore, we count the number of columns, instead of pages. Moreover, it is not possible to account for discrepancies in publication practices across cantons and over time. For example, there might be differences in the extent to which unchanged passages are published alongside amendments.

To ensure data quality, we checked all extreme values (zeroes and visible spikes), as well as a random sample of 2-10% of coded canton-years per research assistant. We discarded and recollected the data in cases in which the error rate was above 3%. There are several specific issues that we had to take into account: The publication practice differs between cantons with respect to the publication of laws that have to pass a popular referendum. No danger of miscounting emerges if cantons only publish legal texts that were approved in the referendum and became enacted. Corrections were required in two cases: Some cantons publish the referendum text in their official journal before the new legal text passes the referendum, while others publish the texts before, as well as after, the referendum, if they pass. The following cantons employ one of the latter publication strategies during at least some periods: Appenzell Ausserrhoden, Jura, Nidwalden, Obwalden, Thurgau, and Uri. In order to avoid miscounting, we had to go through all referendums and eliminate laws that were not accepted in a subsequent popular vote or that have been published twice. A further challenge was to avoid double counting due to the practice of some cantons of first publishing the text, and as a second step, publishing the activation of the regulation (Appenzell Ausserrhoden, Schaffhausen, and Uri).

In 22 out of 25 cantons (the canton of Jura was only founded in 1979), the information is systematically available from 1908 onwards. For some cantons found law collections that reach even further back in time: Aargau (1885), Bern (1882), Luzern (1906), Schaffhausen

(1884), Uri (1901), Valais (1897), and Zurich (1907). The law collections of the federal level date back to the founding year in 1848. A few cantons publish a chronological law collection or an official journal containing all legal adjustments only after 1908. Law collections are not available for the canton of Appenzell Ausserrhoden for the years from 1908 to 1914 and for Glarus from 1908 to 1923. To date, the canton of Appenzell Innerrhoden does not officially publish legal changes in a chronological law collection or in its official journal. However, a collection of legal changes has been kept in the cantonal archive, or in later years, the cantonal library. Publications of enactments in the years 1908-1973 are haphazardly stored in boxes in the cantonal archive. Therefore, coding the data for Appenzell Innerrhoden in these years would have been prohibitively costly. Below, we work with an unbalanced panel from 1908-2013.

Table 1 provides an overview of the cantonal data that we collected from cantonal chronological law collections and official journals. The respective information for the federal level is discussed in Section 4.

In total, we coded 200,292 individual entries running over 654,081 pages. Defining the core of legally binding rules eliminates 10,354 irrelevant entries and 33,643 pages, leaving us with 189,938 enactments and 620,438 pages, which amounts to 94.8% of all enactments and 94.9% of all pages. When further restricting to the period from 1908-2013, we keep 98.6-99.2% of the data in the core or 188,355 entries and 611,771 pages.

Table 1 breaks down the total numbers of enactments and pages according to the different categories in the hierarchy of legal norms and the issuing authorities. With 52.4% of all enactments and 47.8% of all pages, the executive is the most active authority issuing regulation. This translates into a high share of regulation issued at the level of decrees, amounting to 78.1% of all enactments and 70.7% of all pages.

Table 1. Overview of categories.

All observations: 200,292 recorded entries						
654,081 recorded pages						
Core: 189,938 recorded enactments (94.8% w.r.t. all observations)						
620,438 recorded pages (94.9%)						
Core 1908-2013: 188,355 recorded enactments (99.2% w.r.t. total observations in the core)						
611,771 recorded pages (98.6%)						
	Issuing authority					
Hierarchy of legal norms	Legislature	Executive	Joint	3 rd parties	Unknown	Total
Constitution, enactments	732					732
	(0.4%)					(0.4%)
Constitution, pages	2281					2281
	(0.4%)					(0.4%)
Statues, enactments	28,124					28,124
	(14.9%)					(15.0)
Statues, pages	137,215					137,215
	(22.4%)					(22.4%)
Decrees, enactments	34,822	98,648	12,516	1165		147,151
	(18.5%)	(52.4%)	(6.6%)	(0.6%)		(78.1%)
Decrees, pages	81,738	292,234	53,342	4988		432,302
	(13.4%)	(47.8%)	(8.7%)	(0.8%)		(70.7%)
Treaties, enactments			5509			5509
			(2.9%)			(2.9%)
Treaties, pages			20,615			20,615
			(3.4%)			(3.4%)
Other, enactments					6839	6839
					(3.6%)	(3.6%)
Other, pages					19,358	19,358
					(3.2%)	(3.2%)
Total, enactments	63,678	98,648	18,025	1165	6839	188,355
	(33.8%)	(52.4%)	(9.6%)	(0.6%)	(3.6%)	(100.0%)
Total, pages	221,234	292,234	73,957	4988	19,358	611,77
	(36.2%)	(47.8%)	(12.1%)	(0.8%)	(3.2%)	(100.0%)

3. Illustration of cantonal data

Table 2 presents summary statistics for the stock and activity measures at the level of cantons. Panel A contains the stock measures for the period 2006-2013 and Panel B the activity measures from 1908-2013. Separate summary statistics are provided for the number of

enactments and the number of either characters (stock) or pages (activity) by the different levels in the hierarchy of legal norms.

Table 2. Summary statistics, cantons

Panel A. Stock, 2006-2013

	Mean	Std. dev.	Min	Max
Number of enactments				
Constitution	1	0	1	1
Statutes	121	52	52	294
Decrees	297	113	102	524
Treaties	83	39	33	211
Other	161	135	19	651
Total	663	224	333	1279
Number of characters				
Constitution	55,314	18,206	27,123	135,516
Statutes	2,785,712	1,716,115	936,849	13,828,645
Decrees	3,496,524	1,945,956	916,562	12,093,478
Treaties	795,871	310,928	283,100	1,658,089
Other	902,945	629,160	96,303	2,604,409
Total	8,036,366	3,899,613	3,224,635	29,122,198

Panel B. Activity, 1908-2013

	Mean	Std. dev.	Min	Max
Number of enactments				
Constitution	0	1	0	10
Statutes	11	21	0	243
Decrees	57	47	0	322
Treaties	2	4	0	47
Other	3	14	0	220
Total	73	65	1	409
Number of pages				
Constitution	1	4	0	54
Statutes	53	74	0	837
Decrees	167	147	0	3061
Treaties	8	15	0	327
Other	7	29	0	460
Total	236	206	1	3260

Notes: N = 208 in Panel A; N = 2591 in Panel B.

On average, the cantonal stock of regulation in 2006-2013 was covered in 663 enactments with a total of 8,036,366 characters (or roughly twice the number of characters in the Bible³). Decrees are the most prevalent type of legal norm, with an average share of around 43.5% (characters) to 44.8% (enactments). Even more pronounced are the differences across cantons. The number of enactments and the number of characters differ by factors of 3.8 and 9,

³ According to the following website, the Bible has 4,017,010 characters: http://www.madore.org/~david/misc/orders_mag.html; accessed: October 23, 2015.

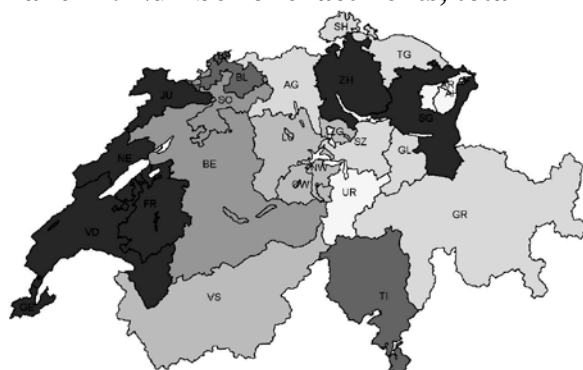
respectively, between the briefest and most wordy bodies of rules. Over all cantons and the years 1908-2013, the changes to cantonal bodies of rules reached 73 enactments or 236 pages per year on average.

Stock

A more complete picture of cantonal heterogeneity in the stock of regulation becomes visible in Figure 1. Panels A and B contain the measures with totals over all enactment categories, while Panels C and D contain the measures with respect to statutes only.

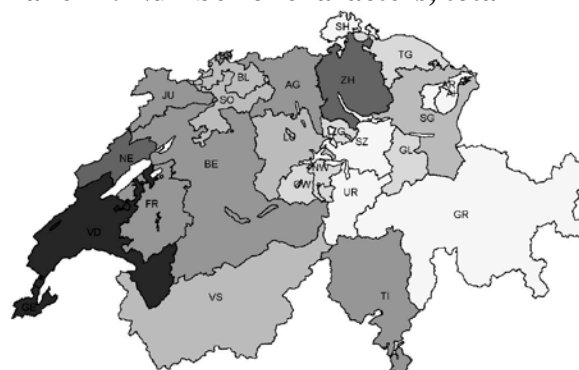
Figure 1. Stock, 2013

Panel A. Number of enactments, total



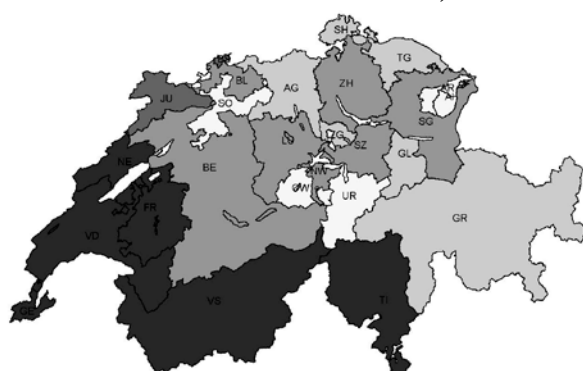
Notes: □ [300,400], □ (400,500], □ (500,600], □ (600,700], ■ (700,800], ■ (800,1300].

Panel B. Number of characters, total



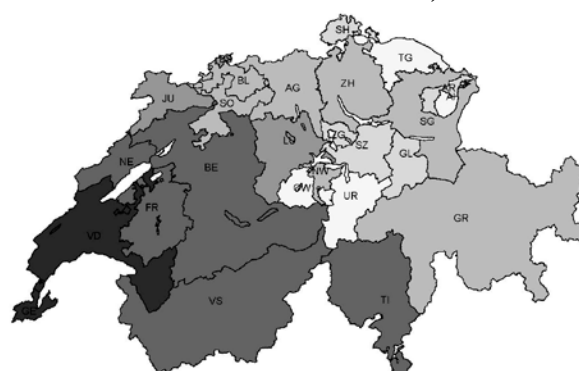
Notes: □ [3,5], □ (5,7], □ (7,9], ■ (9,11], ■ (11,13], ■ (13,17]; in millions.

Panel C. Number of enactments, statutes



Notes: □ [50,75], □ (75,100], □ (100,125], □ (125,150], ■ (150,300].

Panel D. Number of characters, statutes



Notes: □ [.9,1.5], □ (1.5,2], □ (2,2.5], □ (2.5,3], ■ (3,5], ■ (5,7.02]; in millions.

A clear pattern emerges from these figures: The stock of regulations is higher in the mainly French or Italian speaking cantons, i.e., Geneva (GE), Fribourg (FR), Jura (JU), Neuchâtel (NE), Ticino (TI), Valais (VS), and Vaud (VD), and in more urban cantons, i.e. Basel (BS), Geneva (GE), Vaud (VD), and Zurich (ZH). At the other end of the spectrum are the small, rural, and German-speaking cantons of Appenzell Ausserrhoden (AR), Appenzell Innerrhoden (AI), Uri (UR), and others. There are some deviations from this general pattern: For example,

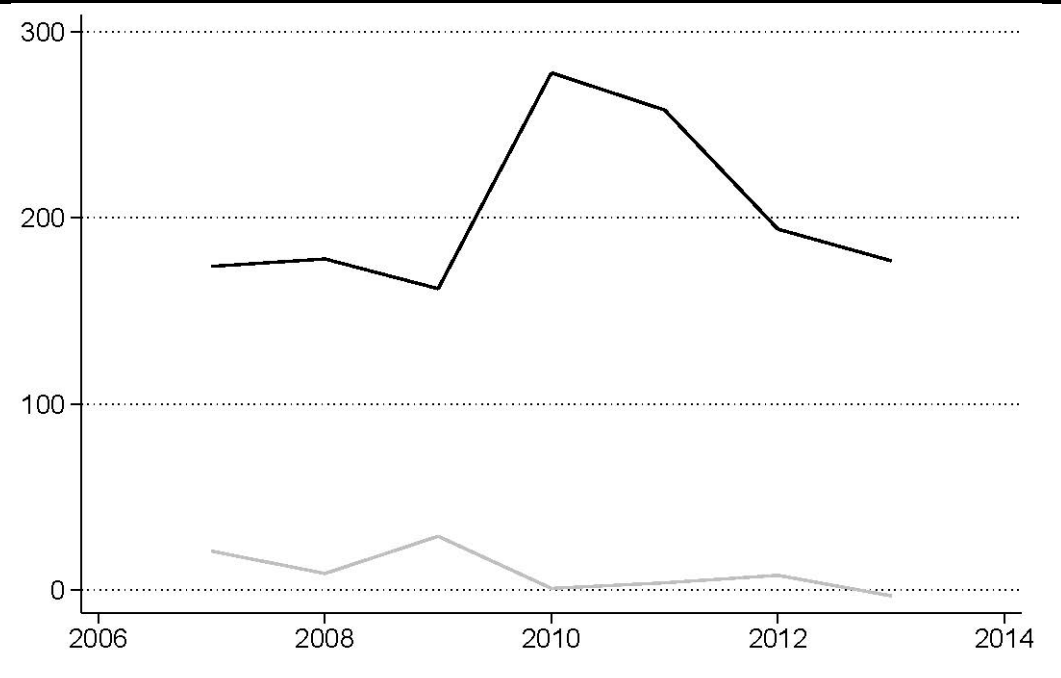
Valais (VS) is not a top-regulator in terms of overall enactments, but in terms of statutes. For Zurich (ZH), the opposite is true. Also, Bern (BE) is among the extensively regulated cantons in terms of characters, but not enactments.

The observation that French or Italian speaking cantons tend to have higher regulatory stocks (as well as activity) does not stem from the fact that French and Italian are linguistically different from German. We compared the number of characters of identical regulation in French, Italian, Rumantsch, and German at the federal level and/or in multilingual cantons. We find that identical regulation in German uses 98.3% of the characters of the French and 99.8% of the Italian version, on average, at the federal level, and 96.4% (French), 96.1% (Italian), and 91.6% (Rumantsch), when measured at the cantonal level.

From stock to activity

The relationship between the stock and activity measures is shown in Figure 2. It is important to highlight that the measure of the change in the stock from one year to another is not equivalent to the activity measure. The activity measure captures the number of changed enactments and sums new enactments, amendments, and repeals.

Figure 2. Changes in stock versus activity, canton Zurich, 2007-2013



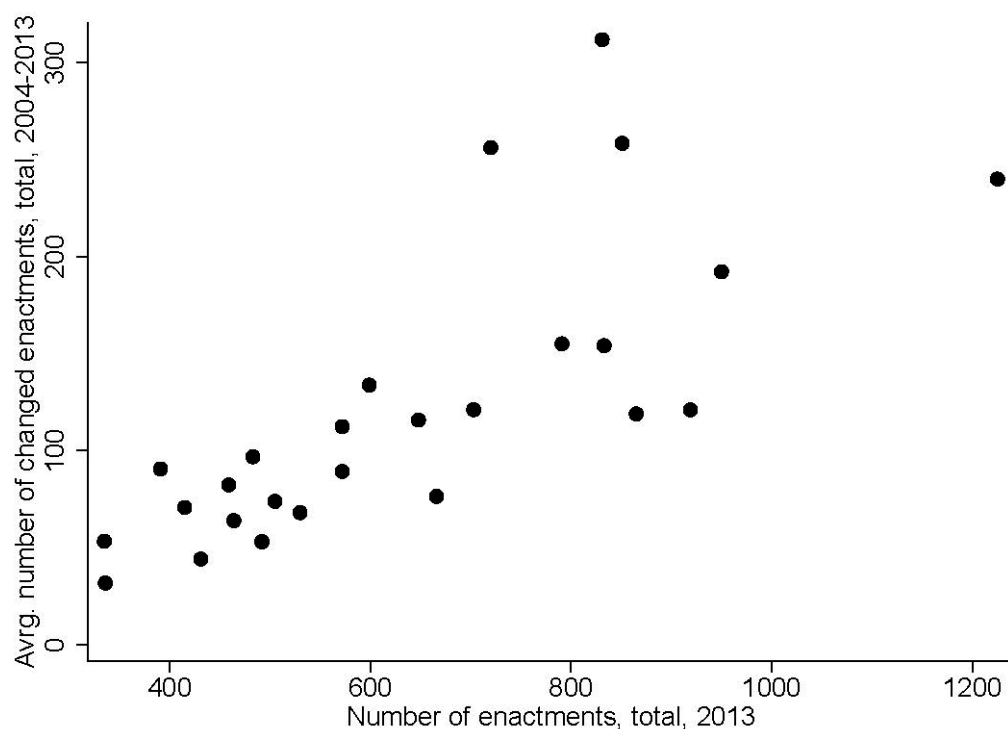
Notes: Number of changed enactments (—) and changes in number of enactments (---).

As an example, Figure 2 illustrates the two measures for the canton of Zurich. The changes in the overall stock of regulation are trending downwards and are much lower than the activity

measure. In the year 2010, the activity measure peaks with slightly less than 300 adjustments to the stock. The change in the stock of the same year, however, is close to zero. In 2013, the (negative) change in the stock measure indicates that the overall number of legally binding regulations actually decreased, while more than 200 adjustments have been made. These examples illustrate the complementarity of the two measures. On the one hand, the activity measure captures the idea that, even without changes in the overall stock, individuals and firms might have to adjust their behavior due to changes in the regulatory environment. On the other hand, the stock approximates the overall regulatory environment or regulatory density for a particular year.

Despite the conceptual differences between the two measures, there is a high positive cross-sectional correlation, as shown in Figure 3. Cantons with a large stock of regulation also tend to be the more active ones, adding new regulations, repealing or amending existing regulations.

Figure 3. Number of changed enactments, avrg. 2004-2013, versus number of enactments, 2013



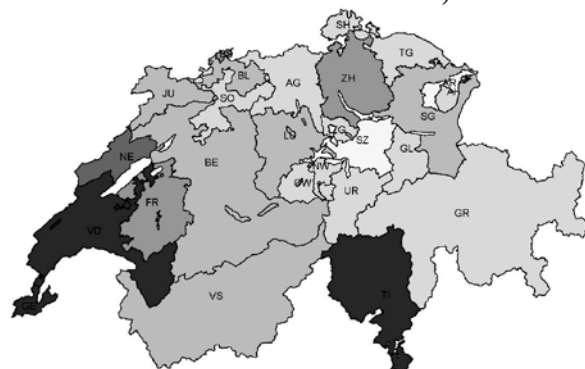
Activity

Similar to the stock measures, there is also a large heterogeneity in regulatory activity across the cantons. Figure 4 illustrates these differences. Panel A shows the number of changes to all

categories of enactments, while Panel B focuses on statutes only. In order not to be overly repetitive, the illustrations focusing on the number of pages are omitted. The overall patterns, however, are similar.

Figure 4. Activity, avrg. 2004-2013

Panel A. Number of enactments, total



Notes: □ [0,50], □ (50,100], □ (100,150],
 □ (150,200], ■ (200,250], ■ (250,350].

Panel B. Number of enactments, statutes



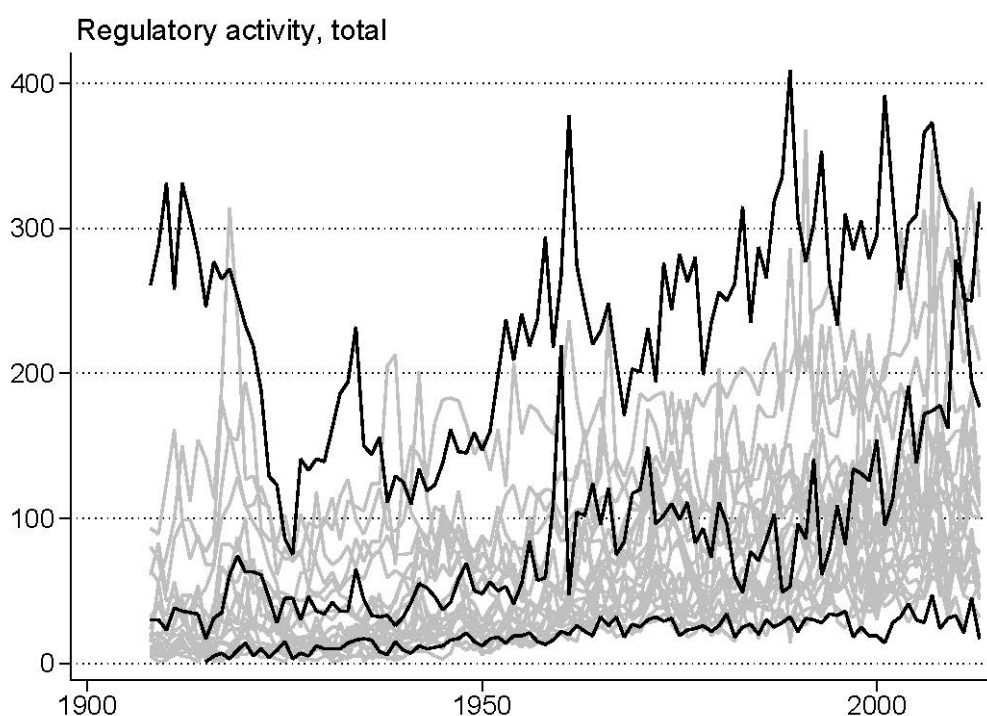
Notes: □ [0,10], □ (10,20], □ (20,30], □ (30,40],
 ■ (40,50], ■ (50,200].

The high correlation between the stock and activity measure shown in Figure 3 also manifests itself in the similarity of the choropleth map for the stock and activity measures. Again, the most regulatorily active cantons are the mainly French or Italian speaking cantons and the urban cantons, and the least active cantons are the rural, German-speaking cantons. Two noticeable differences from the corresponding figures for the stock measures are the relatively high level of activity in Appenzell Innerrhoden (AI) and the comparatively low amount of changes to statutes in Valais (VS).

The true potency of our regulatory activity measure lies in its capacity to unveil more than a century of regulatory development. Figure 5 illustrates the raw data. It depicts the time series for our 26 cantons. Those for Appenzell Ausserrhoden (lower), Zurich (middle), and Geneva (upper) are highlighted.

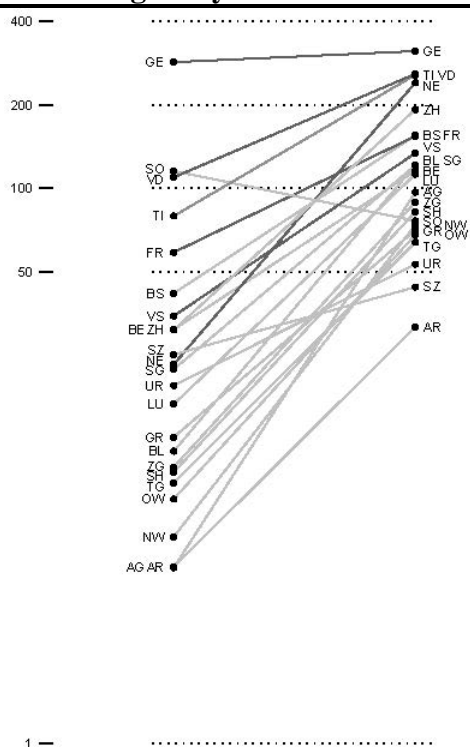
The most striking properties are the secular rise, the nonlinearity, and the strong volatility of regulatory activity. The great heterogeneity across cantons that we encountered at the end of the period in previous illustrations is a stable feature and is already present at the beginning. This cantonal heterogeneity at both the beginning and the end of the period, as well as the general increase in regulatory activity, are also apparent in Figures 6 and 7. The new observation that emerges from these figures is the large heterogeneity in the growth of regulatory activity across cantons.

Figure 5. Regulatory activity, total, all cantons, 1908-2013



Notes: The black lines represent the cantons Appenzell Ausserrhoden (lower), Zurich (middle), and Geneva (upper).

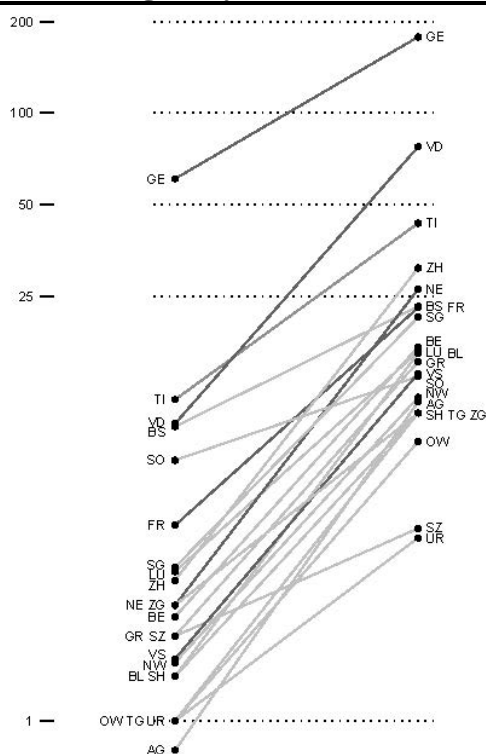
Figure 6. Heterogeneity in cantonal developments of regulatory activity, total



Notes: 1) Avg. number of changed enactments, total, 1908-1917 and 2004-2013. 2) Logarithmic scale. 3) Without AI, GL, and JU due to missing data in first period.

Figure 6 presents the average number of changed enactments per canton from 1908-1917 and from 2004-2013 on a logarithmic scale. The slopes of the lines connecting the observations in the early and the late period reflect the percentage change in regulatory activity. Although all cantons except Solothurn (SO) experienced an increase in regulatory activity, growth was typically more pronounced in cantons starting at a low level (e.g., Appenzell Ausserrhoden) than in cantons starting at a high level (e.g., Geneva). Even if such a base effect is to be expected, the heterogeneity in the cantonal growth experience is noticeable. Of the cantons with positive growth rates, regulatory activity grew the slowest in Geneva (GE) and Schwyz (SZ) and the fastest in Nidwalden (NW) and Aargau (AG). The median growth rate is close to the growth rates experienced in Graubünden (GR) and Zurich (ZH). Again, Figure 6 shows that the mainly French speaking cantons of Geneva (GE), Fribourg (FR), Neuchâtel (NE), Valais (VS), and Vaud (VD), as well as the Italian speaking canton of Ticino (TI) (with darker connecting lines), are more active than the mainly German speaking cantons.

Figure 7. Heterogeneity in cantonal developments of regulatory activity, statutes

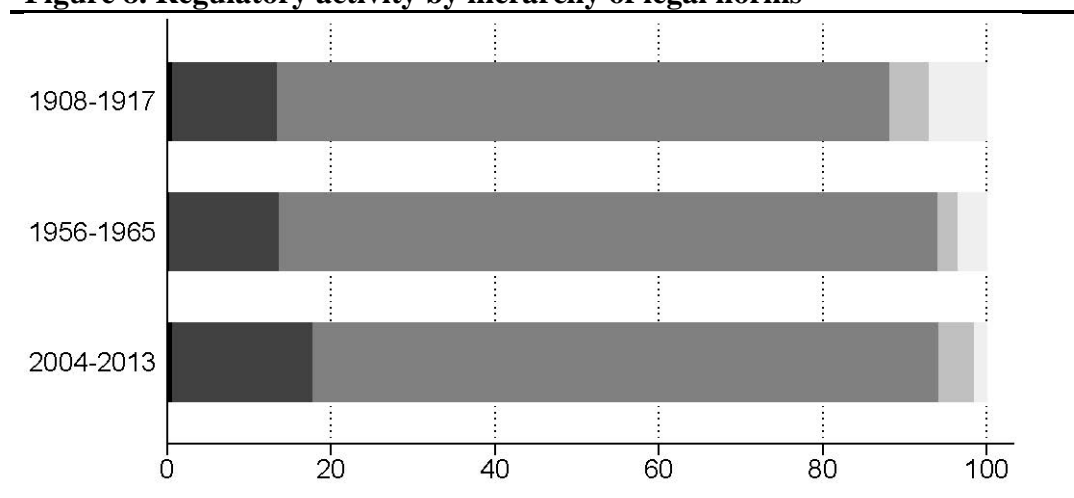


Notes: 1) Avrg. number of changed enactments, statutes, 1908-1917 and 2004-2013. 2) Logarithmic scale. 3) Without AI, GL, and JU due to missing data in first period, without AR due to missing data in some years and zero changes in other years of the first period.

Figure 7 focuses on the average yearly changes of statutes only, but the overall picture is similar. We consistently find strong cantonal heterogeneity at the beginning and the end of the

period, as well as considerable heterogeneity in the growth of regulatory activity. This time, however, the differences between language regions are somewhat less pronounced.

Figure 8. Regulatory activity by hierarchy of legal norms



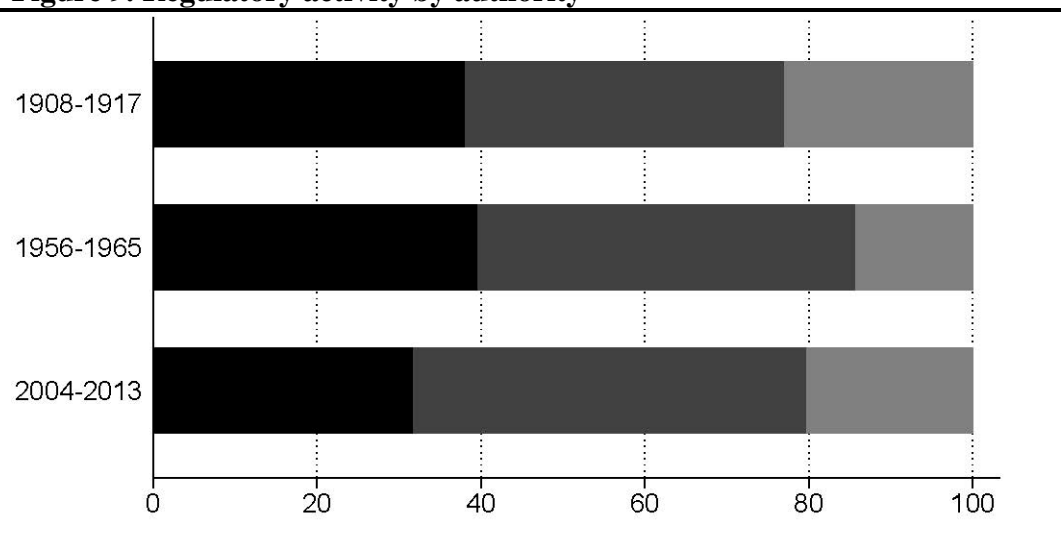
Notes: 1) Percentage of ten-year averages of the number of changed enactments at the level of ■ Constitution, ■ statutes, ■ decrees, ■ treaties, and □ other. 2) Unweighted average of all available cantonal percentages of ten-year averages.

Turning to the composition of our regulatory activity measure with respect to the hierarchy of legal norms, Figure 8 shows the average shares of regulation at the level of the Constitution, statutes, decrees, treaties, and other regulation in three time periods. Overall, the share of regulation at the level of decrees is by far the largest. If we compare the composition over time, we observe that there is a slight increase in the share of decrees from 74.7% in the initial period (1908-1917) to 80.3% in the intermediate period (1956-1965), and a slight decrease to 76.4% in the last period (2004-2013). The share of statutes is roughly stable between the initial and intermediate period with 12.8% and 13.4%, respectively, before it slightly increases to 17.1% in the final period. The share of changes to the Constitution is always well below 1%. The share of other regulation decreases over time, which might be due to higher coding uncertainties in the early years, where the categorization of some enactments was no longer possible and had to be coded as “other”.

Figure 9 presents the composition with respect to the authority issuing the regulation. We distinguish the main authorities, i.e., the legislature and the executive, as well as other authorities. This last category includes third parties (such as courts and special councils) and enactments where both the legislature and the executive are involved jointly (e.g., inter-jurisdictional treaties). In all three periods, the executive holds the highest share. In the initial period, the share of the executive of 39.0% is close to the share of the legislature of 38.0%, and the remaining 22.9% of activity is from other authorities. In the intermediate period, the

share of the executive increases to 46.1%, while the share of the legislature remains roughly stable at 39.6%. Thus, the increase in the share of the executive is mirrored in the decrease in the share of other authorities. This could be due to the higher coding uncertainty in the early period, where we code enactments as “other” in case of doubt. The last period shows a strong decrease in the share of the legislature to 31.7%, while the share of the executive is roughly unchanged at 48.0%. The category “other authorities”, which includes the joint issuance of intercantonal and interregional treaties by the executive and the legislature, became increasingly important in later years, rising to 20.3%.

Figure 9. Regulatory activity by authority



Notes: 1) Percentage of ten-year averages of the number of changed enactments by the legislature, executive, and other authorities. 2) Unweighted average of all available cantonal percentages of ten-year averages.

4. Illustration of federal data

In total, we coded 50,493 entries and 265,436 pages of regulatory activity for the period 1848-2013 at the federal level. The core contains 31,072 enactments and 204,220 pages, which amounts to 61.5% of all entries in terms of enactments and 76.9% in terms of pages. The share of the core relative to the total number of entries is substantially lower for the federal level, compared to the cantonal level. The main reason is that the federal level publishes content from a diverse range of sources. On the one hand, cantonal regulations in the form of intercantonal treaties are published again at the federal level, even though the source of regulation is the cantons and not the confederation. On the other hand, abundant international regulation and appendices of international organizations of which Switzerland is a member are published. We only take into account regulation by international treaties that are binding on Switzerland. Entries that had no direct and generally binding legal implications were coded

as irrelevant by our legal experts. Even though important delimitations in the category of international law had to be made, international treaties account for an important share of total regulation in the core, as 36.0% of enactments and 33.0% of pages in the core are related to international treaties. This is the second most important category behind decrees, with a share of 55.8% (enactments) and 55.3% (pages). The share of regulatory activity at the level of statutes amounts to 6.1% in terms of enactments and 8.7% in terms of pages. The overall involvement of the legislature is only slightly higher, at 6.2% (enactments) and 8.8% (pages). In comparison, the share of the executive is much more pronounced, at 55.4% (enactments) and 55.0% (pages).

Table 3. Summary statistics, federal level

Panel A. Stock, 2006-2013

	Mean	Std. dev.	Min	Max
Number of enactments				
Constitution	1	0	1	1
Statutes	310	4	303	317
Decrees	1534	64	1453	1613
Intercantonal treaties	12	1	10	13
International treaties	2655	118	2475	2800
Other	44	21	33	94
Total	4556	156	4337	4787
Number of characters				
Constitution	474,543	60,465	346,866	531,977
Statutes	12,836,735	890,394	11,449,542	14,042,896
Decrees	34,044,575	2,219,332	31,067,848	36,856,656
Intercantonal treaties	120,372	18,063	76,956	130,608
International treaties	66,456,192	4,850,169	58,842,812	72,306,544
Other	197,043	34,976	167,485	277,165
Total	114,129,459	7,979,229	102,061,189	124,032,429

Panel B. Activity, 1848-2013

	Mean	Std. dev.	Min	Max
Number of enactments				
Constitution	0	0	0	3
Statutes	11	12	0	66
Decrees	102	154	1	527
Treaties	66	71	0	302
Other	4	5	0	29
Total	183	230	5	855
Number of pages				
Constitution	1	7	0	56
Statutes	106	122	0	578
Decrees	666	1008	2	4431
Treaties	399	424	0	2207
Other	35	75	0	477
Total	1206	1513	28	6607

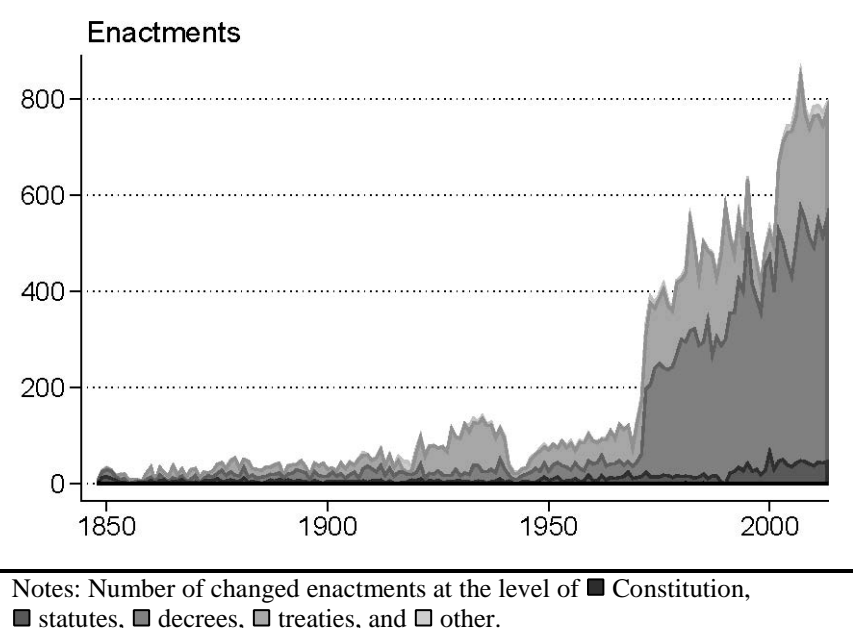
Notes: N = 8 in Panel A; N = 166 in Panel B.

Table 3 presents summary statistics for the stock and activity measures at the federal level.⁴ Panel A contains the stock measures for the period 2006-2013 and Panel B the activity measures for the period 1848-2013.

On average, the stock of federal regulations from 2006-2013 is covered in 4556 enactments with a total of 114,129,459 characters (or roughly 28 times the number of characters in the Bible; see footnote 3). International treaties are the most prevalent type of legal norm, with a share of around 58.2% (characters) to 58.3% (enactments). Decrees are the second most important category, with 1534 enactments and 34,044,575 characters. The share of statutes in the stock of federal regulation accounts for 6.8% (enactments) and 11.3% (characters) of the total stock of regulation in the period 2006-2013. The larger share of statutes measured as the number of characters relative to the number of enactments hints at the fact that statutes tend to be longer than other enactments.

Over the entire period from 1848 to 2013, the changes to the federal body of rules reached an annual average of 183 enactments or 1206 pages. However, these averages mask large differences across years, with a range of 5 to 855, in the case of enactments, and of 28 to 6607 pages.

Figure 10. Regulatory activity, federal level, 1848-2013



⁴ There is a slight inconsistency between our stock and activity measures at the federal level. While a small number of intercantonal treaties (12 enactments) with some relevance for the federal level are included in the stock measure, the activity measure for the federal level contains no changes to intercantonal treaties.

Figure 10 demonstrates that these differences are due to a tremendous increase in regulatory activity in the early 1970s. The two major sources of this increase of regulatory activity are changes to decrees and international treaties. While the average number of regulatory changes amounted to roughly 101 (enactments) in the 1960s, this number increased to an average of 780 in the last 10 years of the sample period, from 2004-2013.

5. Conclusion

This paper presents novel data on more than a century of regulation in Switzerland. We measure the stock of regulation by the annual number of enactments and characters, and regulatory activity by the annual number of changed enactments and pages at the Swiss cantonal and federal levels. The measures differentiate the hierarchy of legal norms and distinguish between the issuing authorities.

The heterogeneity in the regulatory stock and activity across cantons is large, and regulatory activity is generally increasing, though the increase is nonlinear and volatile. We find a strong positive correlation between stock and activity. Cantons that tend to have larger stocks are also the ones that tend to feature higher activity. Regulation is dominated by legal norms at the level of decrees and norms issued by the executive. The French and Italian speaking cantons tend to be more active and have larger regulatory stocks in comparison to their German speaking counterparts.

This dataset provides the foundation to address a broad range of research questions. We are interested in the determinants and the consequences of regulation. Regarding the determinants, we intend to study institutional features (e.g., legislative referenda), political factors (e.g., party compositions), as well as economic and demographic drivers. In addition, the data allow us to shed light on interactions in regulatory activity between jurisdictions and across categories of legal norms. Regarding the consequences, we are interested in the effects on legal certainty, fiscal policy, economic development, and welfare.

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