Online Appendix

From Immigration over Redistributive Attitudes to Welfare Spending. The Moderating Role of Social Program Design

The Online Appendix serves three main purposes. First, being transparent about the data and the way the indices of natives' interest are constructed. Second, it ensures and facilitates the replicability of the results. Third, the Online Appendix examines the robustness of the individual and country-level results.

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1. Data, sources and distributions

Table A1: Data and sources

Dependent Variables	Obs.	Mean	Std. Dev.	Min	Max	Description and source
Individual level						
Government should spend money: unemployment benefits	49,184	3.00	0.98	1	5	We reversed the coding to "spend much less" (1), "spend less" (2), "spend the same" (3), "spend more" (4) and "spend much more" (5). (ISSP 2008)
Gov. responsibility: provide living standard for unemployed	49,363	2.13	0.84	1	4	We reversed the coding to "Definitely should not be" (1), "Probably should not be" (2), "Probably should be" (3) and "Definitely should be" (4). (ISSP 2008)
Government should spend money: retirement	49,622	2.31	0.82	1	5	We reversed the coding to "spend much less" (1), "spend less" (2), "spend the same" (3), "spend more" (4) and "spend much more" (5). (ISSP 2008)
Gov. responsibility: provide living standard for the old	51,174	1.48	0.62	1	4	We reversed the coding to "Definitely should not be" (1), "Probably should not be" (2), "Probably should be" (3) and "Definitely should be" (4). (ISSP 2008)
Country level						
Public unemployment spending as percentage of GDP	548	1.41	1.06	0.07	5.27	Public unemployment spending is defined as expenditure on cash benefits for people to compensate for unemployment. This includes redundancy payments from public funds, as well as the payment of pensions to beneficiaries before they reach the standard pensionable age, if these payments are made because the beneficiaries are out of work or for other labour market policy reasons. This indicator is measured in percentage of GDP. (OECD 2020a).
Public spending on incapacity (sickness/disability) as a percentage of GDP	558	2.55	1.31	0.55	6.11	Public spending on incapacity refers to spending due to sickness, disability and occupational injury. It includes disability cash benefits that are comprised of cash payments on account of complete or partial inability to participate gainfully in the labour market due to disability. The disability may be congenital, or the result of an accident or illness during the victim's lifetime. It also includes spending on occupational injury and disease, which records all cash payments such as paid sick leave, special allowances and disability-related payments such as pensions, if they are related to specific occupational injuries and diseases. Sickness cash benefits related to loss of earnings because of a temporary inability to work due to illness are also recorded. This indicator excludes paid leave related to sickness or injury of a dependent child which is recorded under family cash benefits. Social expenditure on services for disabled people encompasses services such as daycare and rehabilitation services, home-help services and other benefits in kind. This indicator is measured in percentage of GDP (OECD 2020b).
Public spending on pension as percentage of GDP	558	7.06	2.49	2.57	14.42	Pension spending is defined as all cash expenditures (including lump-sum payments) on old-age and survivors pensions. Old-age cash benefits provide an income for persons retired from the labour market or guarantee incomes when a person has reached a 'standard' pensionable age or fulfilled the necessary contributory requirements. This category also includes early retirement pensions: pensions paid before the beneficiary has reached the 'standard' pensionable age relevant to the programme. It excludes programmes concerning early retirement for labour market reasons. Old-age pensions include supplements for dependants paid to old-age pensioners with dependants under old-age cash benefits. Old age also includes

						social expenditure on services for the elderly people, services such as day care and rehabilitation services, home-help services and other benefits in kind. It also includes expenditure on the provision of residential care in an institution. This indicator is measured in percentage of GDP broken down by public and private sector. Private pension spending includes payments made to private pension plan members, or dependants after retirement and covers persons working in both the public and private sectors (OECD 2020c)
Main Independent Variables	**Obs.**	**Mean**	**Std. Dev.**	**Min**	**Max**	**Description and source**
Share of immigrant population	558	10.16	5.96	0.69	23.21	International migrants as a percentage of total population. The data presents estimates of international migrant by age, sex and origin. Estimates are presented for 1990, 1995, 2000, 2005, 2010. The estimates are based on official statistics on the foreign-born or the foreign population calculated by the United Nations (2019). **Note: These data are provided every five years and we use linear interpolation and extrapolation to supply the missing values.**
Natives' interest in unemployment benefits	558	0.21	0.21	0	1	Own calculation. See section 2 for a detailed description.
Natives' interest in sickness/disability benefits	558	0.23	0.22	0	1	Own calculation. See section 2 for a detailed description. 9 observations are missing (Germany 1991-1999).
Natives' interest in pension benefits	558	0.25	0.21	0	1	Own calculation. See section 2 for a detailed description.
Controls						
Individual level						
Female	52,427	1.51	0.50	1	2	Male (0), female (1) (ISSP 2008)
Age	52,073	46.47	16.82	16	98	Age in years (ISSP 2008)
Educational degree	52,096	2.69	1.46	0	5	No formal qualification (0), Lowest formal qualification (1), Above lowest qualification (2), Higher secondary completed (3), Above higher secondary level (4), University degree completed (5) (ISSP 2008)
Ideology (right to left)	35,228	3.06	0.94	1	5	Based on party affiliation: Far right (1), right, conservative (2), center, liberal (3), left, center left (4), far left (5) (ISSP 2008)
Union member	52,584	1.03	0.62	0	2	Union member (1), no union member (0) (ISSP 2008)
unemployed	52,584	0.01	0.11	0	1	Based on current employment status variable (spwrkst): unemployed (1), all other (0) (ISSP 2008)
retired	52,584	0.09	0.29	0	1	Based on current employment status variable (spwrkst): retired (1), all other (0) (ISSP 2008)
Permanently disabled	52,584	0.01	0.09	0	1	Based on current employment status variable (spwrkst): permanently disabled (1), all other (0) (ISSP 2008)

Country level	Obs.	Mean	Std. Dev.	Min	Max	Description and source
Leftness of the government	558	33.04	37.30	0	100	Government composition: cabinet posts of social democratic and other left parties in percentage of total cabinet posts. Weighted by the number of days in office in a given year (Armingeon et al. 2020)
Inflation	558	3.60	3.48	-4.48	21.06	Growth of harmonised consumer price index (CPI), all items, percent change from previous year; used as a measure for inflation (OECD 2020d)
Real GDP growth	558	2.37	2.3	-8.27	11.27	Growth of real GDP, percent change from previous year.
Post-industrialization	558	67.11	7.15	47.83	81.27	Non-industrial employment as a percentage of total employed population. Own calculation based on (AMECO 2020).
Public debt	558	64.41	31.75	13.44	193.20	Gross general government debt (financial liabilities) as a percentage of GDP (OECD 2020e)
Open economy	558	69.46	34.15	15.92	183.62	Openness of the economy, measured as total trade (sum of import and export) as a percentage of GDP, in current prices (Feenstra et al. 2015).
Unemployment	558	6.63	3.03	0.18	16.8	Unemployment rate, percentage of civilian labour force (AMECO 2020)
Primary balance	556	-0.68	3.11	-24.74	7.84	Cyclically adjusted annual deficit excluding net interest payments (cyclically adjusted primary balance of general government) as a percentage of potential GDP (OECD 2020f). Two observations are missing (New Zealand 1980 and Switzerland 1980).
Share of elderly	558	14.39	2.46	9.10	23.02	Population over 65, as a percentage of population (AMECO 2020).

Table A2: Distributions of controls (calculated with the package ebalance in Stata (Hainmueller & Xu 2013)

Share of immigrant population	"Treatment" (above mean)			"Control" (below mean)		
	mean	variance	skewness	mean	variance	skewness
Left wing government	***36.56***	***1648***	***0.6087***	***29.68***	***1124***	***0.7826***
Inflation	***3.13***	***8.697***	***2.132***	***4.013***	***14.59***	***1.88***
GDP Growth	2.325	5.125	-0.4577	2.422	5.475	-0.4252
Post industrialism	69.28	49.43	-0.6932	65.04	43.26	-0.4093
Public debt	***54.55***	***416.8***	***0.07037***	***74.32***	***1409***	***0.7706***
Open Economy	67.93	1037	1.34	71.01	1302	0.5995
Unemployment rate	***6.254***	***6.779***	***0.07737***	***7.044***	***11.13***	***0.7049***
Public deficit	***-0.2482***	***9.104***	***-2.174***	***0.1113***	***10.31***	***-0.1308***
Share of the elderly	13.94	5.936	0.3153	14.85	5.789	0.2605
Natives' interest Unemployment	"Treatment" (above mean)			"Control" (below mean)		
	mean	variance	skewness	mean	variance	skewness
Left wing government	***30.87***	***1309***	***0.8219***	***35.34***	***1475***	***0.6277***
Inflation	3.366	10.08	2.215	3.78	13.53	1.896
GDP Growth	2.318	4.139	-1.056	2.429	6.461	-0.1338
Post industrialism	69.43	46.13	-0.8426	64.87	45.09	-0.2003
Public debt	61.36	578.5	1.308	67.57	1427	0.8312
Open Economy	71.47	857.3	0.3128	67.48	1479	1.229
Unemployment rate	6.675	10.22	0.5175	6.626	8.019	0.6929
Public deficit	***-0.3298***	***7.24***	***-0.1927***	***0.1942***	***12.1***	***-1.503***
Share of the elderly	14.36	3.8	-0.2489	14.44	8.335	0.3867
Natives' interest sickness/disability	"Treatment" (above mean)			"Control" (below mean)		
	mean	variance	skewness	mean	variance	skewness
Left wing government	***35.14***	***1278***	***0.5147***	***31.02***	***1510***	***0.9176***
Inflation	3.075	7.549	1.547	4.082	15.73	1.987
GDP Growth	2.271	5.088	-1.014	2.479	5.5	0.0728
Post industrialism	66.66	50.69	-0.4185	67.66	50.48	-0.4638
Public debt	***68.5***	***1202***	***1.293***	***60.34***	***785***	***0.5208***
Open Economy	***79.41***	***1290***	***0.4186***	***59.32***	***847.8***	***1.686***
Unemployment rate	***5.821***	***7.085***	***0.9339***	***7.498***	***9.774***	***0.2714***
Public deficit	***0.002894***	***8.373***	***-0.2542***	***-0.14***	***11.13***	***-1.536***
Share of the elderly	15.21	4.786	0.2436	13.57	6.021	0.5795
Natives' interest Pension	"Treatment" (above mean)			"Control" (below mean)		
	mean	variance	skewness	mean	variance	skewness
Left wing government	***35.95***	***1292***	***0.609***	***29.98***	***1494***	***0.8687***
Inflation	3.444	12.23	1.967	3.714	11.39	2.175
GDP Growth	2.075	4.826	-1.031	2.702	5.621	-0.001273
Post industrialism	64.92	53.59	-0.08739	69.6	36.29	-0.7797
Public debt	67.28	1085	1.241	61.38	914.9	0.8731
Open Economy	***64.57***	***567.2***	***0.1467***	***74.85***	***1782***	***0.7431***
Unemployment rate	***5.734***	***8.901***	***0.6623***	***7.657***	***7.419***	***0.961***
Public deficit	***-0.4854***	***8.055***	***-0.3392***	***0.3908***	***11.19***	***-1.66***
Share of the elderly	15.32	5.891	0.151	13.38	4.288	0.1454

2. Detailed description of the index construction of natives' interest in welfare

We construct indices of natives' interest in social programmes, which we treat as moderators for the effect of the foreign-born population on individual attitudes and on welfare spending. These indices are calculated separately for each social area (unemployment, sickness/disability, and pensions), using data offered by the Social Insurance Entitlement Dataset and its successor, the Social Citizenship Indicator Program (Swedish Institute for Social Research 2015a and 2015b).

For each of the three social areas, we construct an index for natives' interest based on three different dimensions of the welfare programme – coverage, generosity and stratification. We thereby aim to capture the natives' interest in the welfare programmes.

Coverage is defined by the share of the population with access to the programme. The more people have access to a welfare programs, the more difficult it is to retrench it. In the vast majority of observations coverage ratios are above 80% in all three welfare domains. The only exception are created by the existence of a means-test, which is a more redistributive way to manage access to welfare and can be seen as relatively benefitting immigrants more than natives. In cases where means-tests are highly prohibitive and exclude relevant parts of the native population from access to those welfare schemes, we can expect that natives' interest in those programmes decline. The question remains what a relevant parts of the population might be. In some cases the data of the Social Insurance Entitlement Dataset and its successor, the Social Citizenship Indicator Program coded coverage rates as zero where means-tests exist and sometimes they provided coverage rates despite a means-test being in place. The exact character of a means-test can indeed have very different effects on the access to that program. According, we qualitatively checked every case where means-tests have been indicated by the data and discussed potential coverage rates. For example in Australia, the access to all three programmes (unemployment, sickness leave and public pension) is regulated by a means-test. According to our own calculations, the means-tests in unemployment benefits and sickness leave is prohibitive for on average 40% of the Australian labour force, whereas the means-test for pension excludes "only" about 20% of the population. Means-tests in France or Denmark in the pension scheme simply check for additional income and accordingly hardly have any effect for the access to the program. We divided coverage rates by 100 because we standardize all index components to a range between 0 and 1.

We capture generosity with two components: general replacement levels and a temporal component, depending on the period over which replacements are granted. For the former, we

use the replacement rate of an average production worker in the first 26 weeks. As for the latter, we standardize (0-1) the maximum replacement period, which empirically ranges from 9 to 364 weeks in the case of unemployment and 0 to 260 weeks in the case of sickness leave and add the value to the generosity score which naturally ranges from 0 to 100 average replacement (equally standardized 0-1). In the case of pension, the temporal dimension does not apply because pensions are paid for the entire remaining lifetime.

The third dimension is stratification. The level of stratification is defined as the ratio of the maximum benefit level and the benefit level for an average production worker. Thus, stratification captures the differences in replacement rates which are typical for contribution based systems. Natives' benefit relatively more from high levels of stratification because they have empirically higher contributions and longer contribution periods. Stratification ranges from 1 to virtually infinite. We decided to use the natural logarithm of stratification before standardization because the 0-1 transformation would highly underweight the stratification components. The reason is, that some countries have in specific periods extraordinary high stratification rates (for example France). The remaining observations are accordingly skewed to an extend they are empirically hardly discriminatory anymore. For example, we would consider a country where maximum replacement rates are threefold as high as the average replacements as rather stratified, but due to the outlier of France, such a difference would hardly matter anymore in the standardized index. The natural logarithm corrects for this skewed distribution. But even with the logarithm, the mean of stratification is significantly lower than the mean of generosity in the entire sample. Accordingly, we adjust stratification with a welfare scheme specific multiplier to achieve an equal weighting across generosity and stratification (the multiplier is 3 in the case of unemployment and sickness/disability and 2 in the case of pension). Finally, we standardize all three indices to a range from 0 and 1.

Figure A1: The index of natives' interest in welfare

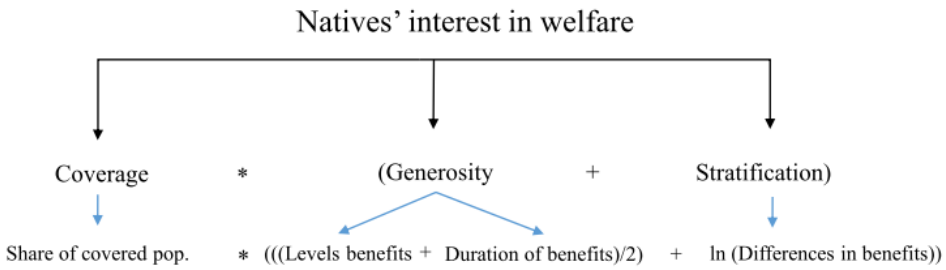


Figure A1 depicts all three levels of our index, from the overall concept of natives' interest to its components and the level of measurement. Furthermore, Figure A1 clarifies what Goertz (2006) would call the degree of substitutability, which is at the core of relating the index components. The first dimension of coverage or access determines whether generosity is seen as positive or negative and it is, therefore, multiplicatively related to generosity and stratification. Without coverage there is no interest to protect a system from retrenchment. For example, the health care system in the USA provides no access because coverage is zero and accordingly there is no vested interest in protecting something from retrenchment which is not existent.

Generosity and stratification are added, because we do not assume perfect substitutability. Perfect substitutability would have meant that the level of generosity is meaningless if there is no stratification, something we explicitly reject because we argued higher generosity (in cases of high coverage) is more in the interest of natives than low generosity (stratification level being equal), and *vice versa*. The reason is, that low generosity level are of minor interest for average and above average income earners whereas they remain relatively important for low income strata where immigrants are empirically more frequent.

In short, the index construction was approached along four steps. First the raw data of the Swedish Institute for Social Research were checked and minor flaws corrected. Second, we manually analysed programme specific means-test in order to determine the coverage rate because the precise design of means-tests has a strong impact on the de facto coverage for a specific program. Third, all variables were interpolated and fourth connected as illustrated in Figure A1 and Equation 1 to 4.

$$NI = (Coverage\ standardized) \times (Generosity\ standardized + (Stratification\ standardized\ x\ program\ multiplier))\ ^{1} \qquad \text{(Eq. 1)}$$

Coverage standardized equals

$$= \frac{Coverage - Coverage(min)}{Coverage(max) - Coverage(min)} \quad \text{(Eq. 2)}$$

[1] The program specific multipliers are 2 for pension and three for sickness/disabilities.

Generosity standardized equals

$$= \left(\frac{(Generosity\ Level + Duration) - (Generosity\ Level + Duration\ (min))}{(Generosity\ Level + Duration\ (max)) - (Generosity\ Level + Duration\ (min))} \right) \text{(Eq. 3)}$$

And stratification standardized equals

$$= \left(\frac{\ln\left(\frac{Maximum\ Benefits}{Full\ Benefits}\right) - \ln\left(\frac{Maximum\ Benefits}{Full\ Benefits}\right)(min)}{\ln\left(\frac{Maximum\ Benefits}{Full\ Benefits}\right)(max) - \ln\left(\frac{Maximum\ Benefits}{Full\ Benefits}\right)(min)} \right) \text{(Eq. 4)}$$

Detailed coding decisions

Natives' interest in unemployment benefits:

Coverage: Coverage is measured by Unemployment insurance coverage ratio as proportion of labour force. In our sample only New Zealand and Australia have means-tests for unemployment benefits (France from 1960-65; there might be a coding error in Poland (means-test coded in fact there is none) but this country is excluded from our analysis anyways).

Accordingly, New Zealand and Australia deserve a closer look to understand the relationship of means-tests and coverage. In Australia and New Zealand the means-tests are applied to the so called *jobseeker* program which also includes people who are unable to work because of sickness or disability and thus, is applicable for the next sub-index too (sickness/disability benefits). A closer look at the means-tests reveal an income and asset component in the case of Australia and only an income component in the case of New Zealand.

Based on the official threshold and empirical wealth distributions, we tried to calculate the de facto coverage rates for both countries. For example, in Australia, singles (homeowners) with more than A$ 268.000 or singles without homeownership (A$ 482.500) are not eligible to jobseeker benefits. Based on asset and debt distribution (debt is considered in the means-test), roughly 40% of the population is not eligible for either jobseeker benefits and/or sickness leave benefits in Australia (compare RBA 2009 for the asset and debt distributions in Australia). In 1980, we might roughly estimate an 80% coverage rate decreasing to around 60% in 2010 (which highly discriminates against older people, since their asset to debt ratio is considerably higher and the contribution based pillar of the pension system (superannuation) is considered in both, the asset and income test). In the original data, coverage has been coded zero but the

income test is hardly prohibitive, because everybody is eligible for full benefits unless weekly income is below 300A$ (roughly 190€ gross weekly).

New Zealand applies no asset means-test but an income tests which might include the income of partners. In 2020, a single can earn NZ$ 212 a week (gross) without payments being affected but they turn to zero once NZ$ 262 (gross a week; roughly 150€) is reached. This is hardly prohibitive for anybody without income and employed partner. Accordingly, we might estimate coverage rates of 60% which would be equivalent to the Australian coverage in 2010 but for a different reason. Whereas in Australia the asset test prohibits higher coverage, in New Zealand earning partners mainly cause lower coverage.

Stratification: Stratification is measured by dividing the maximum amount of average weekly gross single worker benefit over a 26-week spell by the standard amount of average weekly gross single worker benefit over a 26-week spell. In a few cases the maximum benefits are strangely smaller than the standard benefits. In this cases we replaced the maximum benefits with the standard benefits. The cases affected in our sample are all in Finland. We test the effect of removing Finland from the analysis in the robustness section. In 1995, a measure of the maximum amount of average weekly gross single worker benefit in Germany is missing and, thus, observations from 1991 to 1999 are missing in Germany.

We also considered using the ratio of maximum to *minimum* benefits as an alternative way of measuring stratification, but two reasons led us to prefer the solution described above. First, minimum benefits have the highest amount of missings in the data and, second, minimum benefits can strongly be affected by special rules which apply only to very specific constellations. Stratification is standardized (0-1) before it is added to the other components of the index

Natives' interest in sickness/disability benefits:

The procedure for sickness/disability almost exactly mirrors the one for unemployment benefits, but the coverage ratio refers to the proportion of population instead of the labour force. The USA is the only country in the sample where coverage is zero and there is no means-test. Since coverage and generosity is zero in the USA, this systems is coded zero for sickness/disability for the entire time span. In a few cases the maximum benefits are strangely smaller than the standard benefits. In this cases we replaced the maximum benefits with the standard benefits. The cases affected in our sample are in Switzerland, Italy and Finland. We test the effect of removing these three countries from the analysis in the robustness section.

Natives' interest in pension benefits:

Coverage: In the case of pensions we have to qualitatively assess the meaning of means-test in the following countries (Australia from 1980 to 2010; Denmark from 1980 to 2010; France from 2000-2010 and Italy only in the year 2000). Means-tests in the domain of pensions typically check eligibility on the basis of assets and/or additional income. For example, in the Australian case, asset (introduced in 1985) and income checks (introduced in 1976) can lead to either no government pensions or to a marginal reduction of public pension. Furthermore, Australia has a second compulsory pillar of contribution based system (the so called superannuation or simply "super") which is constantly gaining importance (envisaged to be based on a 12% income contribution in 2027). The superannuation is taken into account for both the asset and income test. The thresholds for assets are equal to those described in the domain of unemployment and sickness/disability but on top have a second range for partial public pension pay-offs (A$ 583.000 for homeowners and A$ 797.000 for non-homeowners). The income thresholds are A$ 178 gross fortnight and partial reduction of 50 cents for each dollar over A$ 178. Since it is easy to reduce income below the threshold, we apply the calculation of coverage on the basis of the asset test but this time based on assets distributions within the range of the share of the population 65 and older and arrive at estimates of 60% coverage. Fortunately, there are also official sources which count the people receiving public pensions as well. For example in 2007 around 1.9 million Australians received public pensions whereas the eligible population was around 3.5 million (Harmer 2008). Accordingly, roughly 54% of the population above 64 years are empirically covered. Pension age in Australia is slowly changing from 65 years and 6 months to 67 until 2023. Since residence requirements (10 years) have been stable for the entire time span, we use the coverage as indicated by the SPIN data.

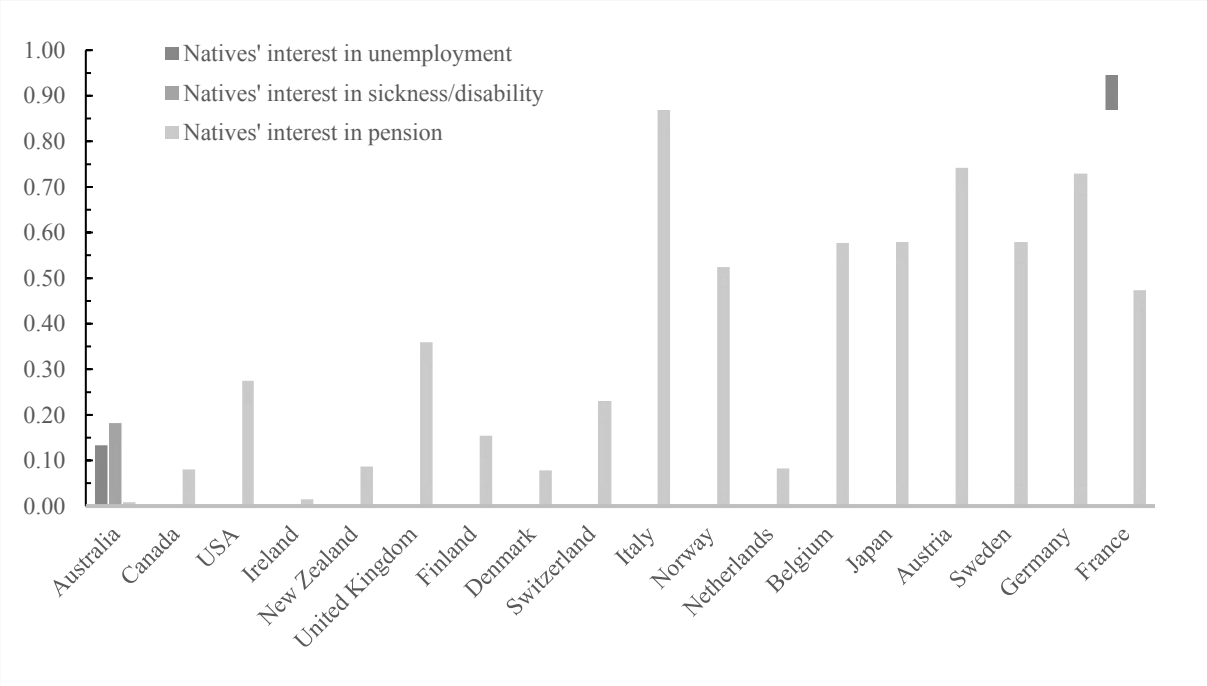
In Denmark, the means-test does not affect universal coverage because in cases of income above a changing threshold (in 2019 around € 45.000 annual income) universal pension are reduced by 30% of any income that exceed that amount.

In France the pension system has two public mandatory tiers: a defined benefit public pension and compulsory occupational schemes, based on a points system. The defined benefit scheme also has a means-tested minimum contributory pension (minimum contribution). In addition, there is a targeted minimum income for the elderly (ASPA). Full-career workers will rarely be eligible for the old-age assistance programme, since the mandatory occupational pension supplements the first-tier public pension (OECD 2017). In short, in the case of France we stick

to the coverages rates as calculated by the Swedish Institute for Social Research (2015a and 2015b) - ranging from 56% to 64% across time. For Italy, we equally used the same coverage data as for France since the means-test is only indicated for a single year. In the case of pensions coverage relates to the ratio of the population 65 years and older.

Stratification: Stratification consists of the ratio of the maximum benefit for a single person per year (refers to the income-related benefits above that of an APW wage) and the standard old-age pension benefit for a single average production worker per year (refers to the case where the conditions are fulfilled to the widest extent possible). In a few cases the maximum pensions are strangely smaller than the standard pensions. In this cases we replaced the maximum pensions with the standard pensions. The cases affected in our sample are all in Finland. We test the effect of removing Finland from the analysis in the robustness section. Between 1991 and 1999, measures of the maximum amount of average weekly gross single worker benefit in Germany are missing and, thus, those nine observations are missing. Figure A2 provides an overview of the average country values of natives' interest across all three welfare programs.

Figure A2: Natives' interest in different benefits by country



3. Robustness of the individual level analysis

We put the effects of immigration on individual support for welfare spending under several robustness checks. First, we exclude single controls to see if the results are dependent on specific adjustments of potential confounders. Changing coefficients are not necessarily a bad

indication but simply transparently lay out the importance to adjust for specific confounders. Second, we separate the effect of immigration on welfare attitudes between those who identify with left and those who identify with right parties. In this models, we on purpose abstain from controlling for ideological orientation since ideological orientation serves as the basis for separating left from right respondents. Third, we excluded single countries from the models. Fourth, we model country fixed effects as well as year fixed effects to separate cross-country from within-country effects.

Overall, the patterns visible in Table 2 (in the main text) remain robust in the vast majority of the models (compare Table A3 below). In particular, the negative effect of immigration on support for unemployment spending and the support for living standards of the unemployed is significant across all model specifications. This robustness comes to us as a surprise since immigration shares are country-level variables and such a lower number of cases is typically associated with high variability of the effect estimates. The effects of immigration is stronger in Europe than in North America in our sample. Excluding Canada, but in particular, the USA increases the negative effect of immigration on unemployment spending substantially. It seems that it is not the mentality of people that prevents Europe from comparably low levels of welfare, but welfare institutions seem to sustain the high self-interest and thus the higher support for welfare within Europe.

Compared to the effects of immigration shares, even less statistical power is provided in the models using interaction terms of country-level variables in multi-level models. For every attribute of the native' interest variable we have few to none attributes of immigration shares. Accordingly, we should be careful to put much weight on the effects of the interaction term in multi-level models based on such few number of country-level cases.

Overall, we interpret the results of the robustness section as follows. Immigration has a robust negative effect on support for unemployment spending, a domain that resonates strongly with the perception of redistribution. With regard to pensions, a domain much less associated with redistribution and deservingness, we do not find significant effects of immigration. Overall, we find no systematic interaction between natives' interest and immigration share in the domain of unemployment and pensions on spending attitudes. Nevertheless, the coefficients point in the expected direction in the domain unemployment. In some models they reach acceptable significance levels. However, we would like to reiterate here that we view the sample as severely underpowered for such the robust estimation of such an interaction effect.

Table A3: Robustness tests of individual-level results

	DV: Gov. responsible to provide living standard for unemployed	DV: Government should spend money on unemployment benefits	DV: Gov. responsible to provide living standard for the old	DV: Government should spend money on retirement	DV: Gov. responsible to provide living standard for unemployed	DV: Government should spend money on retirement
Model Specification	*Effect of immigration*	*Effect of immigration*	*Effect of immigration*	*Effect of immigration*	*Effect of immigration * NI unemployment*	*Effect of immigration * NI pension*
Full model	**-0.08*****	**-0.04*****	**-0.02**	**0.02**	**0.10**	**-0.10**
Excluded controls						
Female	-0.08***	-0.04**	-0.02	0.02	**0.11**	Does not converge
Age	-0.07***	-0.04*	-0.02	0.02	0.11	-0.10
Educational degree	-0.08***	-0.05**	-0.03	0.00	0.11	-0.10
Ideology (right to left)	-0.07***	-0.04**	-0.02	0.01	0.11	-0.11
Union member	-0.08***	-0.04**	-0.02	0.02	0.11	-0.10
unemployed	-0.08***	-0.04**	-0.02	0.02	0.11	Does not converge
retired	-0.08***	-0.04**	-0.02	Does not converge	0.11	-0.10
Permanently disabled	-0.08***	-0.04**	-0.02	0.02	0.11	-0.10
Conditional effects *(ideology not controlled)*						
Effect for left people	-0.08***	-0.04*	-0.04*	0.01	0.09	-0.11
Effect for right people	-0.07***	-0.04*	-0.02	-0.00	0.14	0.00
Excluded countries						
Australia	-0.07***	-0.03	-0.01	0.03	0.07	-0.14
Canada	-0.08***	-0.05**	-0.02	0.03	0.14	-0.10
France	-0.08***	-0.05**	-0.02	0.01	0.08	-0.08
Germany	-0.07***	-0.04*	-0.02	0.01	0.21*	-0.15
Ireland	-0.07***	-0.05**	-0.04	-0.02	0.17**	-0.06
Italy	-0.08***	-0.04**	-0.02	0.02	0.11	-0.10
Japan	-0.10***	-0.04	-0.04	0.04	0.10	-0.09
New Zealand	-0.07***	-0.03	-0.02	0.03	0.07	-0.12
Norway	-0.07***	-0.05**	-0.01	0.01	0.11	Does not converge
Sweden	-0.07***	-0.04*	-0.02	0.02	0.10	-0.10
Switzerland	-0.08***	-0.06***	-0.01	Does not converge	Does not converge	Does not converge
USA	-0.08***	-0.05**	-0.04*	0.01	0.13	Does not converge
United Kingdom	-0.07***	-0.03	-0.01	0.02	0.13	-0.08
Country fixed effects	-0.11***	-0.07***	-0.00	0.09***	-	-
Country and year fixed effects	-0.05***	-0.06***	-0.02*	0.05***	-	-
Estimator	ML ordered logit	ML ordered logit	ML ordered logit	ML ordered logit	ML ordered logit	ML ordered logit
Second level	Year	Year	Year	Year	Year	Year
Third level	Country	Country	Country	Country	Country	Country
n	Model dependent	Model dependent	Model dependent	Model dependent	Model dependent	Model dependent

Note: * p<0.10, ** p<0.05, *** p<0.01.

4. Robustness of the country-level analysis

4.1 Removal of ambiguous cases

As discussed in the section above. There are some observations, where the data of the Swedish Institute for Social Research 2015a and 2015b leave some doubts about the validity. Accordingly, we remove Finland from the analysis of all three welfare domains and additionally Switzerland and Italy from the analysis of sickness/disability. The inspection of Figure A3 to A5 reveals that the ambiguous cases do not affect our general conclusions.

Figure A3: Effect of immigration on unemployment spending conditional on natives' interest in unemployment – Finland excluded (calculated with the Interflex Package Xu et al. (2017))

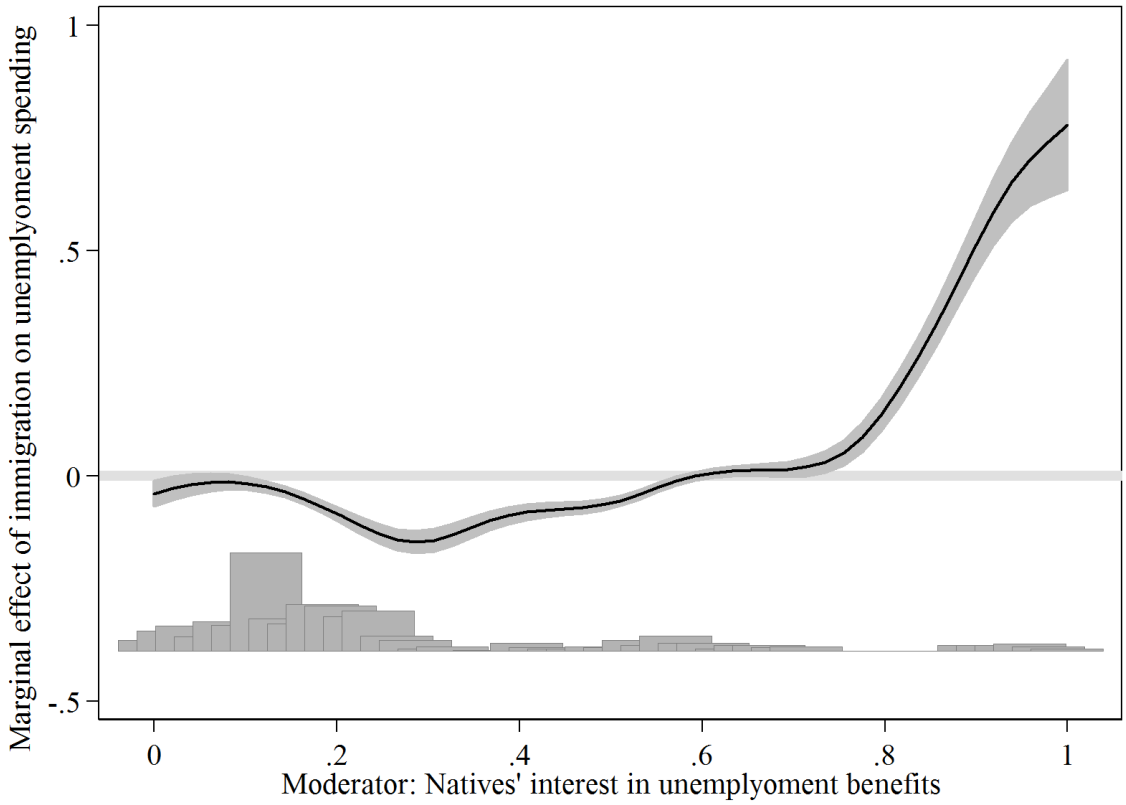


Figure A4: Effect of immigration on sickness/disability spending conditional on natives' interest in sickness/disability – Switzerland, Finland and Italy excluded (calculated with the Interflex Package Xu et al. (2017))

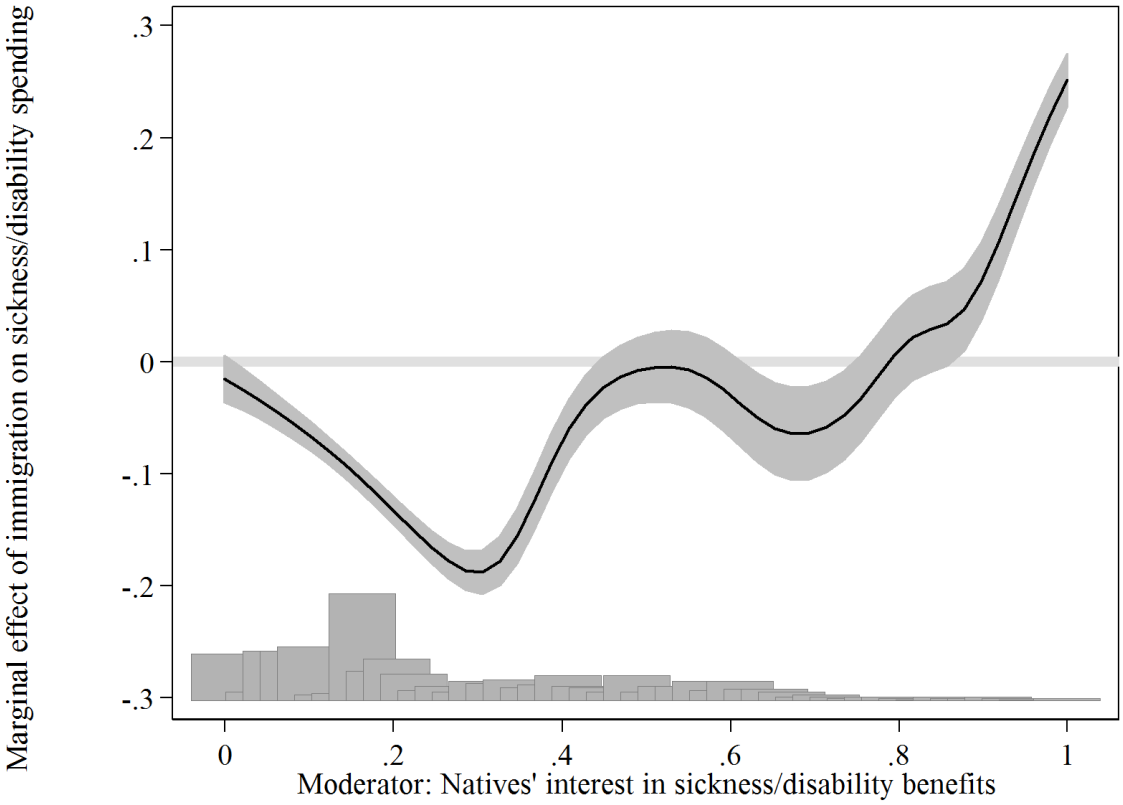
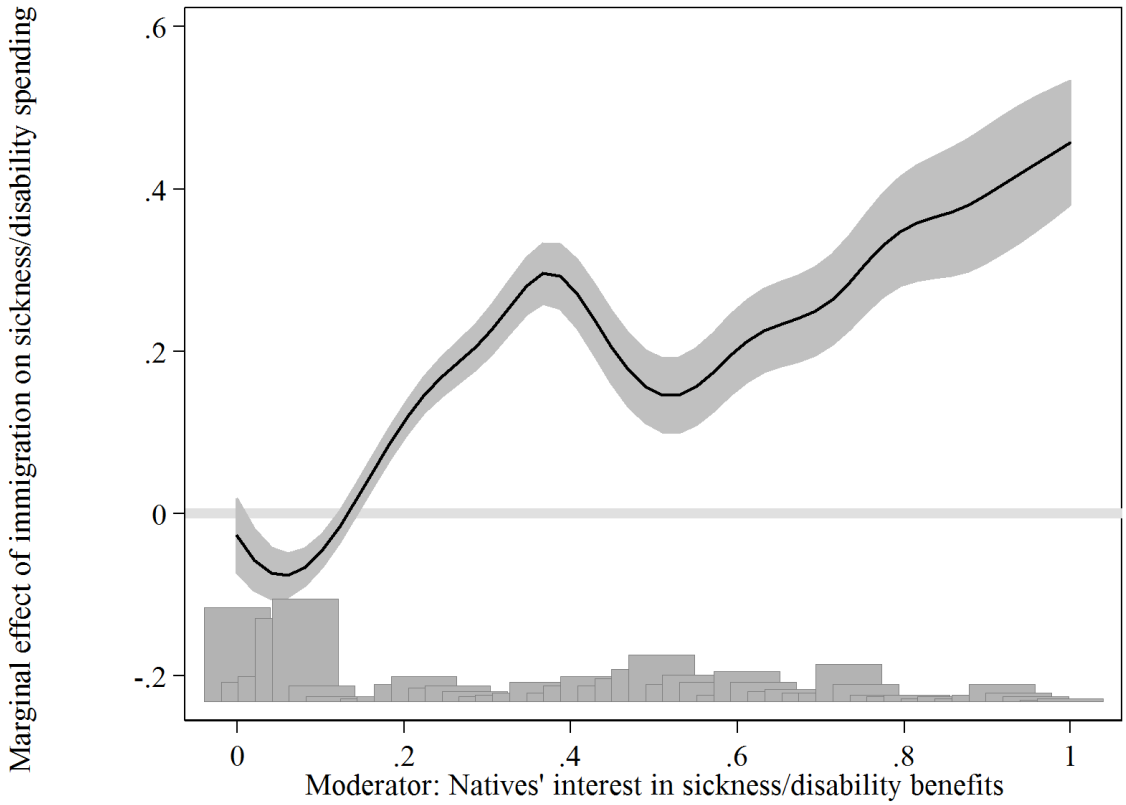


Figure A5: Effect of immigration on pension spending conditional on natives' interest in pension – Finland excluded (calculated with the Interflex Package Xu et al. (2017))



4.2 Time lags and the removal of interpolated observations

The temporal unfolding of the effect of immigration on public opinion and welfare spending is underspecified. The models assume effects to unfold within the same year. It is, however, equally likely that the effect takes more time. Accordingly, we model time lags of one and two years. The patterns of the results are not affected by specifying both types of time-lags.

Additionally, we estimated our models on data without any interpolated observations. This results in a data set with five-year intervals between measurements. In these models, sample size is reduced from 546 to 122 (unemployment model) and from 556 to 124 in the models on sickness/disability and pension. The interpolated observations for the share of immigrants and our index of natives' interest are exactly the same. Accordingly, the results below are identical whether we exclude interpolation of immigrant or welfare institution data. Substantially, we first check whether the effects of immigration on welfare spending irrespective of natives' interest are replicable with longer intervals. We find the same patterns, with significant negative effects on unemployment spending and sickness/disability spending and a positive relation to pension spending (compare Table A4). A closer examination reveals that the size of the estimates is higher than in the 1-year interval models but also not fivefold, which means the estimate size in the 1-year interval model might be overestimated. However, we do not put much inferential weight on the estimated effect sizes but simply use the patterns of immigration and spending development as a consistency check of the interaction models which are of more substantial important for our argument.

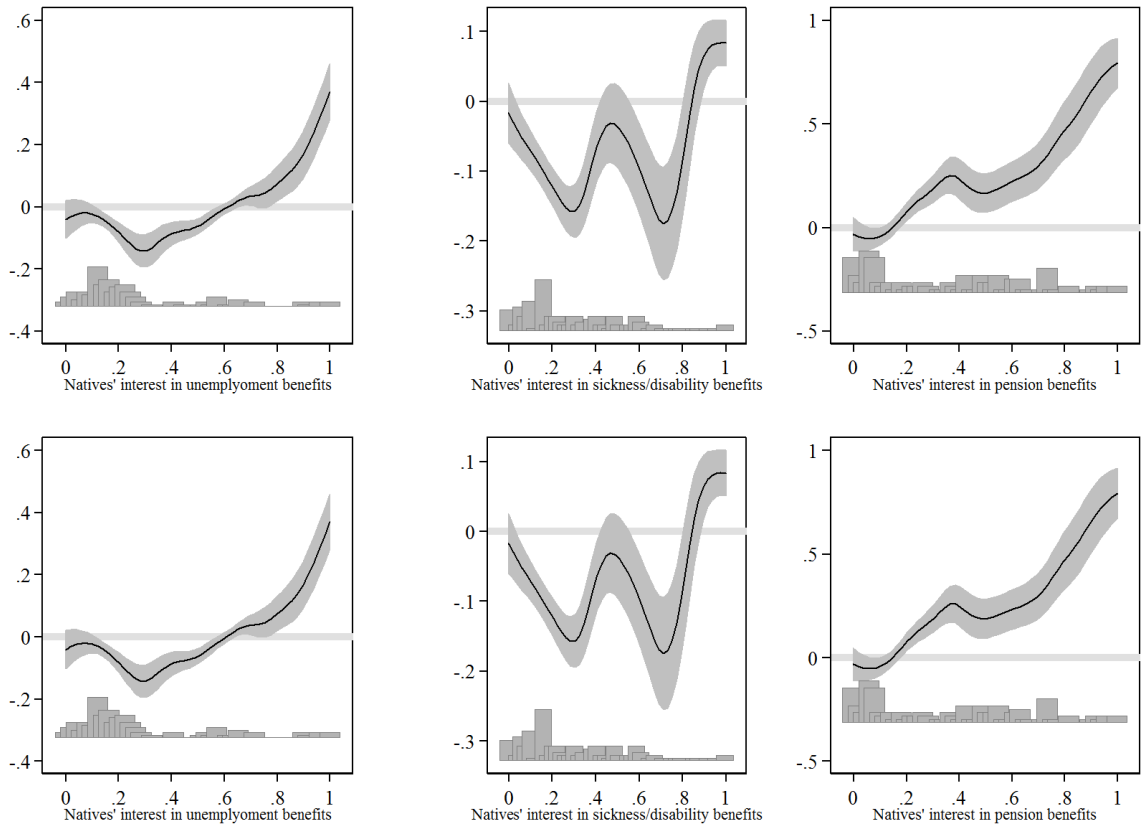
Turning to the interaction models, we replicate the kernel density estimation of the interaction models, this time without including any imputed observations (compare Figure A6). We observe differences only in the low interest area of pension, where the effect of immigration on pension spending turns insignificant. This might be due to the very few remaining case in the lower areas of natives' interest in pension benefits. The area below 0.2 includes Australia over the entire period and Ireland in the 1980s and 1990s. Otherwise, the patterns remain highly comparable to those with interpolated data.

Table A4: Regression results for spending on unemployment, sickness/disability, and pensions using different time-lags

	(1a) Unemployment spending	**(1b)** Unemployment spending	**(1c)** Unemployment spending	**(1d)** Unemployment spending
Imputations present	yes	yes	yes	no
Interval	1 year	Time lag 1 year	Time lag 2 years	5 years
Share of immigrant population	**-0.017****	**-0.018*****	**-0.013****	**-0.04*****
N	546	532	516	122
R^2	0.64	0.66	0.54	0.65
Countries	18	18	18	18
	(2a) Sickness/disability spending	**(2b)** Sickness/disability spending	**(2c)** Sickness/disability spending	**(2d)** Sickness/disability spending
Interval	1 year	Time lag 1 year	Time lag 2 years	5 years
Share of immigrant population	**-0.083*****	**-0.087*****	**-0.080*****	**-0.097*****
N	556	540	522	124
R^2	0.53	0.46	0.50	0.53
Countries	18	18	18	18
	(3a) Pension spending	**(3b)** Pension spending	**(3c)** Pension spending	**(3d)** Pension spending
Interval	1 year	Time lag 1 year	Time lag 2 years	5 years
Share of immigrant population	**0.062*****	**0.066*****	**0.066*****	**0.038****
N	556	540	522	124
R^2	0.86	0.87	0.87	0. 84
Countries	18	18	17	18

Note: * p<0.10, ** p<0.05, *** p<0.01. The ten missing cases in the model for unemployment spending consist of France and Austria between 1980 and 1985 where spending data are not available. We used the exact same controls as in the Models 1-3 in the main-text but do not show the coefficients here.

Figure A6: Effects of immigration conditional on natives' interest – all imputations excluded which equals a five-year interval (calculated with the Interflex Package Xu et al. (2017))

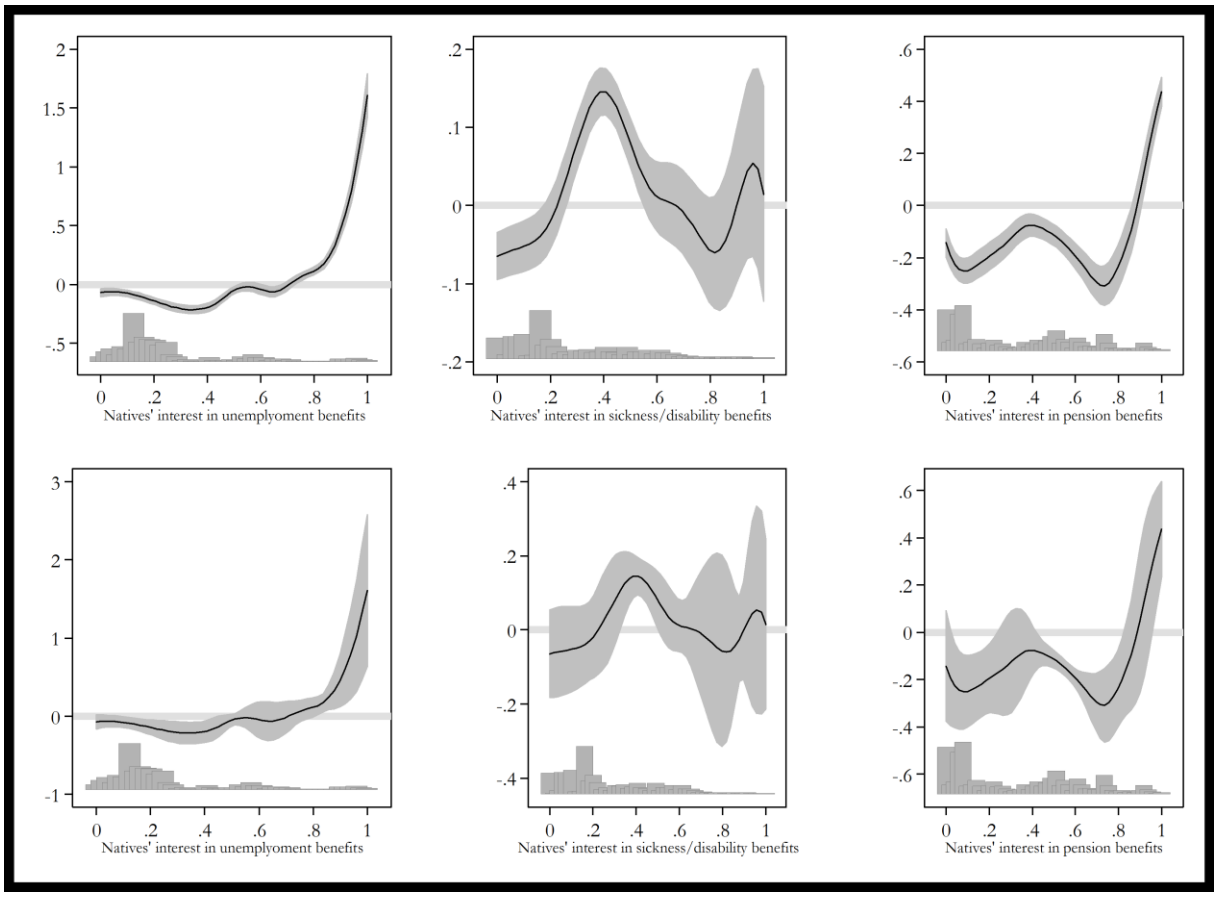


Note: The interaction is based on kernel density estimation.

4.3 Within versus cross case inference – fixed and random effects

Comparing country fixed effects models with our random effects estimates allows separating the inference based on within country differences over time from cross-case inference. Using country-fixed effects limits the variance available for the identification of our effects to variation longitudinal variation within countries. Since we are interested in the moderating role of welfare institutions, we do not think that fixed effects are the ideal specification for our purpose because welfare institutions are too path-dependent to exploit the full range of institutional characteristics within a country over time. For example, the crucial role of means-tests can hardly be tested on within-country changes, because means-tests have neither been introduced nor abolished in anyone of the countries in our sample. Nonetheless, within-country-effects are still revealing as they can point to meaningful within country dynamics different from the once we observe in cross-country comparisons.

Figure A7: Effects of immigration on spending conditional on natives' interest with country-fixed-effects (calculated with the Interflex Package Xu et al. (2017))



Note: The interaction is based on kernel density estimation. In the upper part models are based on kernel density estimation with country-fixed effect. The lower line is based on the same models using clustered standard errors on the country level on top.

As indicated by Figure A7, we observe similar patterns in the domain on unemployment and pension whereas the inconsistent pattern of sickness/disability spending aggravates. Although, the patterns in the domain of pension are the same in random and fixed effects models, the level is different. The effect of immigration is negative for a long range of observations and only turns positive when natives' interest in pension is really high.

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