FORMS OF WELFARE CAPITALISM AND EDUCATION-BASED PARTICIPATORY INEQUALITY

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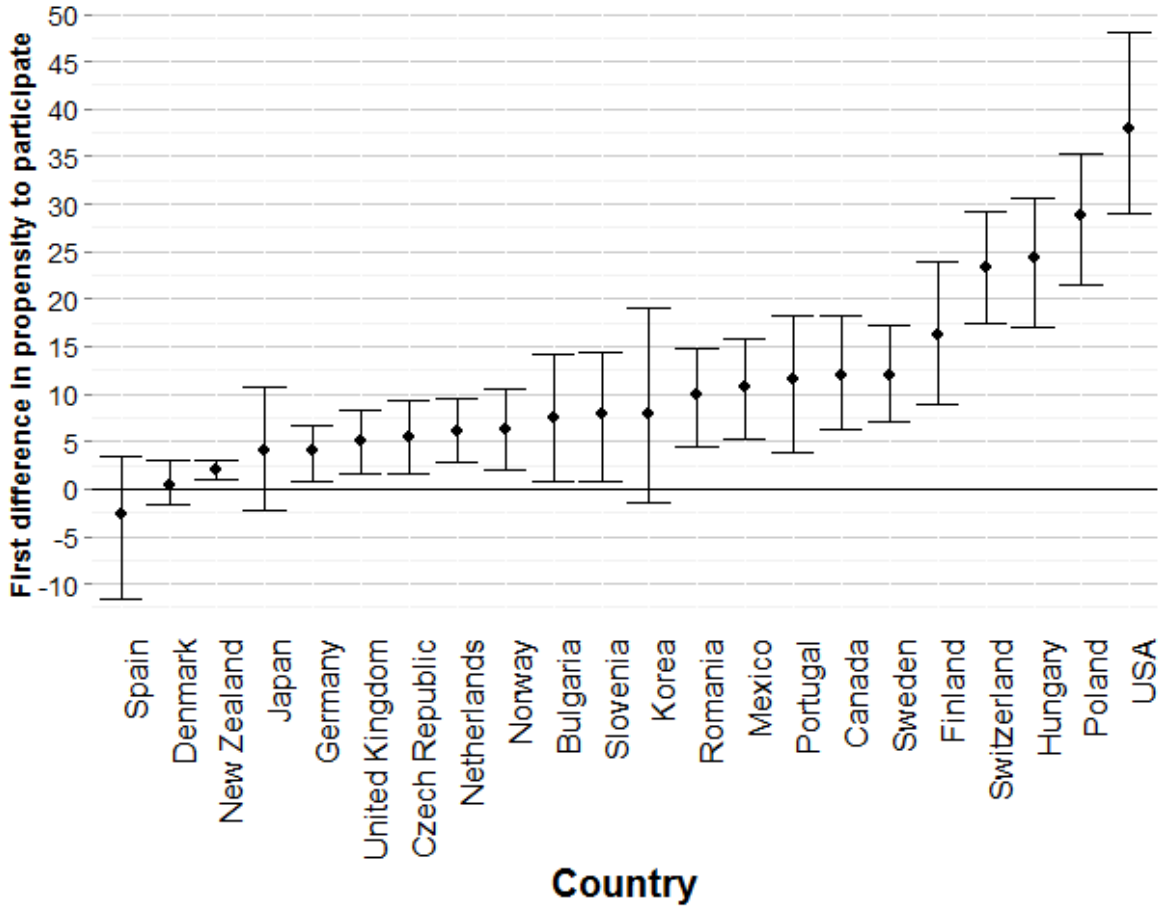
ONLINE APPENDIX

Version 2

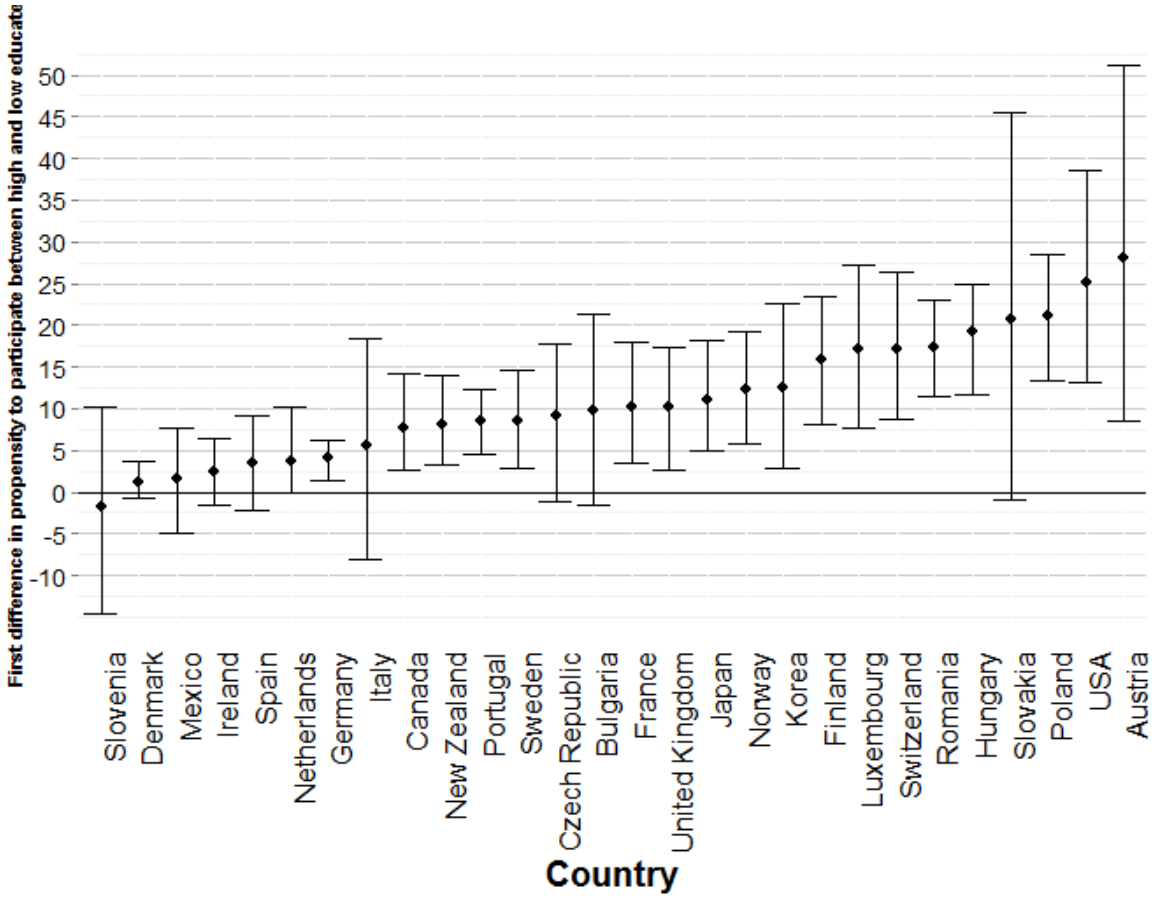
I. First Difference in Voting, High vs. Low Educated, all Country-Years

1995-2001 election



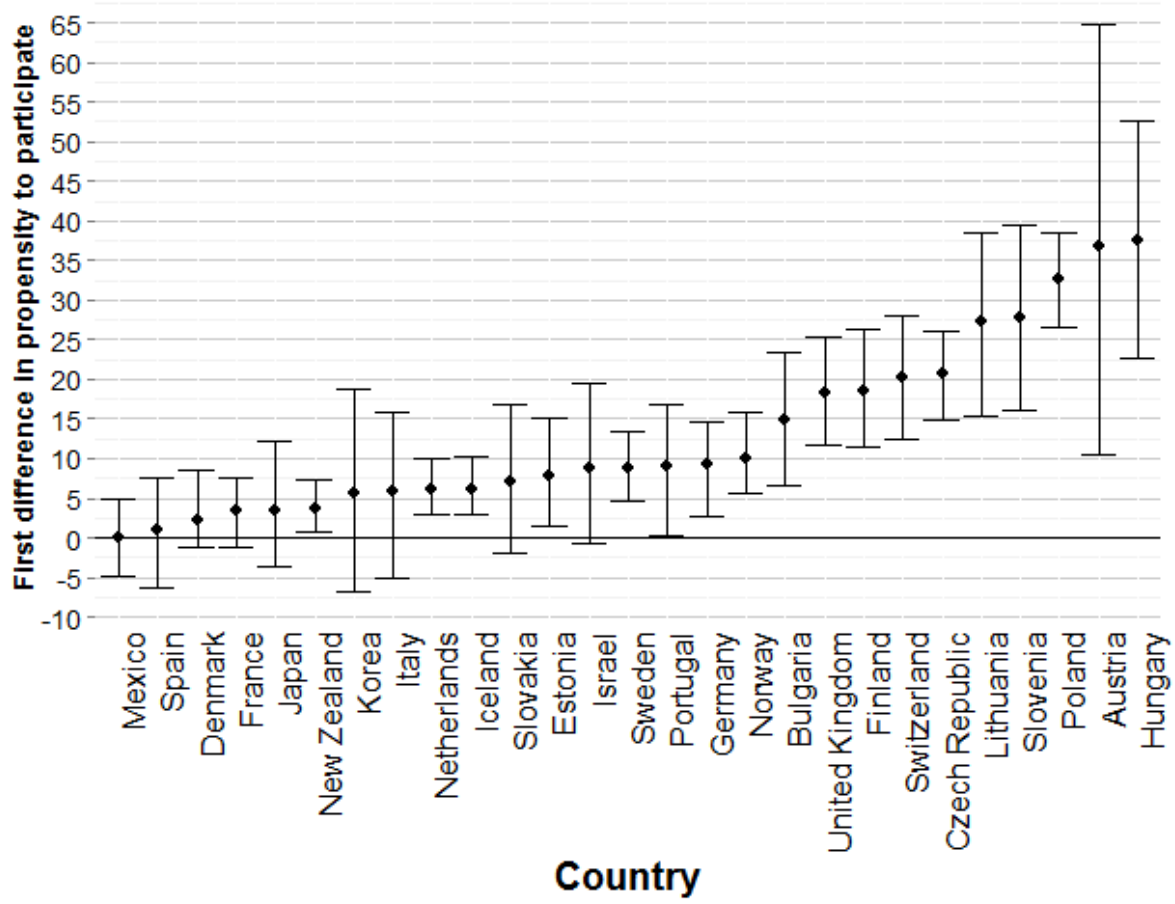
Source: Calculations based on Comparative Studies of Electoral Systems (CSES) and European Social Survey (ESS) data using Zelig for estimating expected probabilities (Imai, King, and Lau 2012)

2001-2006 elections



Source: Calculations based on Comparative Studies of Electoral Systems (CSES) and European Social Survey (ESS) data using Zelig for estimating expected probabilities (Imai, King, and Lau 2012)

2006-2011 elections



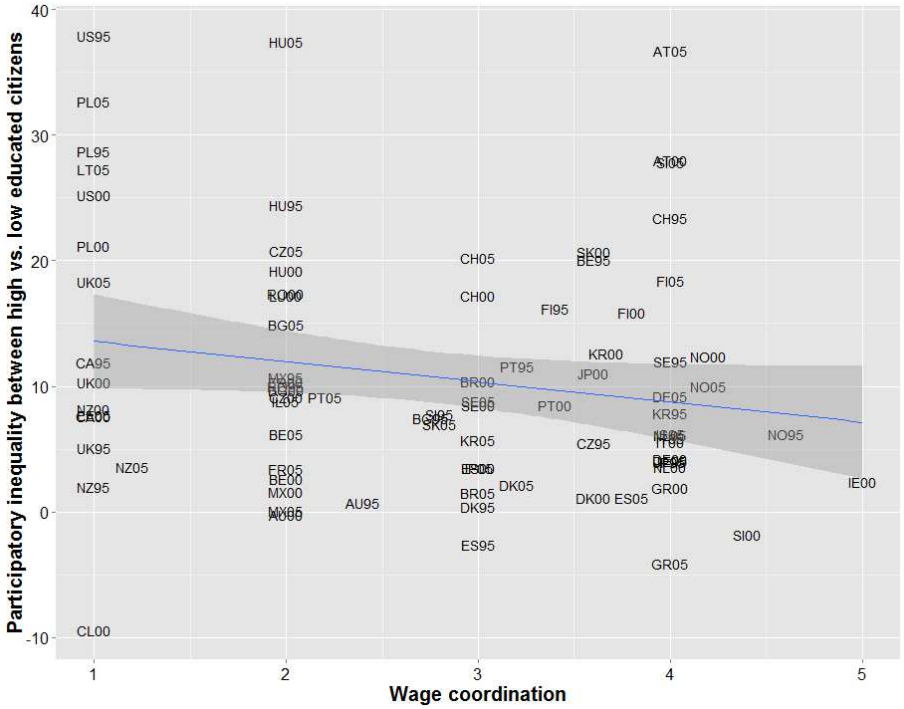
Source: Calculations based on Comparative Studies of Electoral Systems (CSES) and European Social Survey (ESS) data using Zelig for estimating expected probabilities (Imai, King, and Lau 2012)

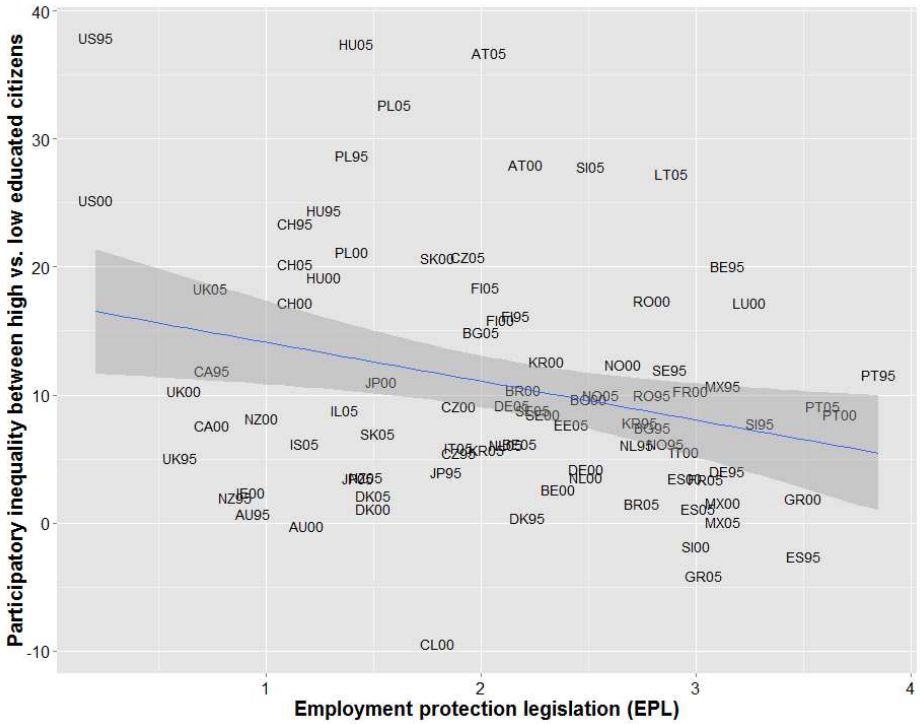
II. EFFECT PLOTS FOR INDEPENDENT VARIABLES IN MACRO-LEVEL OLS MODELS (ALL BASED ON MODEL 2 IN TABLE 1)

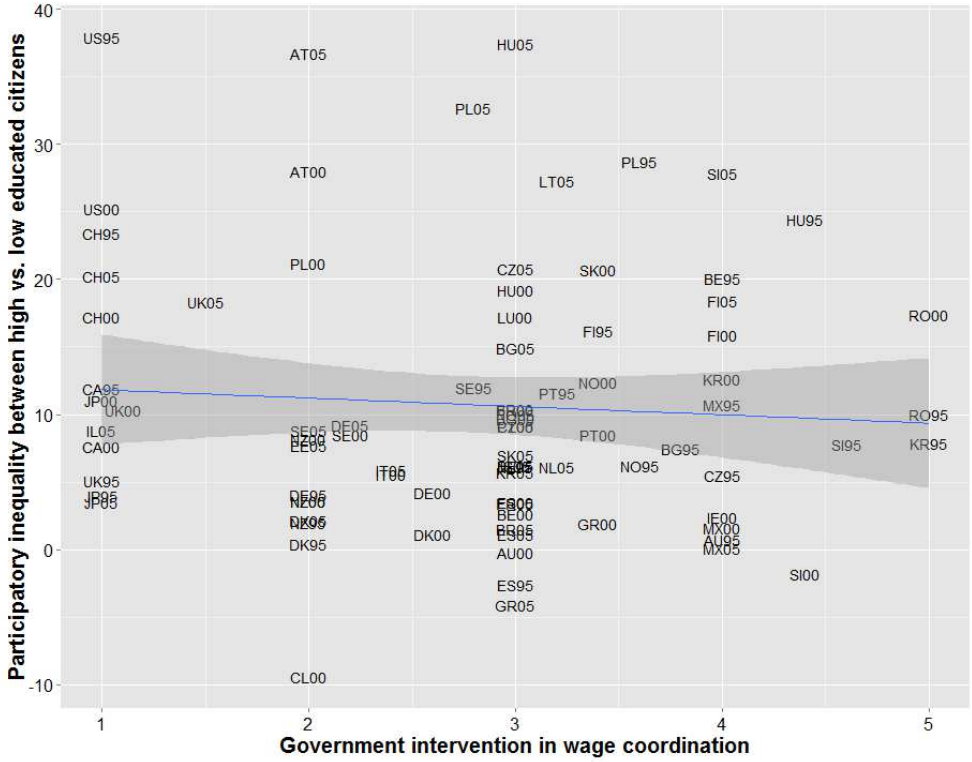
Sources of data:

Participatory inequality is the difference in expected probability of voting for high and low educated calculated based on Comparative Studies of Electoral Systems (CSES) and European Social Survey (ESS) data using Zelig for estimating expected probabilities (Imai, King, and Lau 2012). The variables on the horizontal axis come from the following sources: Degree of wage coordination and of government intervention in wage coordination from ICTWSS (Visser, 2009); Union density (Visser,

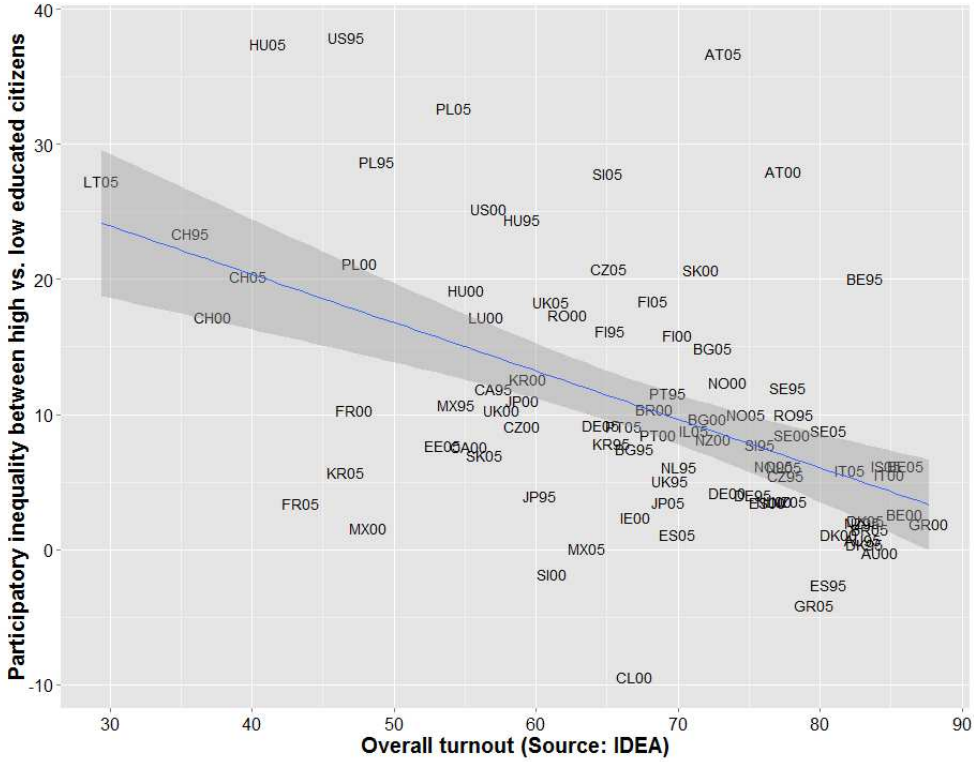
2009); overall employment protection legislation (OECD); Social expenditure as a share of GDP ("Eurostat, Social Protection Statistics" 2013., "OECD Social Expenditure Database" 2013.); public expenditure on passive and active labor market programs (OECD)[i]; and overall turnout rate in the election (IDEA, 2013).

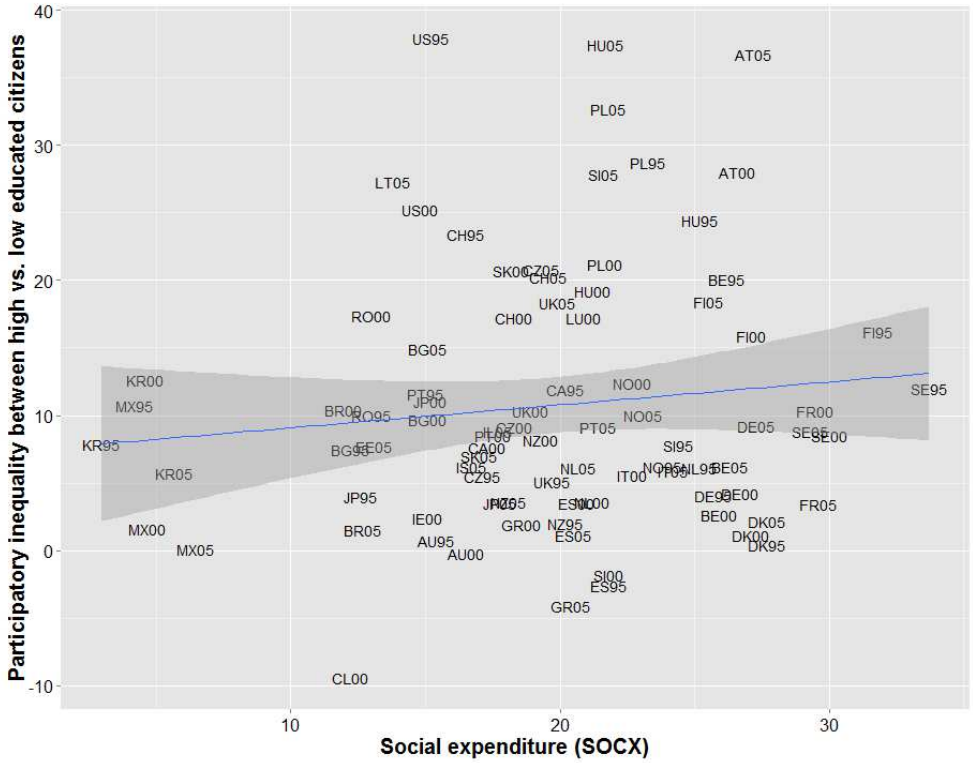





Participatory inequality between high vs. low educated citizens
Government intervention in wage coordination
40
30
20
10
0
-10
1
2
3
4
5
US95
AT05
HU05
PL05
AT00
PL95
LT05
SI05
US00
CH95
HU95
PL00
CZ05
SK00
BE95
CH05
HU00
FI05
UK05
CH00
LU00
RO00
FI95
FI00
BG05
CA95
SE95
PT95
NO00
KR00
JP00
UK00
MX95
RO95
IL05
SE05
DE05
SE00
PT00
CA00
BG95
SI95
KR95
NL05
NO95
UK95
CZ95
DE00
DK95
DK00
GR00
IE00
MX00
AU95
MX05
AU00
SI00
ES95
GR05
CL00

Participatory inequality between high vs. low educated citizens
Labor market expenditure (LMX)
40
30
20
10
0
-10
0
2
4
6
US95
HU05
AT05
PL05
LT05
SI05
AT00
PL95
US00
HU95
CH95
CZ05
PL00
CH05
BE95
HU00
UK05
FI05
RO00
LU00
CH00
FI00
FI95
BG05
KR00
NO00
CA95
SE95
MX95
PT95
FR00
CZ00
IL05
PT05
DE05
SE05
SE00
KR95
PT00
CA00
BG95
NZ00
SI95
SK05
NO95
NL95
UK95
NZ05
ES00
FR05
NL00
BE00
DK05
MX00
BR05
GR00
NZ95
IE00
DK00
MX05
AU00
DK95
SI00
ES95
GR05
CL00


Participatory inequality between high vs. low educated citizens
Overall turnout (Source: IDEA)
40
30
20
10
0
-10
30
40
50
60
70
80
90
HU05
US95
AT05
PL05
PL95
SI05
AT00
LT05
US00
HU95
CH95
PL00
CZ05
SK00
BE95
CH05
HU00
UK05
FI05
RO00
CH00
LU00
FI95
FI00
BG05
KR00
NO00
SE95
CA95
PT95
MX95
JP00
BR00
FR00
UK00
BG00
NO05
RO95
CZ00
SE00
SE05
PT00
NZ00
SI95
KR05
SK05
BG95
NL95
UK95
CZ95
IT05
FR05
JP95
JP05
IE00
BE00
GR00
MX00
ES05
MX05
AU00
SI00
ES95
GR05
CL00


Participatory inequality between high vs. low educated citizens
Social expenditure (SOCX)
40
30
20
10
0
-10
10
20
30
US95
HU05
AT05
PL05
PL95
SI05
AT00
LT05
US00
HU95
CH95
PL00
BE95
HU00
UK05
FI05
RO00
CH00
LU00
FI00
FI95
BG05
KR00
CA95
NO00
SE95
MX95
PT95
JP00
BR00
RO95
BG00
UK00
NO05
FR00
KR95
PT05
DE05
SE00
NZ00
SI95
KR05
NL05
IT00
BE05
UK95
JP95
DE00
FR05
IE00
BE00
MX00
BR05
GR00
NZ95
DK05
ES05
DK00
MX05
AU95
DK95
AU00
SI00
ES95
GR05
CL00

III. REGRESSION MODELS WITH INTERACTION EFFECTS AND ALTERNATIVE VARIABLES

OLS regression on first differences between low and high educated citizens with alternative welfare capitalist variables

Variables	Model A1 all waves	Model A2 all waves	Model A3 all waves	Model A4 all waves	Model A5 all waves	Model A6 all waves
Protection (via engagement)						
Union density	0.043	0.036	0.023	0.026	-0.060	-0.301**
	(0.056)	(0.078)	(0.075)	(0.059)	(0.092)	(0.139)
Employment protection legislation	-1.518	-1.265	-1.903	-1.366	-1.355	-6.513***
	(1.416)	(1.472)	(1.590)	(1.367)	(1.606)	(2.481)
Support (via resources)						
Labor market expenditure % GDP	-1.886***	-2.268***	-2.610***	-1.833**	0.099	-2.181***
	(0.708)	(0.740)	(1.253)	(0.802)	(0.981)	(0.732)
Social expenditure %GDP	0.676***	0.750***	0.727*	0.642**		0.657**
	(0.259)	(0.269)	(0.379)	(0.300)		(0.256)
Public education expenditure %GDP	-0.516					
	(0.655)					
Wage coordination	0.677		0.692	0.734	0.813	0.851
	(1.027)		(1.372)	(1.084)	(1.649)	(0.989)
Coverage of wage bargaining		0.006				
		(0.063)				
VET, upper secondary enrollment rate			0.042			
			(0.065)			
Tertiary education gross enrollment rate				0.002	0.059	
				(0.046)	(0.084)	
Expenditure on primary education %GDP					-3.392	
					(2.736)	
Interaction term						

EPL*UD						0.153**
						(0.060)
Control						
Overall	-0.365***	-0.350***	-0.315***	-0.355***	-0.165	-0.335***
electoral	(0.084)	(0.097)	(0.115)	(0.092)	(0.162)	(0.086)
turnout						
Intercept	27.5***	24.3	20.6**	24.9***	25.5***	34.6***
	(7.826)	(6.672)	(8.262)	(6.847)	(7.951)	(7.403)
N	87	79	56	84	56	87
R-squared	0.39	0.37	0.35	0.38	0.18	0.44

*** p<0.01, ** p<0.05, * p<0.10

Table presents unstandardized coefficients with standard errors in parentheses. For models that include multiple waves, random effects were used and standard errors are clustered by country. Other interaction terms were not statistically significant

For data sources, see section III. Additionally, secondary vocational training enrollment rates are from UNESCO (2013)

The regression models presented in the table above (using the same method as those presented in the paper) show that the findings in the paper were robust. One important exception is that the effect of EPL seems sensitive to the specification of the model and excluding government intervention in wage coordination appears to make EPL's effect lose significance. None of the alternative welfare capitalist variables were statistically significant. We also tried interaction terms between each of the welfare capitalist variables included in the paper and only one was significant. The interaction between employment protection legislation and union density, as presented in Model A6 in the table above. In this model, both union density (which was not significant under any other specification) and employment protection legislation have a negative effect on participatory inequality. These were both features of a protective welfare capitalist system in our framework. The interaction effect is positive, which suggests that the impact of EPL is weaker when union density is higher and the impact of union density is weaker when EPL is higher. This supports our claim that welfare capitalist dimensions may serve as functionally equivalent alternatives for lowering participatory inequality, which motivated our QCA analysis.

Data sources for data not used in the paper:
Education variables all came from UNESCO Institute for Statistics (stats.uis.unesco.org)
Coverage of wage bargaining came from ICTWSS

IV. CALIBRATION FUNCTIONS, FOUR WELFARE CAPITALIST REGIME FEATURES AND OUTCOME "LOW PARTICIPATORY INEQUALITY"

Set	Base variable	0 anchor	0.5 anchor	1 anchor
Low participatory inequalities	First differences in participation between high and low educated	30	15	5
High wage coordination	Centralization of wage coordination	2	3.5	4.5
High union density	Union density	10	30	75
High labor market expenditure	Labor market expenditure, %GDP	0.5	1.75	4
High employment protection	Index of employment protection legislation	1	2	3

Membership in the outcome is calibrated as having low participatory inequality. Membership in the conditions are all calibrated such that high value on the respective base variables result in high set membership scores.

V. SET MEMBERSHIP SCORES OF ALL CASES IN FOUR WELFARE CAPITALIST REGIME FEATURES AND OUTCOME "LOW PARTICIPATORY INEQUALITY"

id	Low participatory inequality	High labor market expenditure	High wage coordination	High union density	High employment protection
AT00	0.02	0.55	0.91	0.70	0.72
AT05	0.00	0.59	0.91	0.16	0.55
BG95	0.97	0.47	0.09	0.98	0.98
BG00	0.92	0.12	0.01	0.61	0.91
BG05	0.51	0.02	0.01	0.25	0.50
CA95	0.81	0.80	0.00	0.62	0.00
CA00	0.97	0.20	0.00	0.56	0.00
CZ95	0.99	0.01	0.61	0.91	0.39
CZ00	0.94	0.01	0.01	0.58	0.39
CZ05	0.14	0.01	0.01	0.13	0.43
DK95	1.00	1.00	0.18	0.99	0.73
DK00	1.00	1.00	0.61	0.99	0.09
DK05	1.00	0.99	0.29	0.99	0.09
EE05	0.97	0.00	0.00	0.01	0.87
FI95	0.41	1.00	0.42	0.99	0.68
FI00	0.43	0.99	0.80	0.99	0.60
FI05	0.26	0.91	0.91	0.99	0.52
FR00	0.90	0.88	0.01	0.01	0.99
FR05	1.00	0.86	0.01	0.01	0.99
DE95	0.99	0.97	0.91	0.56	0.99
DE00	0.99	0.97	0.91	0.29	0.90
DE05	0.93	0.96	0.91	0.16	0.67
HU95	0.05	0.69	0.01	0.88	0.03
HU00	0.22	0.06	0.01	0.51	0.03
HU05	0.00	0.03	0.01	0.06	0.07
IS05	0.98	0.00	0.91	1.00	0.02
IE00	1.00	0.84	1.00	0.83	0.01
IL05	0.95	0.07	0.01	0.62	0.05
IT00	0.99	0.15	0.91	0.65	0.99
IT05	0.98	0.18	0.91	0.60	0.39
JP95	0.99	0.02	0.91	0.23	0.32
JP00	0.86	0.03	0.61	0.15	0.11
JP05	0.99	0.02	0.18	0.09	0.07
KR95	0.96	0.00	0.91	0.02	0.97
KR00	0.75	0.01	0.68	0.01	0.81
KR05	0.99	0.00	0.18	0.01	0.53
LT05	0.02	0.01	0.00	0.06	0.98

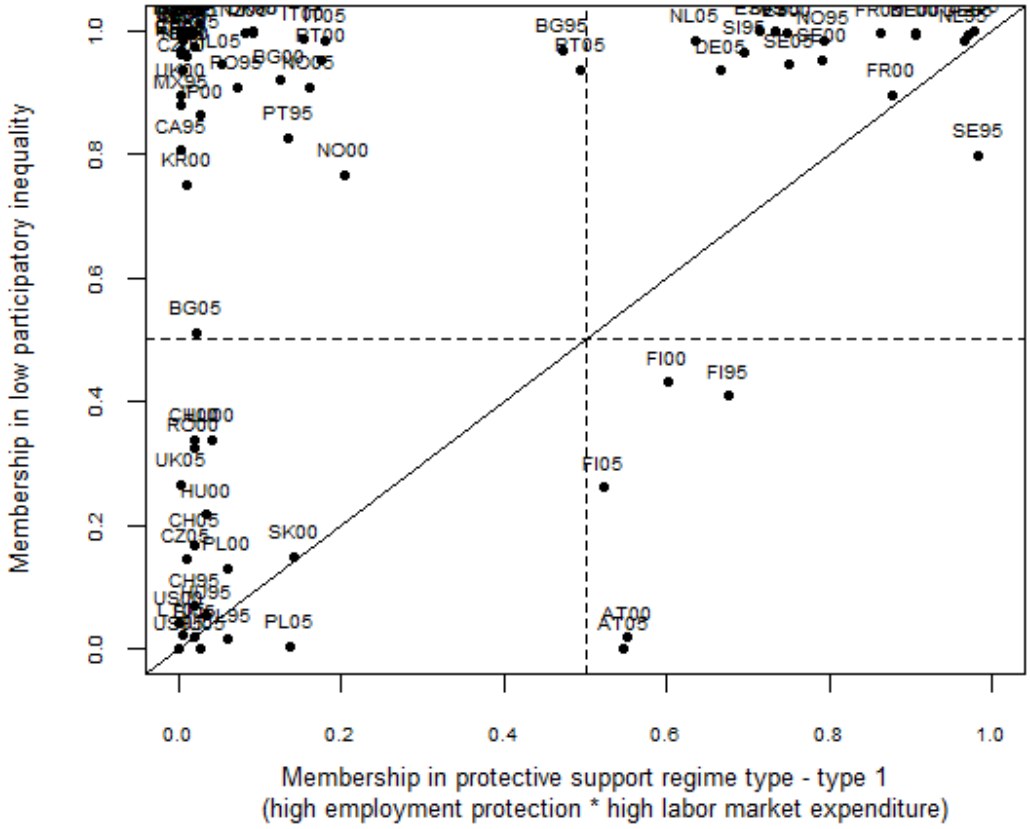
id	Low participatory inequality	High labor market expenditure	High wage coordination	High union density	High employment protection
LU00	0.34	0.04	0.01	0.79	1.00
MX95	0.88	0.00	0.01	0.11	0.99
MX00	1.00	0.00	0.01	0.04	0.99
MX05	1.00	0.00	0.01	0.06	0.99
NL95	0.98	0.99	0.91	0.24	0.97
NL00	0.99	0.99	0.91	0.22	0.90
NL05	0.98	0.96	0.91	0.12	0.63
NZ95	1.00	0.76	0.00	0.60	0.01
NZ00	0.96	0.60	0.00	0.16	0.01
NZ05	0.99	0.11	0.00	0.12	0.08
NO95	0.98	0.79	0.99	0.95	0.98
NO00	0.77	0.20	0.96	0.93	0.95
NO05	0.91	0.16	0.96	0.93	0.93
PL95	0.01	0.71	0.00	0.54	0.06
PL00	0.13	0.19	0.00	0.37	0.06
PL05	0.00	0.18	0.00	0.13	0.14
PT95	0.83	0.13	0.29	0.30	1.00
PT00	0.95	0.17	0.42	0.19	1.00
PT05	0.94	0.49	0.02	0.12	1.00
RO95	0.91	0.07	0.01	0.99	0.98
RO00	0.32	0.02	0.01	0.82	0.98
SK00	0.15	0.14	0.61	0.61	0.29
SK05	0.98	0.02	0.10	0.29	0.10
SI95	0.96	0.69	0.10	0.86	1.00
SI00	1.00	0.01	0.98	0.79	0.99
SI05	0.02	0.02	0.91	0.74	0.91
ES95	1.00	0.98	0.18	0.04	1.00
ES00	0.99	0.75	0.18	0.04	0.99
ES05	1.00	0.71	0.80	0.04	0.99
SE95	0.80	1.00	0.91	1.00	0.98
SE00	0.95	0.99	0.18	1.00	0.79
SE05	0.95	0.83	0.18	0.99	0.75
CH95	0.07	0.22	0.91	0.16	0.02
CH00	0.34	0.46	0.18	0.17	0.02
CH05	0.17	0.26	0.18	0.09	0.02
UK95	0.99	0.20	0.00	0.66	0.00
UK00	0.90	0.02	0.00	0.53	0.00
UK05	0.27	0.02	0.00	0.47	0.00
US95	0.00	0.02	0.00	0.03	0.00
US00	0.04	0.01	0.00	0.02	0.00

VI. TESTS OF NECESSITY, FOUR WELFARE CAPITALIST REGIME FEATURES AND THEIR LOGICAL COMPLEMENTS, OUTCOME "LOW PARTICIPATORY INEQUALITY"

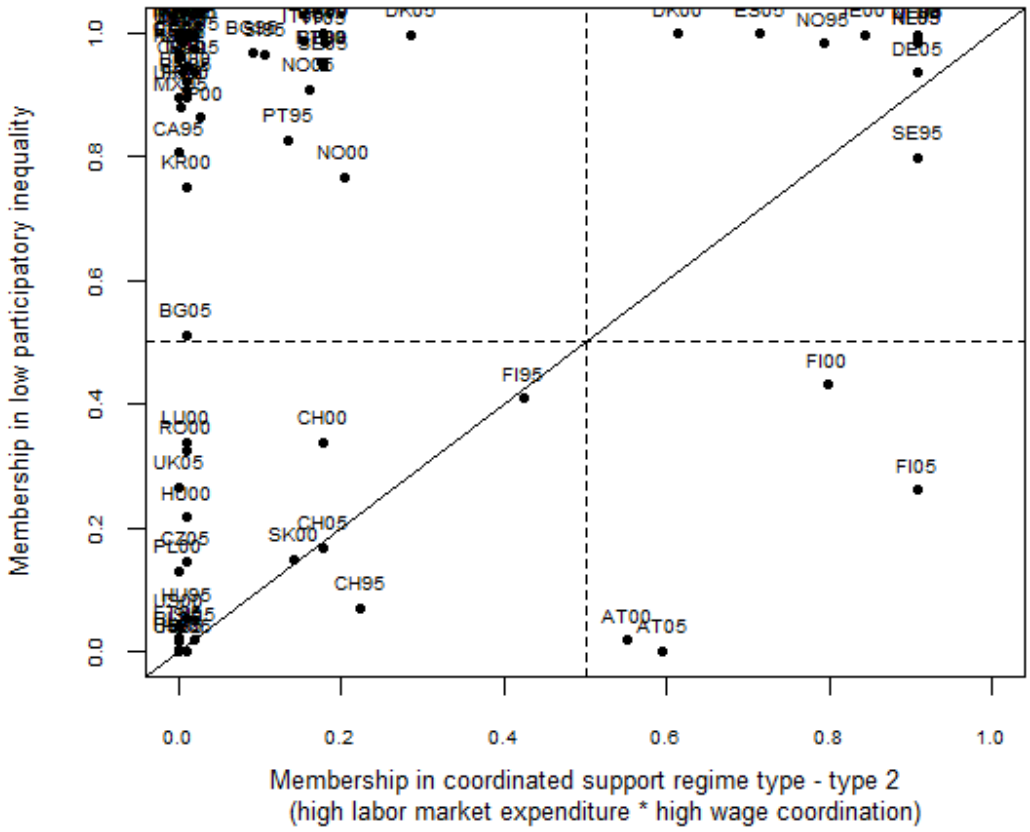
	Consistency	Coverage	Relevance
High wage coordination	0.427	0.811	0.900
High union density	0.508	0.779	0.841
High employment protection	0.645	0.837	0.837
High labor market expenditure	0.463	0.83	0.900
Not-high wage coordination	0.623	0.699	0.662
Not- high union density	0.560	0.732	0.761
Not-high employment protection	0.414	0.641	0.768
Not-high labor market expenditure	0.588	0.684	0.673

VII. XY PLOTS, THREE SUFFICIENT WELFARE CAPITALIST TYPE AND SOLUTION FORMULA, OUTCOME "LOW PARTICIPATORY INEQUALITY"

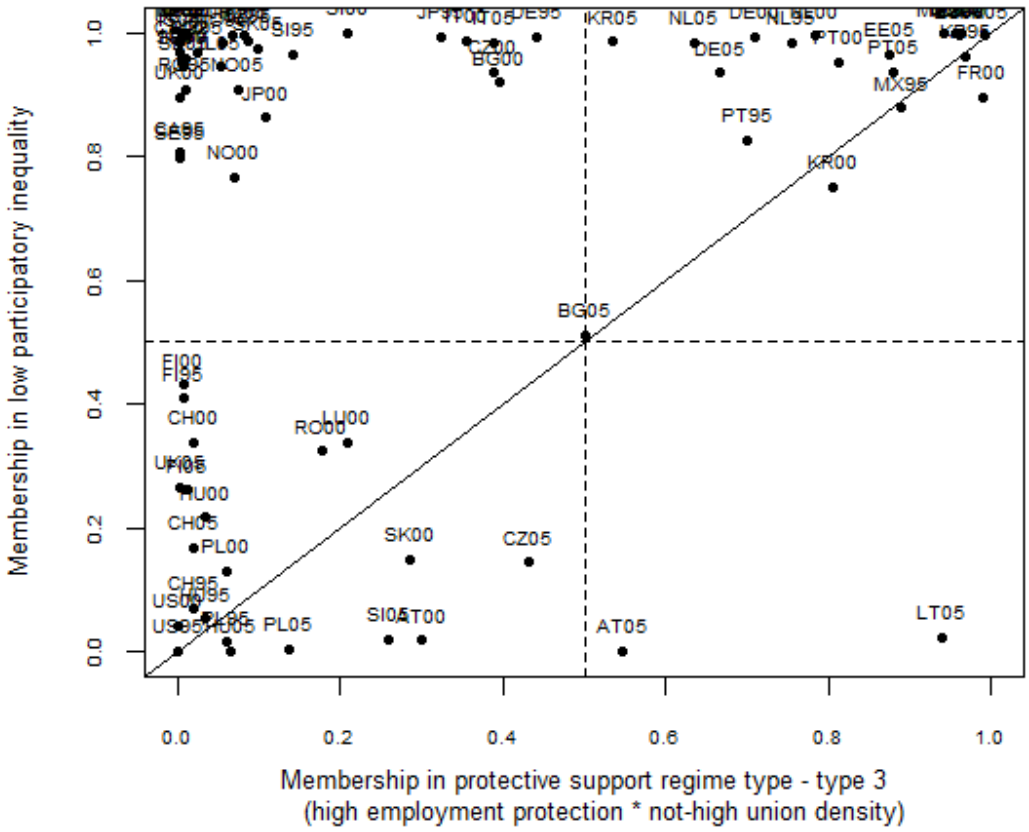
XY Plot for Type 1 "Protective Support Regime Type"



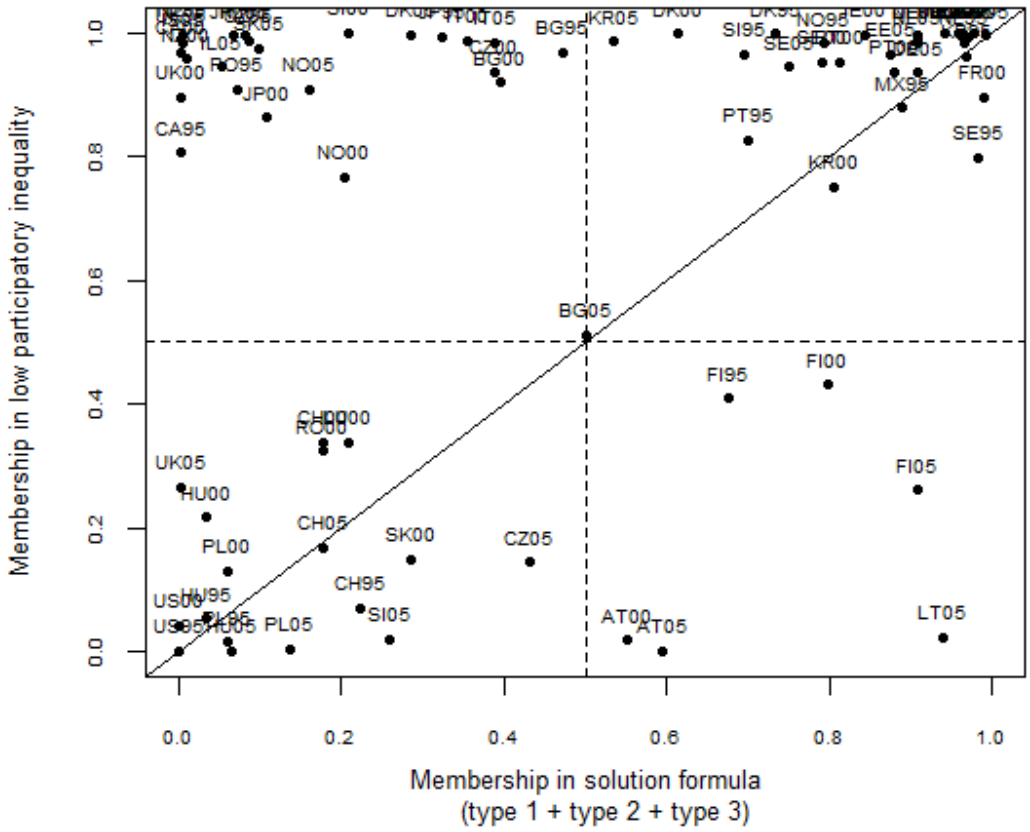
XY Plot for Type 2 "Coordinated Support Regime Type"



XY Plot for Type 3 "Unorganized Protection Regime Type"



XY Plot for Solution Formula



VIII. ROBUSTNESS TESTS, CHANGE OF 0.5 QUALITATIVE ANCHOR FOR OUTCOME LOW PARTICIPATORY INEQUALITY, +/- 5% ON FDE SCALE

Findings generated by set-theoretic methods are subject to the criterion of robustness (Skaaning 2011) much like any other empirical comparative technique. One of the crucial decisions made by the researchers against which results should be robust is the calibration of the outcome set, and here in particular the location of the 0.5 qualitative anchor (Schneider and Wagemann, 2012).[ii] We test whether our findings are robust against equally plausible calibration functions for our outcome low participatory inequality by altering the location of the 0.5 qualitative anchor by plus and minus 5% of its original location on the fde scale. That is, we check if our results change if the 0.5 anchor is placed at 15.75% and 14.25% on the fde scale, respectively.

0.5 qualitative anchor at 15% on fde scale (original calibration)

	(1) Protective support	(2) Coordinated support	(3) Unorganized protection
High employment protection	●		●
High labor market expenditure	●	●	
High wage coordination		●	
High union density			○
Consistency	0.893	0.849	0.885
Raw coverage	0.331	0.249	0.396
Unique coverage	0.053	0.045	0.201
Solution consistency	0.869		
Solution coverage	0.577		

● = core condition (present); ○ = core condition (negated)

0.5 qualitative anchor at 15.75% on fde scale

	(1) Protective support	(2) Coordinated support	(3) Unorganized protection
High employment protection	●		●
High labor market expenditure	●	●	
High wage coordination		●	
High union density			○
Consistency	0.902	0.858	0.889
Raw coverage	0.330	0.248	0.392
Unique coverage	0.053	0.044	0.199
Solution consistency	0.877		
Solution coverage	0.573		

● = core condition (present); ○ = core condition (negated)

Increasing the location of the 0.5 qualitative anchor on our measure of participatory inequality scale (fde) makes it less demanding to be a member in the set of low participatory inequality, i.e. the set becomes bigger. This in turn makes it easier for conditions to be a subset of the outcome, i.e. consistency values should become higher and coverage values lower. Despite this, the solution formula is identical. In addition, all parameters of fit remain virtually unchanged.

0.5 qualitative anchor at 14.25% on fde scale

	(1) Protective support	(2) Coordinated support	(3) Unorganized protection
High employment protection	●	○	●
High labor market expenditure	●	●	
High wage coordination	○	●	
High union density			○
Consistency	0.946	0.819	0.877
Raw coverage	0.196	0.100	0.399
Unique coverage	0.055	0.041	0.270
Solution consistency	0.883		
Solution coverage	0.519		

● = core condition (present); ○ = core condition (negated)

The solution formula is a subset of the original solution. For ease of interpretation, for each welfare regime type, in the table above we highlight in yellow those elements (INUS conditions) that are added to the original solution. The protective support type is further specified by requiring not only high employment protection and high labor market expenditure, but also the absence of high wage coordination. Likewise, the coordinated support type is further specified by not only requiring high labor market expenditure and high wage coordination, but also the absence of high employment protection. None of these changes contradicts our substantive interpretation of the results. Furthermore, the parameters of fit are substantively similar to the ones from the original solution. Because the new solution is a

subset of the original term, consistency is slightly higher and coverage slightly lower. These differences are too small to be of any substantive importance, though.

We thus conclude that our QCA findings are robust against alternative, plausible calibrations for outcome low participatory inequality.

IX. REFERENCE LIST

Schneider, C. Q. and Wagemann, C. (2012) *Set-Theoretic Methods for the Social Sciences: A Guide to Qualitative Comparative Analysis*, Cambridge, Cambridge University Press.

Skaaning, S.-E. (2011) "Assessing the Robustness of Crisp-Set and Fuzzy-Set QCA Results," *Sociological Methods & Research*, **40**, 391–408.

[i] For countries where data was not available for EPL and expenditure on labor market programs, we used country-level reports using comparable methodology in order to be able to include these countries in our analysis.

[ii] Other decisions include the raw consistency threshold, the calibration of conditions, and the selection of cases.