

**Zeitschrift:** Schweizerische Zeitschrift für Soziologie = Revue suisse de sociologie  
= Swiss journal of sociology

**Herausgeber:** Schweizerische Gesellschaft für Soziologie

**Band:** 40 (2014)

**Heft:** 2

**Artikel:** Institutions and gender time inequality : a fuzzy-set QCA of Swiss cantons

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**DOI:** <https://doi.org/10.5169/seals-815099>

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## Institutions and Gender Time Inequality: A Fuzzy-Set QCA of Swiss Cantons<sup>1</sup>

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and Sebastian Schief\*<sup>2</sup>

### 1 Introduction

Women and mothers have entered the labour market in great numbers over the past decades. Despite these remarkable changes, the gendered division of labour has proven resilient. Women are still mostly responsible for unpaid domestic work and shoulder the bigger part; men still give priority to non-domestic tasks in the formal economy. This is reflected in what can be called *gender time inequality*: Women and men are different (on average) in how they divide their time between paid and unpaid work. Gender time inequality remains an obstacle to gender equality within the labour market and to an equitable sharing of care work in a “dual-earner/dual-caregiver society” (Gornick and Meyers 2009).

Over the past decade, there has been a growing consensus that the persistence of gender specialization and gender time inequality cannot be explained without looking beyond the household to the institutional context (Van der Lippe and Van Dijk 2002; Bianchi and Milkie 2010; Cooke and Baxter 2010; Lachance-Grzela and Bouchard 2010; Treas and Drobníč 2010; Hegewisch and Gornick 2011). Researchers have conducted country-to-country comparative studies and found that the political, cultural, and economic context does affect how much time men and women allot to paid and unpaid work and how couples negotiate the division of unpaid work (e.g., Breen and Cooke 2005; Van der Lippe et al. 2011). However, the manifold and interdependent processes linking institutions to time use behaviour make it difficult to know whether a given context, taken as a whole, increases or decreases gender time inequality. Macro-level phenomena do generally not follow directly from individual behaviour (Mayntz 2004). In this article, we therefore take a step back and look at the “big picture” of aggregate gender time inequality (with no intention to study individual time use decisions). Our approach provides a new perspective on the macro-level link between gender time inequality and

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1 The Swiss National Science Foundation funded this research (Grant no: 406040\_129250).

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institutions by conducting a fuzzy-set Qualitative Comparative Analysis (fsQCA, Ragin 2008). This has two main advantages. First, we are able to systematically link differences in gender time inequality to *configurations* of institutional factors. Second, we are able to find alternative configurations linked to the same outcome (a property called *equifinality*). The use of fsQCA is motivated by Bühler's (1998) reasoning that gender inequality requires a complex explanation, in which political, economic, cultural, and social-structural factors interact. Although multilevel studies generate valuable insights into how context affects gendered time use, they pay little attention to *configurations* of different factors.

In contrast to country-to-country comparisons, we “scale down” and study the 26 Swiss *cantons*. According to Snyder (2001), scaling down entails three advantages. The first is that subnational comparisons tend to be more controlled. This is especially true for political factors, many of which are regulated at the federal level and are thus more or less shared by all cantons (Bonoli 2008). Examples include the absence of paternity leave policies and the contours of unemployment insurance. Though we cannot control for all the cantonal differences in our analysis, the problem is less acute than in cross-country comparisons. The second advantage is that in subnational comparisons the cases are easier to accurately code, as they tend to be internally more homogenous than whole nations. The third advantage is that scaling down helps theorise and describe spatially uneven processes. Duncan (1995) makes the same point, reasoning that subnational comparisons are essential to understand gender inequality because many important processes operate in smaller contexts than whole nations. An inter-cantonal comparison is promising because cantons have substantial leeway for social and family policy (Armingeon et al. 2004; Binder et al. 2004). Other factors (e.g., cultural and economic) would ideally be studied on a sub-cantonal scale (e.g. MS regions, see Bühler 1998), but such generous time use data are not available. Cantons are heterogeneous but still more homogenous than entire countries. The Swiss cantons are regularly used in comparative politics; but they are hardly used in comparative sociology. Instances of similar subnational comparisons, however, include Stadelmann-Steffen's (2007) analysis of policy effects on women's employment in Switzerland and Cooke's (2007) study of US state-level policy effects on the sharing of domestic tasks. We thus contribute to the limited knowledge about cantonal differences in gender inequality (Bühler 2001; Stadelmann-Steffen 2007; Gasser et al. 2013). Before turning to the conditions and the method, our first step is to embed our study in the broader context of gender inequality and time use research.

## 2 Institutions and gender time inequality

Gender inequality at the cantonal level can be conceptualised, as argued Bühler (2001), as part of cantonal *gender arrangements* (Pfau-Effinger 2010; Pfau-Effinger 2012). Gender culture and gender order form a negotiated “arrangement” which includes cultural, economic, political, and social-structural elements. Though different components of such an arrangement are intricately linked (e.g., gendered notions of family and care shape profiles of welfare states) there can be time lags and contradictions. Elements of gender arrangements can thus be contested and re-negotiated. By stressing that appropriate explanations should refer to complex interactions, the arrangement-approach entails a focus on how different factors of the societal context are “crystallised” into configurations linked to high or low gender time inequality. For example, two regions with similar welfare states but different cultural family models (e.g., Denmark and Finland; Eastern and Western Germany) may show different patterns of paid and unpaid work.

A considerable body of multilevel research shows that gendered time use is affected by economic, political and cultural factors, without paying much attention to configurations of these factors. Nevertheless, such multilevel research precedes the search for configurations, carefully documenting the importance of these factors in cross-country and in multilevel studies. Reviews summarise the growing knowledge of institutional effects on women’s employment (Buchmann et al. 2002; Van der Lippe and Van Dijk 2002; Hegewisch and Gornick 2011) and on gendered divisions of house and family work (Bianchi and Milkie 2010; Cooke and Baxter 2010; Lachance-Grzela and Bouchard 2010, articles in Treas and Drobnic 2010). For example, existing knowledge of how resources in couples affect the division of labour (e.g., Gupta 2007) is in line with research showing that these resources are filtered through societal context (Blumberg and Coleman 1989; Iversen et al. 2005; Van der Lippe et al. 2011). Another example is that the welfare state affects women’s autonomy and thus how credibly they can threaten divorce (Breen and Cooke 2005). Institutions also moderate the effects of time-availability and relative resource (Fuwa 2004; Fuwa and Cohen 2007 Stadelmann-Steffen 2007; Stier and Lewin-Epstein 2007). For example, women in more conservative welfare regimes are less likely to turn egalitarian attitudes into an egalitarian division of housework (Geist 2005). Another study by Hook (2006), for instance, shows that the national level of women’s employment increases single men’s unpaid work, suggesting a cultural effect. Others interested in the cultural context study religion and find that Catholicism is associated with a more traditional division of labour (Voicu et al. 2009). Cultural family models are linked to women’s employment (Pfau-Effinger 2012) and to the division of housework (Pfau-Effinger 2010). Much of the research examines political factors. Work-family policies – such as leaves, childcare facilities, working time regulations, and flexible work options – have the potential to enhance women’s access

to paid work and support families in their caring function (Gornick and Meyers 2009; Hegewisch and Gornick 2011). Gendered time use more generally reflects the overall level of gender inequality (Blumberg and Coleman 1989; Fuwa 2004) and the welfare regime. Gender time inequality is smaller in social-democratic than in conservative regimes (Fuwa 2004; Geist 2005). Economic factors are shown to be important, too, for instance economic development (Gershuny and Sullivan 2003; Fuwa 2004; Van der Lippe et al. 2011) and the public sector (Iversen et al. 2005; Mandel and Semyonov 2006). Although research does not yet provide a completely coherent picture, it suggests that several aspects of the cantonal contexts are strong enough to affect cantonal gender time inequalities. The Swiss cantons show marked differences in family and social policy (Armingeon et al. 2004; Binder et al. 2004; Stadelmann-Steffen 2007; Bonoli 2008), in cultural family models (Pfau-Effinger 2005) and in overall gender inequality (Bühler 2001).

We use different factors to cover cultural, economic, political, and social-structural aspects that are known to be important for gendered time use. The cultural aspect is captured by *traditionalism*; the economic aspect by *public sector size*; the political aspect by *welfare spending* and by *political backing for gender equality*. Finally, a social-structural factor refers to demographic differences in *care demand* (cf. Sullivan and Gershuny 2001). Our choice of these five conditions is not to deny the importance of many other conditions, but with 26 cases there should at most be five conditions in fsQCA (Schneider and Wagemann 2012). In the following section, we briefly discuss these conditions by presenting the indicators used and how we coded the cantons.

### 3 Outcome and conditions

We use quantitative indicators to assign every canton a *membership value* in each condition and the outcome.<sup>3</sup> A membership value ranges from 0 to 1 and indicates how well a given canton fits a given condition; with 1 indicating full membership (a “prototypical” member) and 0 no membership at all (a “prototypical” non-member). Our general strategy is to assign cases to conditions based on Switzerland as a reference point. Cantons with indicator values above the Swiss score are counted as “more in than out” of a given condition (i. e., assigned a membership value greater than 0.5).<sup>4</sup> This procedure means that our fsQCA models will provide a “local explanation”

3 For the condition “political backing,” however, membership values were directly (qualitatively) assigned based on the procedure detailed in Epple (2012).

4 For gender time inequality (*D*), traditionalism (*T*), age-dependency ratio (*A*), and social welfare spending (*W*), the Swiss score would have artificially split a dense cluster of cantons. The threshold or mid-point was then shifted to the nearest, distinct gap in the distribution of the cantonal indicator scores. Between the thresholds (Table A1), membership values were assigned by linear interpolation (Thiem and Duşa 2012).

(Amenta and Poulsen 1994, 24) adapted and mostly confined to our specific cases, the Swiss cantons. The conditions and the outcome contain an implicit reference to Switzerland, and for example “large public sector” only means large compared with Switzerland as a whole. Table A1 (see Appendix) summarises the sets, the abbreviations, and the thresholds used. To see which cantons are prototypical members or non-members in the conditions, readers can consult Table A2 (see Appendix).

*Gender Time Inequality (D).* Membership in the set of cantons with (comparatively) high gender time inequality is the outcome (the explanandum). We estimate for men and women of working age (between 15 and 64) separately the proportion of total (paid and unpaid) work volume used for unpaid work. Working time volume simply is the sum of all working hours per week. Gender time inequality is then measured as the gender gap of these proportions.<sup>5</sup> The estimation is based on the Swiss Labour Force Survey (SLFS) waves of 2004, 2007, and 2010, conducted by the Federal Statistical Office (FSO).<sup>6</sup> Paid work hours are based on self-reported usual weekly employment hours, which is known to underestimate the amount of actual work hours (Schief 2003). Unpaid work hours are based on self-reported time use in 11 categories of housework and family work on the day preceding the interview. This is known to underestimate women’s unpaid work and overestimate men’s (Strub and Bauer 2002). The calculations yield a substantial level of gender time inequality: 26% of working time would hypothetically have to be shifted from paid to unpaid work (by men) or from unpaid to paid work (by women) in order to close the gender gap in time use. Gender time inequality is most pronounced in rural and Catholic cantons such as Nidwalden, Uri, Ticino, Zug, and Schwyz. At the opposite end are urban or French-speaking cantons with Basel-Stadt, Geneva, Neuchâtel, Zürich, and Vaud. The ranking is fairly consistent with the index of gender culture in Bühler (2001) and the cluster analysis in Gasser et al. (2013). Appenzell Innerrhoden has by far the highest gender time inequality, but the estimate is unreliable because of the lower sample size; it was therefore directly assigned as fully in the outcome of high gender time inequality, and not used as a threshold for being fully in the set.

*Traditionalism (T).* As a more general adherence to tradition as opposed to change, traditionalism is our proxy for cultural family models linked to the gender division of labour (Pfau-Effinger 2010; Van der Lippe et al. 2011). Comparisons of Swiss cantons document a clear association between gender culture and gender inequality (Bühler 2001). Family models in French-speaking cantons resemble the dual breadwinner/external care model; in German-speaking cantons they resemble the male breadwinner/female part-time care model (Pfau-Effinger 2005). In the Italian-

5 If  $U_m$  ( $U_f$ ) denotes men’s (women’s) unpaid work volume and  $P_m$  ( $P_f$ ) denotes men’s (women’s) paid work volume, the indicator can be written as:  $D = P_m/(U_m + P_m) - P_f/(U_f + P_f) = U_f/(U_f + P_f) - U_m/(U_m + P_m)$ .

6 To improve statistical estimates, we calculated the mean of the three years’ estimates. The data could not be pooled, as each of the survey has its own post-stratification weights (see FSO 2004).

speaking Ticino, a traditional family model predominates. Women are less likely employed but more likely full-time employed than in the rest of Switzerland (Losa and Origoni 2005). Our indicator is based on the *Swiss Electoral Studies* (Selects) data (Lutz 2008; FORS 2010) for the 2007 parliamentary elections. We use the mean of reported importance given to four issues: preservation of tradition, strong army, law and order, and equal chances for foreigners (at the micro-level, Cronbach Alpha is 0.63). Due to a “silent election,” no data were available for Nidwalden (Lutz 2008, 52). It was assigned the same membership value as Obwalden, based on their more general similarity.

*Public Sector (P).* The public sector is a gendered feature of the (formal) economy, linked to higher female employment levels (Iversen et al. 2005; Mandel and Semyonov 2006). Except in Bern (host of the capital), women account for more than half of public sector employees in all cantons (FSO 2013a). We therefore expect an increase in female labour demand from the public sector. Public sector size is measured by the number of public sector employees (in full-time equivalents) divided by the number of residents of working age (i. e., between 15 and 64) in 2008 (IDHEAP/BADAC 2013).

*Welfare Spending (W).* A stronger welfare state can support women’s employment through work-family policies (Van der Lippe and Van Dijk 2002; Hegwisch and Gornick 2011) and through making women less dependent on their family (Fuwa 2004; Iversen et al. 2005; Breen and Cooke 2005). We therefore expect an increase in female labour supply from the welfare state (Mandel and Semyonov 2006). The level of welfare spending is measured by the amount of spending on social welfare (by cantons and communes) per resident in 2007 (IDHEAP/BADAC 2013). It has the advantage of being a rather stable property. More specific policies may be changed and revised too frequently to show their slow impact on gender time inequality (Lachance-Grzela and Bouchard 2010). There are no comprehensive work-family policy indexes or gender-sensitive typologies adapted to the cantons. Previous research by Armingeon et al. (2004) even found it impossible to coherently adapt the standard welfare regime typology to cantons. Welfare spending has a significant overlap with public sector size but with notable exceptions.<sup>7</sup> Uri and Jura have a rather large public sector but little welfare spending and the opposite holds for Glarus, Zug, Schaffhausen, and St Gallen.

*Political Backing (for Gender Equality) (B).* Besides welfare spending, we also take a more comprehensive view of gendered political institutions. The relatively frequent public votes on referendums and initiatives constrain and guide political actors. We thus argue that voters’ backing for gender equality is an integral part of macro-level gender inequality in power (Blumberg and Coleman 1989). The index

7 Note that this overlap is not a problem in fsQCA, as long as (i) there are deviant cases which allow fsQCA to differentiate between the two conditions in the truth table (Table 1) and (ii) the overlap is not seen indicating a causal chain between the two conditions (cf. Baumgartner and Eppe 2013).

is based on the history of cantonal plebiscites over issues related to gender equality and the calibration was based on qualitative assessment of the trends therein (detailed in Epple 2012). A similar measure by Bühler (2001) yields the same dichotomisation. Although she uses it to measure gender culture, we argue that referendums and initiatives are not mere opinion polls but binding political decisions that clearly affect policies and gendered political institutions. The frequent plebiscites make the electorate a central veto player that is not fully under the control of the political system and has therefore to be anticipated by political actors (Papadopoulos 2001). Given the substantive connection between traditionalism and political backing, the two conditions overlap substantially. One reason for our use of political backing, however, is precisely to uncover a discrepancy in this overlap: In Fribourg, Basel-Landschaft, and Ticino, strong political backing for gender equality co-occurs with strong traditionalism. In a macro-level analogue to “co-feminism” (Theunert 2013), these cantons profess a will to address gender equality politically but remain rather traditional in their attitudes.

*Care Demand (A).* This condition controls for demographic differences in care demand. Disparities in gender time inequality can arise from higher or lower care demand, if there are for example more children or frail elderly in a given canton. These are structural, not behavioural, differences in gender time inequality (Sullivan and Gershuny 2001). Age-dependency ratio is used as an indicator and denotes the ratio of non-working age residents per working-age residents (Eurostat 2013). It is based on the 2007 data about the cantonal age structure (FSO 2013b).

## 4 Method

Qualitative Comparative Analysis (QCA) was developed in an attempt to bridge the qualitative-quantitative divide and has recently been adapted to work with fuzzy sets (Ragin 2008). It is now regularly deployed to study Swiss cantons and a broad variety of topics in comparative sociology and politics.<sup>8</sup> QCA and econometric methods are neither competitors nor mutually exclusive. QCA is a Boolean method that finds minimally complex configurations by dropping redundant conditions and configurations. Two core ideas are sufficiency and necessity: *A* is sufficient (necessary) for *B*, if all cases have higher (lower) membership values in *B* than in *A* (Schneider and Wagemann 2012). The results are written using Boolean notation. The presence of a condition (*A*) is indicated by its name; its absence is indicated by the name in lower case (*a*). If two conditions (*A* and *B*) occur together, this is expressed by simple concatenation (*AB*). If two conditions occur alternatively (*A* or *B*), this is written with a “+” (*A+B*). Finally, a sufficient condition is written with an arrow (*A* → *B*). For example, the claim that both *A* and *non-B* are sufficient for

<sup>8</sup> The website [www.compass.org](http://www.compass.org) lists the extensive literature using QCA.

Table 1 Combined truth table for high (*D*) and low gender time inequality (*d*)

<i>T</i>	Conditions				Outcome: <i>D</i>			Outcome: <i>d</i>			Cases
	<i>P</i>	<i>W</i>	<i>B</i>	<i>A</i>	OUT	Con <sub>1</sub>	PRI	OUT	Con <sub>1</sub>	PRI	
1	0	1	0	0	1	0.99	0.94	0	0.76	0.06	ZG, SG
1	1	0	0	1	1	0.97	0.82	0	0.86	0.18	UR
1	0	0	1	1	1	0.97	0.83	0	0.85	0.17	BL
1	0	0	0	1	1	0.96	0.87	0	0.69	0.06	AR, AI
1	0	0	0	0	1	0.95	0.87	0	0.59	0.04	LU, SZ, OW, NW, SO, GR, AG, TG, VS
1	1	1	0	1	0	0.93	0.41	1	0.95	0.59	BE
1	0	0	1	0	1	0.88	0.53	0	0.86	0.45	FR
1	0	1	0	1	0	0.87	0.41	1	0.91	0.59	GL, SH
1	1	1	1	1	1	0.81	0.46	0	0.83	0.54	TI
0	1	0	1	1	0	0.74	0.26	1	0.91	0.74	JU
0	1	1	1	0	0	0.51	0.1	1	0.94	0.9	ZH, GE
0	1	1	1	1	0	0.51	0.11	1	0.94	0.89	BS, VD, NE

Legend: *T*, Strong traditionalism; *P*, Large public sector; *W*, High welfare spending; *A*, High care demand; *B*, Strong political backing for gender equality OUT indicates whether the configuration of conditions is judged sufficient for the outcome; Con<sub>1</sub> denotes consistency (Ragin 2008); PRI is the Proportional Reduction in Inconsistency (Schneider and Wagemann 2012); Con<sub>2</sub> denotes consistency using only the cases in the given truth table row (Cooper and Glaesser 2011). For cantonal abbreviations, see Table A2. Reading example: The configuration *TPwbA* (second row) describes the case UR and is judged sufficient for *D* but not for *d*. This judgement is based on Con2 because Con<sub>1</sub> did not already allow a clear judgment (both Con<sub>1</sub> scores exceed 0.8).

Source: Own calculations based on the data in Table A2.

$C$  translates into  $(A+b) \rightarrow C$ . A possible QCA result could look like  $(AB+aC \rightarrow D)$ : Depending on the presence or absence of  $A$ , either  $B$  or  $C$  is associated with  $D$ . The main advantages of QCA are (i) that it relates the outcome to *configurations* (the co-occurrence of several conditions) and (ii) that it relates the same outcome to different configurations, depending on the context (*equifinality*). This matches our theoretical expectation of “complex interactions” (Bühler 1998; Pfau-Effinger 2012).<sup>9</sup> A third advantage is that throughout the analysis QCA retains a focus on the cases and leaves room for a broader discussion of them.

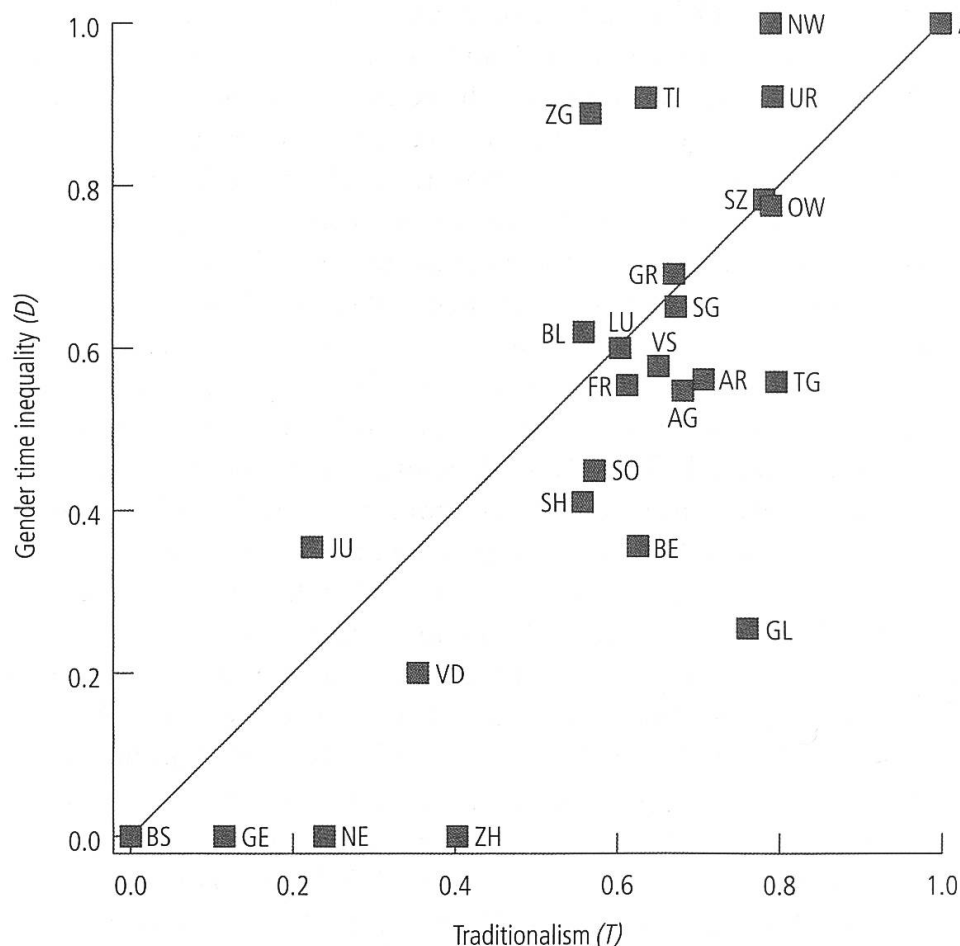
The starting point for the QCA is the *truth table* (see Table 1) that collects all the observed configurations and evaluates their sufficiency for the outcome with a measure called *consistency*. Consistency ranges between 0 and 1 and indicates whether a condition (or configuration) is sufficient for another. A peculiar feature of fuzzy logic is that a condition (or configuration) can be consistently sufficient for both the outcome and its negation. In Table 1, we therefore report consistency measures for both high and low gender time inequality (columns “Con<sub>1</sub>”). We assign the outcome (columns “OUT” in Table 1) in a two-step procedure: The first is the consistency measure (Ragin 2008) with a threshold of 0.8. Only where this is not conclusive (i. e., consistency for  $D$  and  $d$  exceeds 0.8) we revert to a proposal made by Cooper and Glaesser (2011). They recommend the same consistency measure but based only on cases with membership value greater than 0.5 in the given truth table row (columns “Con<sub>2</sub>” in Table 1). Again we set a threshold of 0.8. Another important feature of QCA is that it explicitly deals with *limited diversity* – the problem that not all logically possible combinations of conditions are empirically observed. We conduct a *Standard Analysis* (making use of so-called “easy counterfactuals”) and report the intermediate solutions (Ragin 2008; Schneider and Wagemann 2012). Our analysis uses the R-package (Thiem and Duşa 2012).<sup>10</sup> Note that high and low gender time inequality ( $D$  and  $d$ ) are analysed in two steps, yielding two separate solutions.

## 5 Empirical findings and discussion

Before turning to sufficiency, necessity is analysed in a separate step. The results show that strong traditionalism ( $T$ ) is a necessary condition for high gender time inequality ( $D$ ), with a consistency score of 0.92. This means that cases low on

9 QCA makes the assumption that there are no causal chains between the different conditions. If this were the case, the related method of CNA should be applied (see Baumgartner and Eppler 2013).

10 Directional expectations are that  $A$  and  $T$  are rather associated with  $D$ , and that  $W$ ,  $P$ , and  $B$  are rather associated with  $d$ . The minimisation process is additionally constrained so that no simplifying assumption contradicts the previous finding of a necessary condition and so that no contradictory assumptions are made in the models for high and for low gender time inequality.

Figure 1 Relation between traditionalism ( $T$ ) and gender time inequality ( $D$ )

Note: The plot shows that strong traditionalism is a (highly consistent) necessary condition for high gender time inequality. It would be a perfect necessary condition if all cases were below or on the diagonal. For cantonal abbreviations, see Table A2.

Source: Membership values in Table A2.

traditionalism tend to be low on gender time inequality, as shown in Figure 1. If  $T$  were a perfectly consistent necessary condition for  $D$ , all cases would be located below the diagonal. For less pronounced gender time inequality, no single condition crosses the 0.9 threshold for being necessary.

Turning to sufficient conditions, the intermediate solution for comparatively high gender time inequality is  $S1$ .<sup>11</sup>

$$(S1) \text{ } pabT + pTw + ATw + ATB \rightarrow D$$

11 The conservative solution is:  $Tpw + aTpb + ATwb + ATPWB$ . The parsimonious solution is:  $TB + Tw + aT$ .

Four different configurations are related to high gender time inequality ( $D$ ). As a necessary condition, strong traditionalism ( $T$ ) appears in all four configurations. In the first two configurations, a small public sector ( $p$ ) combines either with low care demand ( $a$ ) and weak political backing ( $b$ ) or with low welfare spending ( $w$ ). In the last two configurations, a high care demand ( $A$ ) combines either with low welfare spending ( $w$ ) or with strong political backing ( $B$ ). Table 2 displays which cantons belong to which of the four configurations.

The intermediate solution  $S2$  for comparatively low gender time inequality comprises two configurations.<sup>12</sup>

$$(S2) PBt + AWb \rightarrow d$$

Less pronounced time inequality ( $d$ ) is linked to the co-occurrence of a large public sector ( $P$ ), strong political backing for gender equality ( $B$ ), and weak traditionalism ( $t$ ). Alternatively, it can be linked to the configuration of a high care demand ( $A$ ), higher welfare spending ( $W$ ), and weak political backing ( $b$ ).

Overall, the presented results support four broad conclusions. First, they show the importance of traditionalism. Cantons with weaker traditionalism show lower inequality (Figure 1). This strong link between gender inequality and cultural disparities is in line with previous research (Bühler 2001). Second, the results suggest that complex configurations are related to gender time inequality. This corresponds to the assumption of spatially heterogeneous processes (Duncan 1995; Snyder 2001): In different groups of cantons, different conditions are related to gender time inequality. Specifically, care demand ( $A$ ) and economic context ( $P$ ) distinguish the first two from the second two configurations in  $S1$  and the first from the second in  $S2$ . Third, the results point to configurations that comprise both political-institutional ( $B$  and  $W$ ) and cultural ( $T$ ) factors. This corresponds to the idea of cantonal gender arrangements (Pfau-Effinger 2012). Fourth, political backing ( $B$ ) and care demand ( $A$ ) can have contradictory associations with inequality; traditionalism ( $T$ ), public sector size ( $P$ ), and welfare spending ( $W$ ) have the expected direction of association, regardless of the configuration.

Table 2 reveals that the first two configurations in  $S1$  ( $pabT$  and  $pwT$ ) are characterised by a weak public sector and strong traditionalism and cover mainly the same cases from Central and Eastern Switzerland. This geographical homogeneity is somewhat disrupted by Valais, Solothurn, and Aargau. Valais is a plausible geographical exception because of its peculiar position as Catholic and mostly French-speaking. Both configurations lack political support, either by weak political backing ( $b$ ) or by lower welfare spending ( $w$ ). Puzzling is the occurrence of a weak care demand ( $a$ ) in the first configuration, which further research should pursue by in-depth studies of St. Gallen and Zug. It seems that even in a demographically propitious context, weak political support offsets gains in gender time equality.

12 The conservative solution is:  $AtPB + ATWb + tPWB$ . The parsimonious solution is:  $t + AWb$ .

Table 2 Configurations in solutions for high (S1) and low gender time inequality (S2)

	S1				S2	
	pabT	pwT	AwT	ATB	PBt	AbW
Luzern	x	x				
Schwyz	x	x				
Obwalden	x	x				
Nidwalden	x	x				
Solothurn	x	x				
Graubünden	x	x				
Aargau	x	x				
Thurgau	x	x				
Valais	x	x				
Zug	x					
St. Gallen	x					
Fribourg		x				
Appenzell AR		x	x			
Appenzell IR		x	x			
Uri			x			
Basel-Landschaft		x	x	x		
Ticino				x		
Zürich					x	
Basel-Stadt					x	
Geneva					x	
Neuchâtel					x	
Vaud					x	
Jura					x	
Bern						x
Glarus						x
Schaffhausen						x
Consistency	0.95	0.9	0.91	0.86	0.94	0.92
Raw Coverage	0.6	0.8	0.57	0.26	0.51	0.35
Unique Coverage	0.02	0.03	0.02	0.03	0.41	0.24

Note: The "x" indicate which cantons belong to which configurations. Overall consistency and coverage for solution S1 are 0.877 and 0.895; for solution S2 they are 0.922 and 0.758.

Legend: *pabT*, configuration of small public sector, low care demand, weak political backing, and strong traditionalism; *pwT*, configuration of small public sector, low welfare spending, and strong traditionalism; *AwT*, configuration of high care demand, low welfare spending, and strong traditionalism; *ATB*, configuration of high care demand, strong political backing, and strong traditionalism; *PBt*, configuration of large public sector, strong political backing, and weak traditionalism; *AbW*, configuration of high care demand, weak political backing, and high welfare spending.

Source: Own calculations based on Table 1.

The last two configurations in *S1* share a high care demand (*A*), thus comprising cantons with a high proportion of young or old residents. The first configuration (*AwT*) is coherent in its low welfare spending (*w*) and strong traditionalism (*T*). Unique to this configuration is only Uri (see Table 2). It could be argued that a configuration of weak welfare spending and high care demand is mainly possible in small cantons with close family ties (Appenzell Ausserrhoden and Innerrhoden are both small, too). The last configuration in *S1* (*ATB*) is interesting because it indicates a discrepancy between strong traditionalism (*T*) and political backing for gender equality (*B*). It is geographically heterogeneous with Basel-Landschaft and Ticino. In case Basel-Landschaft, the discrepancy between gender culture and political backing may stem from its location; from one side under the influence of the city Basel-Stadt, on the other side from very rural parts (Epple et al. 2001).

The configurations in *S1* can be contrasted to those in *S2*. The first configuration in *S2* shows that even an egalitarian context (weak traditionalism *t* and political backing *B*) is not sufficient for low inequality, without institutional support via a large public sector. Covered by this configuration are the city-dominated cantons Basel-Stadt and Zürich as well as the French-speaking cantons Vaud, Neuchâtel, and Geneva (see Table 2). Being rural and Catholic (as are Fribourg and Valais that have high inequality), Jura is an exception in this group. It was also the first canton to have an office for gender equality. The configuration here is almost the “opposite” of the first configuration in *S1*, and this group of cantons is the counterpart to the cantons in Central and Eastern Switzerland. The *second* configuration in *S2* shows that a strong welfare state is associated with lower gender time inequality, even in the context of high care demand and weak political backing (*Ab*). Interesting here is the discrepancy between high welfare spending and weak political backing for gender equality, which may indicate a “general family support” model: Public policies grant social rights supporting mothers’ caring function but not their employment (Korpi 2000, 143). This configuration covers two cantons from Eastern Switzerland (Schaffhausen, Glarus) and Bern, with no obvious geographical pattern. In Bern, the peculiar configuration could stem from a strong urban centre pitted against large rural areas. In Glarus and Schaffhausen, the strong welfare state has historical roots. Glarus was industrialised early and was a social policy pioneer. Schaffhausen was later but heavily industrialised and had a strong left during the post-war period (Epple 2001). In what follows some cantons are briefly portrayed because they are uniquely covered by one configuration only.

*Ticino* is a special case in many respects. It has the unique pattern of a larger gender gap in unpaid than in paid work (Gasser et al. 2013). Strong traditionalism suggests that the high care load is primarily borne by women. But Ticino is also a family policy innovator, unique in its attempt to construct a comprehensive family policy (Binder et al. 2004). These work-family policies do not translate into more equality, possibly because the care demand is skewed towards elderly people. Ticino

has the second highest old-age but the third lowest young-age dependency ratio.<sup>13</sup> Another interesting aspect is the discrepancy between the political backing for gender equality and traditional gender culture (Bühler 1998; Losa and Origoni 2005). This could be a macro-level analogue to what has been called *co-feminism* (Theunert 2013): The public professes a will to address gender inequality (political backing *B*) but refuses changes in the personal realm (indicated by strong traditionalism *T*).

*Geneva* is a prototypical case for comparatively low gender time inequality, both in paid and unpaid work (Gasser et al. 2013). This dual-earner/external caregiver family model is mirrored in non-traditionalism and the backing for corresponding policies. A big public sector expands economic opportunities for women.

*Uri* is a prototype of traditional gender division of labour with a high gender gap in paid and unpaid work and is at the opposite of Geneva (Gasser et al. 2013). Weak institutional support co-occurs with a high care demand (by both young and elderly) and with strong traditionalism. It is instructive to compare the configurations of Uri (*ATbPw*) and Glarus and Schaffhausen (*ATbpW*). In contrast to Uri, the latter two have lower gender time inequality. The three cantons share a high care demand, strong traditionalism and a weak political backing, but differ on the size of public sector and the amount of welfare spending. The comparison shows that higher welfare spending can trump public sector size and suggests for Uri a path towards lower gender time inequality.

*St. Gallen* shows how a low care demand does not *per se* reduce gender time inequality without cultural or institutional support. A small public sector (*p*) together with weak political backing for gender equality (*b*) and a strong traditionalism (*T*) result in high gender time inequality, even in the propitious context of a low care demand (*a*).

*Solothurn* has low gender time inequality but shows exactly the configuration of other cantons with high gender time inequality (Luzern, Schwyz, etc.). This suggests that important conditions were neglected in our model. Moreover, there is no condition (nor the outcome) for which Solothurn can be said to be “mostly in” or “mostly out.” It seems that Solothurn completely eludes our set of conditions.

## 6 Conclusion

In the present study, we ranked the cantons with respect to gender time inequality. Ten out of 26 cantons were found to have lower gender time inequality than Switzerland as a whole: Geneva, Basel-Stadt, Zürich, Bern, Glarus, Solothurn, Schaffhausen, Vaud, Neuchâtel, and Jura. A considerable body of research already shows that context affects gendered time use. Against this background, we addressed two research gaps. First, subnational comparisons are often neglected in comparative

13 Own calculations based on FSO (2013b).

research. Second, little interest is shown in how contextual factors “crystallise” into *configurations* related to macro-level gender time inequality. Five contextual factors from different societal arenas (economy, politics, culture, social structure) were taken into account: traditionalism, public sector size, welfare spending, political backing, and care demand. Our focus was on the “big picture”: How is gender time inequality related to arrangements of these five conditions? To find the answer, we conducted a fuzzy-set Qualitative Comparative Analysis. Our approach inevitably has drawbacks; we had to forgo a multilevel approach, a life-course perspective, and the important intersection of gender and social class. These shortcomings offer promising avenues for future research, which could test more conditions and, above all, should aim to adapt nuanced indices or typologies (e.g., of work-family and tax policy) to the cantons. Qualitative-minded comparativists will note that our results offer many points of contact for future in-depth case studies, which could add more narrative to our results.

Our results suggest that strong traditionalism is a necessary condition for high gender time inequality, strengthening previous support for the role of cultural factors. But strong traditionalism alone is not sufficient for high inequality. It is sufficient only in the right supportive context of a small public sector, a weak welfare state, or a high care demand. Addressing these supportive conditions thus has the potential to mitigate the relation between traditionalism and inequality. This leads us to another observation that strengthens the idea of cantonal gender arrangements: Several different configurations relate to gender time inequality, and all but one comprise *both* political-institutional and cultural factors. Two further conclusions are suggested by the observation. First, there seems no way around political action in order to reduce gender time inequality. Second, changing a complex social problem like gender time inequality requires that a whole “bundle” of institutions be changed. The two conditions of care demand and political backing serve to illustrate the complexity: Both are positively related to gender time inequality in one configuration, and negatively in another. Given this potential for contradictory associations, it is particularly suggestive to note that building up welfare state support, strengthening the public sector, and weakening traditional family models are all three associated with lower gender time inequality in whichever configuration they occur. Proper policy recommendations, however, would naturally require further analyses of causal mechanisms, of potential side-effects, of costs and benefits, and of feasibility. But they also require knowledge about the right mix of institutions. Though we stop short of causal claims, our analysis takes a first step in this direction, indicating different “recipes” of institutional adaptation for different cantons. For future research, this highlights the importance of studying spatially heterogeneous processes at a subnational level.

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## 8 Appendix

Table A1 Conditions, indicators, and calibration thresholds

Name of Set		Indicator	Thresholds (fully out; cross-over; fully in)
High gender time inequality	<i>D</i>	Gender gap in proportion of total work volume (paid and unpaid) allotted to unpaid work. Years 2004, 2007, 2010.	23.12, 26.5, 32.67
Strong traditionalism	<i>T</i>	Average percentage of respondents giving high importance to five issues linked to traditionalism. Own calculations. Year 2007.	43.6, 57, 80.4
Large public sector	<i>P</i>	Number of public sector employees, in full-time equivalents per 100 residents. Year 2008.	3.99, 6.25, 7.76
High welfare spending	<i>W</i>	Spending on Social Welfare in Swiss Francs per resident. Year 2007.	1 051, 1 700, 3 764
Political backing for gender equality	<i>B</i>	Own calculations based cantonal results in 16 votes on issues related to gender equality. Years 1959–1999.	(Direct calibration, see Eppler 2012)
Care demand	<i>A</i>	Age-dependency ratio: Number of residents aged under 15 or over 65 per residents of working age. Year 2007.	0.445, 0.47, 0.525

Source: Own calculations based on sources cited in Section 3.

Table A2 Fuzzy set membership values

Canton	Abbr.	<i>D</i>	<i>T</i>	<i>P</i>	<i>W</i>	<i>B</i>	<i>A</i>
Zürich	ZH	0	0.4	0.53	0.71	1	0
Bern	BE	0.36	0.63	1	0.54	0.4	0.64
Luzern	LU	0.6	0.6	0.28	0.27	0	0.44
Uri	UR	0.91	0.79	0.54	0.23	0	0.73
Schwyz	SZ	0.78	0.78	0	0.38	0	0.21
Obwalden	OW	0.78	0.79	0.26	0.01	0	0.42
Nidwalden	NW	1	0.79	0.08	0.11	0	0
Glarus	GL	0.25	0.76	0.26	0.64	0	0.68
Zug	ZG	0.89	0.57	0.26	0.53	0.4	0
Fribourg	FR	0.55	0.61	0.43	0.17	0.6	0.23
Solothurn	SO	0.45	0.57	0	0.37	0.4	0.48
Basel-Stadt	BS	0	0	1	1	1	0.68
Basel-Landschaft	BL	0.62	0.56	0.18	0.48	0.6	0.69
Schaffhausen	SH	0.41	0.56	0.38	0.7	0.45	0.76
Appenzell Ausserrhoden	AR	0.56	0.71	0.21	0.27	0.2	0.89
Appenzell Innerrhoden	AI	1	1	0	0.08	0	1
St. Gallen	SG	0.65	0.67	0.25	0.52	0	0.48
Graubünden	GR	0.69	0.67	0.32	0.18	0	0.35
Aargau	AG	0.55	0.68	0.16	0.24	0.2	0
Thurgau	TG	0.56	0.8	0.07	0.26	0	0.29
Ticino	TI	0.91	0.64	0.61	0.57	1	0.85
Vaud	VD	0.2	0.35	0.71	0.58	1	0.56
Valais	VS	0.58	0.65	0.1	0	0.4	0.39
Neuchâtel	NE	0	0.24	1	0.63	1	0.92
Geneva	GE	0	0.12	1	1	1	0.39
Jura	JU	0.36	0.22	0.54	0.44	1	1

Legend: *D*, high gender time inequality; *T*, strong traditionalism; *P*, large public sector; *W*, high welfare spending; *B*, strong political backing; *A*, high care demand.

Source: Own calculations based on sources cited in Section 3 and threshold values in Table A1.