

Funding of Swiss Cantons, Mechanisms and Solidarity

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Switzerland is a federal state made up of twenty-six Cantons. This article studies the funding mechanisms of the Cantons and the solidarity they induce. The article is based on the rules and formula provided by the Swiss law and on calculations for the year 2020. This article highlights the redistributive character of the Swiss system of funding and even shows in some cases a paradox of revenues, some Cantons becoming wealthier than others which were initially wealthier.

Keywords: Equalization, Federalism, Funding, Paradox of revenues, Solidarity, Swiss Cantons

JEL Classifications: H20, H71, H7

1. Introduction

Switzerland is made up of 26 Cantons, namely: Aargau, Appenzell Ausserrhoden, Appenzell Innerrhoden, Basel-Landschaft, Basel-Stadt, Bern, Fribourg, Geneva, Glarus, Graubünden, Jura, Luzern, Neuchâtel, Nidwalden, Obwalden, Schaffhausen, Schwyz, Solothurn, St. Gallen, Thurgau, Ticino, Uri, Valais, Vaud, Zug and Zürich. The funding of these Cantons is not frequently discussed in scientific literature. Nevertheless, the former system of funding has been evoked by Dafflon (2004). This system was criticized (Dafflon et al. (1996) and Swiss Federal Council (2001)) and a new system of funding came into force in 2008 that accounts for both horizontal, and vertical transfers (Soguel, 2019). Thus our research questions gravitate towards the incidence the new solidarity mechanism has on Swiss Cantons.

This article will first study the current funding mechanisms of the Swiss Cantons and place figures on the amounts they received in 2020. Then, it will measure the solidarity by calculating the differences between the amounts the Cantons have received and the ones they would have received in the absence of redistributive mechanisms.

These elements will underline the degree of solidarity in the funding mechanisms of the Swiss Cantons and will show the contributors and beneficiaries, contrasting the theoretical results of Esteller-Moré et al. (2020) indicating that solidarity – horizontal and vertical – may be diverted by pressure groups and their capacity to bend fiscal equalization. Contrarily, it confirms Aslim, and Neyapti (2017) when they argue an intermediate level of fiscal decentralization is preferable to attain higher local welfare level, be it in the

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Article History:

Received 15 April 2021 | Accepted 26 August 2021 | Available online 29 December 2021

Cite Reference:

Vandernoot, J. and Signor, J., 2021. Funding of Swiss Cantons, Mechanisms and Solidarity. *Expert Journal of Economics*, 9, pp.9-17.

presence of spillover or not; Dmitriev, and Hoddenbagh (2019) reinforce the latter results in a monetary union where transfers accrue to the stabilization and welfare improvement functions, especially in open economies with more rigid wages. Eventually, our method is to compare pre-, and post-reform figures to highlight Canton's wealth variation and the reform's role towards more, or less, solidarity. In this, we follow the step of the researchers working in the fields of solidarity and federalism.

2. Funding Mechanisms

The funding of Swiss Cantons is governed by the Federal Law on Fiscal Equalization and Cost Compensation (2003), the Order on Fiscal Equalization and Cost Compensation (2007) and the Federal Order about the Cohesion Fund (2007). These legal provisions came into force on January 1, 2008. The funding includes three mechanisms, namely: Resource equalization, cost compensation and cohesion fund.

2.1 Resource Equalization - Order on Fiscal Equalization and Cost Compensation (2007)

Resource equalization in Switzerland is based on fiscal resources at the disposal of the Swiss Cantons. Cantons whose resources per inhabitant are lower than the average share a compensation which is made of two parts, one paid by the Confederation and the other paid by the Cantons whose resources per inhabitant are higher than the average. The parts are set by the Swiss Federal Assembly, but article 4 of the Federal Law on Fiscal Equalization and Cost Compensation sets out that the part of the Cantons whose fiscal resources per inhabitant are higher than the average must lie between two thirds and eighty percent of the part of the Confederation.

The contribution of each Canton whose resources per inhabitant are higher than the average is a function of the difference between its resources per inhabitant and the average and of its population. The amount received by each Canton whose resources per inhabitant are lower than the average is a function of the difference between its resources per inhabitant and the average of its population. The amounts received and paid by the Cantons as resource equalization are shown in table 1 below.

Table 1. Amounts received or paid by the Cantons as resource equalization in Switzerland (2020, million CHF)

Canton	Resource index	Population	Amount received (+) or paid (-)
Zurich	121.7	1 470 640	-569.3
Bern	77.6	1 021 394	1 034.0
Luzern	89.1	400 279	135.7
Uri	71.3	36 520	54.0
Schwyz	181.3	154 984	-225.4
Obwalden	115.4	37 329	-10.3
Nidwalden	158.0	42 594	-44.2
Glarus	70.3	40 423	62.9
Zug	249.7	122 779	-328.5
Fribourg	79.2	307 299	278.3
Solothurn	72.4	267 432	371.5
Basel-Stadt	146.0	194 498	-159.8
Basel-Landschaft	96.9	283 778	13.8
Schaffhausen	91.1	80 662	20.0
Appenzell A.Rh.	85.0	54 570	29.9
Appenzell I.Rh.	91.1	16 008	3.9
St. Gallen	79.5	501 038	443.5
Graubünden	82.9	204 436	137.1
Aargau	82.2	655 679	467.1
Thurgau	77.7	267 722	268.5
Ticino	96.5	353 562	21.0
Vaud	99.9	777 470	0.3
Valais	65.4	341 702	680.2
Neuchâtel	82.9	179 130	120.4
Geneva	143.7	484 487	-378.9
Jura	64.9	72 919	148.5
Total	100	8 369 334	2 574.5

Source: Swiss Federal Finance Administration

2.2 Cost compensation - Order on Fiscal Equalization and Cost Compensation (2007)

The aim of the Swiss mechanism of cost compensation is to provide support to the Cantons which have to bear financial costs because of geo-topographic or socio-demographic factors. Two mechanisms have therefore been implemented, namely geo-topographic cost compensation and socio-demographic cost compensation.

2.2.1 Geo-Topographic Cost Compensation

The total amount allocated to the Swiss Cantons as geo-topographic cost compensation is fixed every four years by the Swiss Federal Assembly and then indexed annually according to the consumer price index. In 2020, 364.3 million CHF were allocated to the Cantons.

The total amount is divided into four parts. One third of the amount (altitude) is allocated to the Cantons whose proportion of inhabitants living above 800 metres exceeds the national average. The amount allocated to each of these Cantons is a function of its proportion and number of inhabitants living above 800 metres. One third of the amount (terrain steepness) is attributed to the Cantons whose median altitude of the productive surface area is higher than the national average. The amount attributed to each of these Cantons is a function of the median altitude of its productive surface area and of its productive surface area. One sixth of the amount (population density) is allocated to the Cantons whose proportion of inhabitants living in residential areas with less than 200 inhabitants exceeds the national average. The amount allocated to each of these Cantons is a function of its proportion and number of inhabitants living in residential areas with less than 200 inhabitants. One sixth of the amount (low population density) is attributed to the Cantons whose population density is lower than the national average. The amount attributed to each of these Cantons is a function of its population density and of its number of inhabitants. The amounts received by the Swiss Cantons as geo-topographic cost compensation are shown in table 2 below.

Table 2. Amounts received by the Cantons as geo-topographic cost compensation (2020, CHF)

Canton	Altitude	Terrain	Population	Low population	Total
Zurich	0	0	0	0	0
Bern	1 942 727	1 355 864	20 726 702	3 989 426	28 014
Luzern	0	0	6 166 670	0	6 166 670
Uri	531 056	5 749 104	1 680 557	3 805 349	11 766
Schwyz	2 451 152	2 127 734	1 727 622	602 123	6 908 631
Obwalden	491 547	2 878 058	1 462 475	1 301 439	6 133 520
Nidwalden	0	534 186	480 716	282 089	1 296 991
Glarus	0	3 327 153	33 993	2 067 631	5 428 777
Zug	0	0	0	0	0
Fribourg	1 869 710	0	6 535 300	583 574	8 988 584
Solothurn	0	0	0	0	0
Basel-Stadt	0	0	0	0	0
Basel-	0	0	0	0	0
Schaffhausen	0	0	0	0	0
Appenzell	17 508	194 758	2 260 351	0	19 964
Appenzell	5 142 378	376 851	2 700 826	398 056	8 618 111
St. Gallen	0	0	1 919 947	0	1 919 947
Graubünden	39 855	63 342 697	9 096 941	25 974 357	138 269
Aargau	0	0	0	0	0
Thurgau	0	0	3 599 495	0	3 599 495
Ticino	0	9 878 168	0	4 615 048	14 493
Vaud	73 014	0	0	0	73 014
Valais	29 187	29 576 196	704 153	15 066 392	74 534
Neuchâtel	21 471	2 105 608	0	0	23 576
Geneva	0	0	0	0	0
Jura	921 979	0	1 627 438	2 037 703	4 587 121
Total	121 446	121 446 376	60 723 188	60 723 188	364 339

Source: Swiss Federal Finance Administration

2.2.2 Socio-Demographic Cost Compensation

The total amount allocated to the Swiss Cantons as socio-demographic cost compensation is fixed every four years by the Swiss Federal Assembly and then indexed annually according to the consumer price index. In 2020, 364.3 million CHF were allocated to the Cantons.

The total amount is divided into two parts.

The first part, which represents two thirds of the total amount aims to compensate costs related to poverty, age and integration of foreigners. A burden index, taking into account the proportion of inhabitants who receive social assistance (poverty), the proportion of inhabitants aged over 80 years (age) and the proportion of foreigners from non-neighbouring countries (integration of foreigners) is calculated for each Canton. The Cantons whose burden index is higher than the national average share the allocated amount depending on their population and burden index.

The second part, which represents one third of the total amount aims to compensate costs related to city centres. A burden index, taking into account the size of the municipalities, their population density and their employment rate is calculated for each Canton. The Cantons whose burden index is higher than the national average share the allocated amount depending on their population and burden index. The amounts received by the Swiss Cantons as socio-demographic cost compensation are shown in table 3 below.

Table 3. Amounts received by the Cantons as socio-demographic cost compensation (2020, CHF)

Canton	Poverty, age and integration of foreigners	City centres	Total
Zurich	0	67 132 759	67 132 759
Bern	11 610 636	0	11 610 636
Luzern	0	0	0
Uri	0	0	0
Schwyz	0	0	0
Obwalden	0	0	0
Nidwalden	0	0	0
Glarus	0	0	0
Zug	0	0	0
Fribourg	0	0	0
Solothurn	3 438 499	0	3 438 499
Basel-Stadt	35 956 408	17 997 961	53 954 370
Basel-Landschaft	1 269 235	0	1 269 235
Schaffhausen	1 750 453	0	1 750 453
Appenzell A.Rh.	0	0	0
Appenzell I.Rh.	0	0	0
St. Gallen	0	0	0
Graubünden	0	0	0
Aargau	0	0	0
Thurgau	0	0	0
Ticino	14 511 245	0	14 511 245
Vaud	75 660 888	3 720 671	79 381 559
Valais	7 553 381	0	7 553 381
Neuchâtel	14 173 235	0	14 173 235
Geneva	76 295 830	32 594 986	108 890 816
Jura	672 942	0	672 942
Total	242 892 753	121 446 376	364 339 129

Source: Swiss Federal Finance Administration

2.3 Cohesion fund - Order on Fiscal Equalization and Cost Compensation (2007)

The Order on Fiscal Equalization and Cost Compensation provides for a mechanism called cohesion fund designed to ensure that the new system of funding does not disadvantage the poorest Cantons which will share the total amount of the cohesion fund. The cohesion fund will end in 2036. The total amount to be allocated is fixed at 365.6 million CHF per year between 2008 and 2015 and will then decrease by 5% per year. The Swiss Confederation contributes two thirds of the total amount and the Cantons contribute one third, proportionally to their population. Therefore, each Canton contributes to the financing of the fund, but only the poorest Cantons get money from the fund as shown in table 4 below.

Table 4. Amounts received and paid by the Cantons as resource equalization in Switzerland (2020, thousand CHF)

Canton	Population	Amount paid	Amount received	Net amount received
Zurich	1 470 640	14 789	0	-14 789
Bern	1 021 394	11 539	39 101	27 562
Luzern	400 279	4 184	17 769	13 585
Uri	36 520	419	0	-419
Schwyz	154 984	1 548	0	-1 548
Obwalden	37 329	390	0	-390
Nidwalden	42 594	447	0	-447
Glarus	40 423	464	6 127	5 662
Zug	122 779	1 189	0	-1 189
Fribourg	307 299	2 873	102 960	100 087
Solothurn	267 432	2 939	0	-2 939
Basel-Stadt	194 498	2 331	0	-2 331
Basel-Landschaft	283 778	3 114	0	-3 114
Schaffhausen	80 662	888	0	-888
Appenzell A.Rh.	54 570	647	0	-647
Appenzell I.Rh.	16 008	177	0	-177
St. Gallen	501 038	5 432	0	-5 432
Graubünden	204 436	2 284	0	-2 284
Aargau	655 679	6 548	0	-6 548
Thurgau	267 722	2 755	0	-2 755
Ticino	353 562	3 719	0	-3 719
Vaud	777 470	7 609	0	-7 609
Valais	341 702	3 307	0	-3 307
Neuchâtel	179 130	2 018	81 625	79 606
Geneva	484 487	4 945	0	-4 945
Jura	72 919	818	14 541	13 723
Total	8 369 334	87 374	262 122	174 748

Source: Swiss Federal Finance Administration

3. Summary

Table 5 below summarizes the amounts received or paid by each Canton in the framework of the different funding mechanisms provided for by the Swiss law.

Table 5. Amounts received or paid by the Cantons in the framework of the funding mechanisms provided for by the Swiss law (2020, thousand CHF)

Cantons	Resource index	Equalization	Cost compensation			Cohesion fund	Amount received (+) or paid (-)
			Geo-topographic	Socio-demographic	Total		
Zurich	121.7	-569 285	0	67 133	67 133	-14 789	-516 941
Bern	77.6	1 034 042	28 015	11 611	39 625	27 562	1 101 229
Luzern	89.1	135 717	6 167	0	6 167	13 585	155 469
Uri	71.3	53 982	11 766	0	11 766	-419	65 329
Schwyz	181.3	-225 364	6 909	0	6 909	-1 548	-220 004
Obwalden	115.4	-10 309	6 134	0	6 134	-390	-4 565
Nidwalden	158.0	-44 180	1 297	0	1 297	-447	-43 330
Glarus	70.3	62 921	5 429	0	5 429	5 662	74 012
Zug	249.7	-328 529	0	0	0	-1 189	-329 718
Fribourg	79.2	278 296	8 989	0	8 989	100 087	387 372
Solothurn	72.4	371 529	0	3 438	3 438	-2 939	372 029
Basel-Stadt	146.0	-159 773	0	53 954	53 954	-2 331	-108 149
Basel-Landschaft	96.9	13 822	0	1 269	1 269	-3 114	11 977
Schaffhausen	91.1	20 026	0	1 750	1 750	-888	20 889
Appenzell A.Rh.	85.0	29 907	19 964	0	19 964	-647	49 225
Appenzell I.Rh.	91.1	3 946	8 618	0	8 618	-177	12 387
St. Gallen	79.5	443 465	1 920	0	1 920	-5 432	439 953

Graubünden	82.9	137 061	138 270	0	138 270	-2 284	273 047
Aargau	82.2	467 108	0	0	0	-6 548	460 560
Thurgau	77.7	268 482	3 599	0	3 599	-2 755	269 327
Ticino	96.5	21 036	14 493	14 511	29 004	-3 719	46 321
Vaud	99.9	322	73	79 382	79 455	-7 609	72 168
Valais	65.4	680 219	74 534	7 553	82 087	-3 307	759 000
Neuchâtel	82.9	120 417	23 577	14 173	37 750	79 606	237 773
Geneva	143.7	-378 880	0	108 891	108 891	-4 945	-274 935
Jura	64.9	148 499	4 587	673	5 260	13 723	167 482
Total	100	2 574 480	364 339	364 339	728 678	174 748	3 477 906

Source: Swiss Federal Finance Administration

4. Solidarity

Table 6 below describes the changes in the financial position of Swiss Cantons as the funding mechanisms are progressively being introduced. The second column shows the standardized tax revenue of the Swiss Cantons which measures their wealth based on their tax revenue. The table 6 also shows the solidarity per inhabitant, which is measured by calculating the difference between the total amount per capita each Canton would receive in case of the application of an allocation key based on the standardized tax revenue and the amounts actually received.

As can be seen from table 6 below, the Swiss funding mechanisms are very redistributive and lead in some cases to a paradox of revenues. We indeed see significant differences between the resource index before funding and the resource after funding taking into account the funding mechanisms of the Swiss Cantons, namely equalization, geo-topographic cost compensation, socio-demographic cost compensation and cohesion fund.

Before funding, the index ranges from 64.9 (Jura) to 249.7 (Zug) and after funding, between 84.1 (Solothurn) and 209.9 (Zug). The greatest gap between the Cantons falls from 184.8 to 125.8. Fifteen Cantons benefit from the solidarity, for amounts between 18.1 and 2027.5 CHF per inhabitant and the other eleven finance it, with contributions between 119.3 and 3723.1 CHF per inhabitant.

Table 6. Changes in the financial position of Cantons before and after the application of the funding mechanisms (2020)

Canton	Resource index before funding	Standardized tax revenue	Population	Standardized tax revenue /hab	Equalization / hab	Geo-topographic cost compensation /hab	Socio-demographic cost compensation /hab	Cohesion fund/hab	Standardized tax revenue /hab after funding	Resource index after funding	Solidarity per inhabitant (CHF)
Zurich	121.7	15 976 464 697	1 470 640	10 864	-387	0	46	-10	10 513	112.5	-856.3
Bern	77.6	7 077 571 232	1 021 394	6 929	1 012	27	11	27	8 006	85.7	754.7
Luzern	89.1	3 183 514 838	400 279	7 953	339	15	0	34	8 341	89.3	18.1
Uri	71.3	232 488 019	36 520	6 366	1 478	322	0	-11	8 155	87.3	1 492.9
Schwyz	181.3	2 509 811 337	154 984	16 194	-1 454	45	0	-10	14 775	158.1	-2 172.2
Obwalden	115.4	384 839 434	37 329	10 309	-276	164	0	-10	10 187	109.0	-601.5
Nidwalden	158.0	601 060 318	42 594	14 111	-1 037	30	0	-10	13 094	140.1	-1 673.3
Glarus	70.3	253 757 634	40 423	6 278	1 557	134	0	140	8 109	86.8	1 539.0
Zug	249.7	2 737 602 675	122 779	22 297	-2 676	0	0	-10	19 611	209.9	-3 723.1
Fribourg	79.2	2 172 682 361	307 299	7 070	906	29	0	326	8 331	89.2	932.2
Solothurn	72.4	1 729 786 082	267 432	6 468	1 389	0	13	-11	7 859	84.1	1 090.2
Basel-Stadt	146.0	2 534 991 102	194 498	13 034	-821	0	277	-12	12 478	133.5	-1 162.2
Basel-Landschaft	96.9	2 456 411 831	283 778	8 656	49	0	4	-11	8 698	93.1	-360.6
Schaffhausen	91.1	656 078 695	80 662	8 134	248	0	22	-11	8 393	89.8	-119.3
Appenzell A.Rh.	85.0	414 288 771	54 570	7 592	548	366	0	-12	8 494	90.9	548.9
Appenzell I.Rh.	91.1	130 259 920	16 008	8 137	247	538	0	-11	8 911	95.4	395.5
St. Gallen	79.5	3 556 368 224	501 038	7 098	885	4	0	-11	7 976	85.3	547.9
Graubünden	82.9	1 513 425 225	204 436	7 403	670	676	0	-11	8 738	93.5	990.7
Aargau	82.2	4 813 306 599	655 679	7 341	712	0	0	-10	8 043	86.1	360.6
Thurgau	77.7	18 584 51 458	267 722	6 942	1 003	13	0	-10	7 948	85.0	683.1
Ticino	96.5	3 046 900 475	353 562	8 618	59	41	41	-11	8 748	93.6	-270.8
Vaud	99.9	6 933 296 644	777 470	8 918	0	0	102	-10	9 010	96.4	-322.8
Valais	65.4	1 995 793 848	341 702	5 841	1 991	218	22	-10	8 062	86.3	1 949.3
Neuchâtel	82.9	1 325 612 337	179 130	7 400	672	132	79	444	8 727	93.4	982.8
Geneva	143.7	6 219 119 056	484 487	12 837	-782	0	225	-10	12 270	131.3	-1 164.0
Jura	64.9	422 558 544	72 919	5 795	2 037	63	9	188	8 092	86.6	2 027.5
Switzerland	100	74 736 441 356	8 369 334	8 930							

Source: Swiss Federal Finance Administration, own calculation

The ranking of Cantons before and after funding is shown in table 7 and figure 1 below.

Table 7. Ranking of the Swiss Cantons in terms of resource index, before and after application of the funding mechanisms (2020)

Before funding			After funding		
Position	Canton	Index	Position	Canton	Index
1	Zug	249.7	1	Zug	209.9
2	Schwyz	181.3	2	Schwyz	158.1
3	Nidwalden	158.0	3	Nidwalden	140.1
4	Basel-Stadt	146.0	4	Basel-Stadt	133.5
5	Geneva	143.7	5	Geneva	131.3
6	Zurich	121.7	6	Zurich	112.5
7	Obwalden	115.4	7	Obwalden	109
8	Vaud	99.9	8	Vaud	96.4
9	Basel-Landschaft	96.9	9	Appenzell I.Rh.	95.4
10	Ticino	96.5	10	Ticino	93.6
11	Appenzell I.Rh.	91.1	11	Graubünden	93.5
12	Schaffhausen	91.1	12	Neuchâtel	93.4
13	Luzern	89.1	13	Basel-Landschaft	93.1
14	Appenzell A.Rh.	85.0	14	Appenzell A.Rh.	90.9
15	Graubünden	82.9	15	Schaffhausen	89.8
16	Neuchâtel	82.9	16	Luzern	89.3
17	Aargau	82.2	17	Fribourg	89.2
18	St. Gallen	79.5	18	Uri	87.3
19	Fribourg	79.2	19	Glarus	86.8
20	Thurgau	77.7	20	Jura	86.6
21	Bern	77.6	21	Valais	86.3
22	Solothurn	72.4	22	Aargau	86.1
23	Uri	71.3	23	Bern	85.7
24	Glarus	70.3	24	St. Gallen	85.3
25	Valais	65.4	25	Thurgau	85
26	Jura	64.9	26	Solothurn	84.1

Source: Swiss Federal Finance Administration

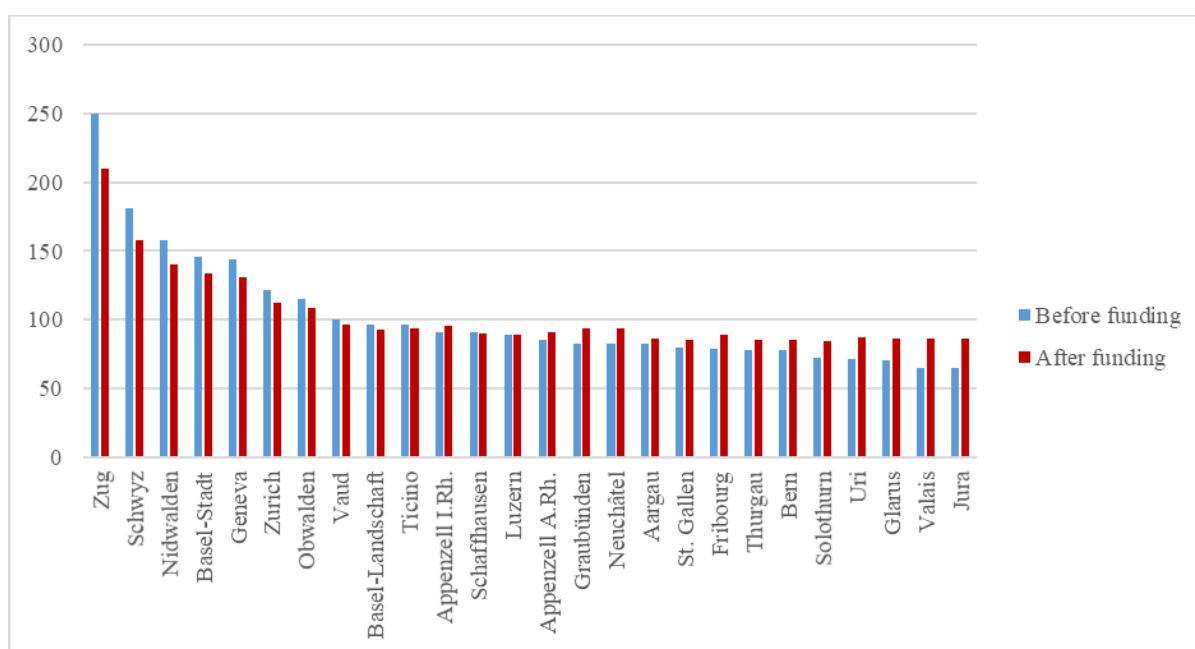


Figure 1. Ranking of the Swiss Cantons in terms of resource index, before and after application of the funding mechanisms (2020)

Source: Swiss Federal Finance Administration

The changes in the ranking of Cantons before and after funding allow us to conclude on the presence of a paradox of revenues, in addition to solidarity. Indeed, sixteen of the twenty-six moved in the ranking, while the other ten did not. The eight richest Cantons did not move in the ranking. The largest changes were experienced by St. Gallen which fell six places, going from the eighteenth to the twenty-fourth place, and by Jura which gained six places, moving from the twenty-sixth to the twentieth place.

5. Conclusion

The purpose of our paper was to explain the funding mechanisms of Swiss Cantons and to calculate to what extent they create solidarity and influence the wealth of Cantons. Our analysis enabled us to see that the Swiss system of funding is redistributive and even leads to a paradox of revenues in some cases. This paradox could be reasonable for the aim of relaunching the economy of the poorest Cantons. Additionally, this situation is not an isolated one. Such a paradox of revenues was observed in Canada (Vandernoot, 2014 – a, and b), Belgium (Pagano, Vandernoot and Tyrant, 2011) and in Spain (Bellanca, Martinez Sans & Vandernoot, 2013).

Further research could study the financial flows between the Swiss Cantons on longer periods in order to calculate the cumulative effect of this phenomenon. Indeed, our analysis focus on one year, but serial data would provide better insight in trends and emerging patterns in the Swiss context of solidarity reform. Eventually, transfers might weaken the welfare-improvement effect as Gross (2021) theoretically states.

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