Online Supplement to:
Ethnic Inequality in Retirement Income: A Comparative Analysis of Immigrant-Native Gaps in Western Europe

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S1 Further information on incomplete cases and multiple imputation procedure

There are no missing values on income variables in EU-SILC, but it should be noted they are already imputed by the data providers (often the imputation is partial because not all, but only some of the income components for a certain aggregate such as retirement income are missing). Because of its central role in our analysis, we excluded 2,520 cases with missing information on country of birth. Because of convergence problems in imputing these variables, we also excluded 79 cases with missing or inconsistent information on the presence of a partner, the partner's age, and/or marital status (all of which we used as auxiliary variables in the imputation procedure). Of the remaining 510,992 cases, 85,342 (16.7%) lacked valid information for at least one of the variables included in the analysis.

To retain these cases, we applied multiple imputation via chained equations (Van Buuren, 2012). We obtained ten imputations using the `mi impute chained` routine in *Stata 14* (StataCorp, 2015), imputing separately by country and gender. We used predictive mean matching with five nearest neighbors to impute continuous variables and logistic/ordered logistic regression to impute dichotomous/ordered polytomous variables.[1] We used conditional imputation where appropriate (e.g., imputed self-employment status only for persons who ever worked). The imputation models included all variables used in the analysis and the following auxiliary variables:[2] living with partner, age of partner, educational attainment of partner, marital status, respondent was economically inactive throughout the year before the survey, years worked (not available for some countries), respondent worked at the time of interview, citizenship (three categories: survey country, EU country other than survey country, non-EU country; there were 341 cases without a valid value on this variable, we assigned these cases to a separate missing category for the imputation procedure, as we encountered persistent convergence problems when trying to impute citizenship using multinomial logistic regression). We also included several income aggregates other than retirement income, in particular augmented non-earned income, which we use in the robustness checks reported in Section S5.3 below (we included income measures in logs, adding an indicator variable identifying respondents with no income of the given kind, whom we assigned a value of zero on the logged measure).

[1] We did not impute any unordered polytomous variables, so there was no need to use multinomial logistic regression.

[2] To ensure convergence of imputation models estimated by maximum likelihood, we sometimes had to exclude one or several of the auxiliary variables from the imputation models for a particular variable in a particular country/gender group.

S2 Country-level correlation matrix

Table S1. Pearson correlations between country-level variables

	RIG, men	RIG, women	Pension redistribution index, men	Pension redistribution index, women	Full access to social security	Strictness of residence requirements	Social spending (in % of GDP)	Employment protection index	Average age at immigration, men	Average age at immigration, women
RIG Men	1									
RIG Women	0.734**	1								
Pension redistribution Index, men	0.428+	0.509*	1							
Pension redistribution Index, women	0.435+	0.512*	0.997**	1						
Full access to social Security	0.157	0.115	-0.0930	-0.0989	1					
Strictness of residence Requirements	0.473+	0.566*	0.269	0.290	-0.131	1				
Social spending (in % of GDP)	0.373	0.205	0.480+	0.497+	-0.169	-0.0284	1			
Employment protection Index	-0.392	-0.166	-0.316	-0.312	0.545*	-0.230	-0.368	1		
Average age at Immigration, men	-0.564*	-0.182	0.263	0.262	-0.140	-0.0454	0.0877	0.0701	1	
Average age at Immigration, women	-0.727**	-0.465+	0.0418	0.0406	-0.160	-0.240	-0.0884	0.0665	0.908**	1

N=16. RIG=Retirement Income Gap. Unadjusted RIG is only adjusted for age and survey year, adjusted RIG is adjusted for age, survey year, level of education, ever having worked, and occupational status (last/current job). $^{+}$ $p < .1$, * $p < .05$, ** $p < .01$

S3 Country-specific individual-level GLM regressions (first-stage results)

Table S2. Country-specific GLM regressions of retirement income in 16 Western European countries, men aged 65+

(Exponentiated coefficients depicted in Panel I of Figure 1 in main article)

	Austria	Belgium	Denmark	Finland	France	Greece	Ireland	Italy
Immigrant status								
Born in survey country	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Born outside EU	-0.358***	-0.517***	-0.140	-0.764***	-0.195***	-0.306***	-0.157	-0.396***
	(0.053)	(0.077)	(0.103)	(0.186)	(0.030)	(0.093)	(0.184)	(0.085)
Age								
65-69	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
70-74	-0.012	0.047***	0.211***	0.010	0.032**	0.004	0.172***	0.014
	(0.015)	(0.012)	(0.018)	(0.010)	(0.012)	(0.017)	(0.029)	(0.009)
75-79	-0.016	0.047***	0.186***	-0.018+	0.061***	-0.059**	0.084**	0.014
	(0.016)	(0.012)	(0.019)	(0.010)	(0.014)	(0.021)	(0.030)	(0.010)
80+	0.042*	0.087***	0.216***	0.013	0.102***	-0.059**	0.052+	-0.002
	(0.018)	(0.015)	(0.022)	(0.012)	(0.014)	(0.020)	(0.031)	(0.010)
Education (highest degree)								
Low (ISCED 0-2)	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Med (ISCED 3-4)	0.183***	0.076***	0.073***	0.097***	0.142***	0.335***	0.281***	0.275***
	(0.014)	(0.011)	(0.014)	(0.010)	(0.012)	(0.018)	(0.032)	(0.008)
High (ISCED 5-6)	0.327***	0.208***	0.411***	0.391***	0.392***	0.435***	0.384***	0.465***
	(0.019)	(0.014)	(0.021)	(0.012)	(0.018)	(0.026)	(0.030)	(0.015)
Ever worked								
Yes	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
No	-0.066*	-0.145***	-0.019	0.089**	-0.487**	-0.547***	-0.457***	-0.465***
	(0.033)	(0.043)	(0.046)	(0.032)	(0.187)	(0.127)	(0.077)	(0.043)
Occupational status								
ISEI score	0.189***	0.110***	0.139***	0.140***	0.192***	0.094***	0.153***	0.148***
	(0.006)	(0.005)	(0.007)	(0.005)	(0.006)	(0.010)	(0.010)	(0.004)
Self-employed								
No	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Yes	-0.287***	-0.488***	-0.139***	-0.298***	-0.321***	-0.530***	-0.572***	-0.404***
	(0.020)	(0.014)	(0.022)	(0.012)	(0.016)	(0.015)	(0.027)	(0.009)
Survey year								
2004	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
2005	0.115***	-0.016	-0.039	0.045+	-0.021	0.028	0.089*	-0.001
	(0.032)	(0.023)	(0.037)	(0.024)	(0.022)	(0.026)	(0.037)	(0.015)
2006	0.024	-0.019	0.099**	0.068*	-0.092***	0.029	0.054	0.021
	(0.028)	(0.022)	(0.037)	(0.025)	(0.023)	(0.028)	(0.037)	(0.014)
2007	0.040	-0.044*	0.103**	0.047+	-0.028	0.161***	0.163***	0.219***
	(0.028)	(0.022)	(0.035)	(0.026)	(0.021)	(0.028)	(0.035)	(0.016)
2008	0.021	-0.071***	0.077*	0.074*	-0.569***	0.227***	0.185***	0.228***
	(0.028)	(0.021)	(0.037)	(0.027)	(0.040)	(0.025)	(0.036)	(0.014)
2009	0.044	-0.071**	0.159***	0.074**	0.013	0.198***	0.248***	0.211***
	(0.027)	(0.022)	(0.035)	(0.026)	(0.020)	(0.027)	(0.044)	(0.014)
2010	0.092***	-0.028	0.181***	0.119***	0.009	0.188***	0.260***	0.216***
	(0.027)	(0.021)	(0.035)	(0.026)	(0.020)	(0.032)	(0.043)	(0.014)
2011	0.084**	-0.114***	0.163***	0.130***	0.012	0.063*	0.279***	0.249***
	(0.029)	(0.021)	(0.035)	(0.026)	(0.020)	(0.026)	(0.045)	(0.013)
2012	0.022	-0.061**	0.133***	0.122***	0.003	-0.069*	0.251***	0.248***
	(0.032)	(0.023)	(0.036)	(0.026)	(0.019)	(0.032)	(0.047)	(0.013)
2013	0.001	0.007	0.152***	0.118***	-0.011	-0.074***	0.249***	0.265***
	(0.029)	(0.022)	(0.036)	(0.026)	(0.019)	(0.022)	(0.043)	(0.014)
Constant	10.021***	9.824***	9.678***	9.691***	9.888***	9.394***	9.493***	9.608***
	(0.027)	(0.018)	(0.033)	(0.024)	(0.017)	(0.022)	(0.033)	(0.011)
N	9229	9455	9688	15625	17252	15982	10506	44719

Notes: Multiple imputation estimates (10 imputations). Generalized Linear Models (GLM) with log link and Gaussian error distribution. Survey weights applied. Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$. ISCED = International Standard Classification of Education. ISEI = International Socio-Economic Index of Occupational Status. Ref. = Reference category.
Source: EU-SILC 2004-2013, authors' calculations.

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Table S2. Country-specific GLM regressions of retirement income in 16 Western European countries, men aged 65+ (continued)

(Exponentiated coefficients depicted in Panel I of Figure 1 in main article)

	Luxem-bourg	Nether-lands	Norway	Portugal	Spain	Sweden	Switzer-land	United Kingdom
Immigrant status								
Born in survey country	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Born outside EU	-0.515***	-0.251**	-0.144+	-0.227+	-0.585***	-0.340***	-0.240**	-0.241***
	(0.080)	(0.091)	(0.087)	(0.129)	(0.121)	(0.055)	(0.083)	(0.035)
Age								
65-69	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
70-74	-0.010	-0.094***	0.542***	0.039+	0.017	-0.014	0.064***	0.100***
	(0.014)	(0.013)	(0.019)	(0.022)	(0.011)	(0.011)	(0.017)	(0.014)
75-79	-0.011	-0.139***	0.526***	-0.116***	-0.016	-0.024*	0.092***	0.089***
	(0.015)	(0.016)	(0.020)	(0.029)	(0.011)	(0.012)	(0.019)	(0.015)
80+	0.089***	-0.149***	0.467***	-0.132***	-0.064***	-0.065***	0.055**	0.058***
	(0.016)	(0.017)	(0.020)	(0.030)	(0.011)	(0.012)	(0.020)	(0.015)
Education (highest degree)								
Low (ISCED 0-2)	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Med (ISCED 3-4)	0.116***	0.191***	0.181***	0.513***	0.236***	0.093***	0.165***	0.184***
	(0.013)	(0.012)	(0.010)	(0.032)	(0.015)	(0.008)	(0.021)	(0.012)
High (ISCED 5-6)	0.236***	0.505***	0.367***	0.623***	0.214***	0.142***	0.297***	0.392***
	(0.023)	(0.017)	(0.015)	(0.041)	(0.017)	(0.015)	(0.026)	(0.014)
Ever worked								
Yes	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
No	-2.683*	0.076	-0.034	-0.792***	-0.413***	-0.083	0.062+	0.006
	(1.063)	(0.048)	(0.073)	(0.135)	(0.045)	(0.086)	(0.035)	(0.047)
Occupational status								
ISEI score	0.127***	0.166***	0.090***	0.276***	0.171***	0.158***	0.137***	0.143***
	(0.008)	(0.008)	(0.006)	(0.013)	(0.006)	(0.005)	(0.008)	(0.005)
Self-employed								
No	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Yes	-0.409***	-0.186***	-0.084***	-0.490***	-0.457***	-0.090***	-0.506***	-0.328***
	(0.020)	(0.021)	(0.014)	(0.029)	(0.011)	(0.012)	(0.020)	(0.019)
Survey year								
2004	Ref.	No survey	Ref.	Ref.	Ref.	Ref.	No survey	No survey
2005	0.020	Ref.	-0.053*	0.028	0.004	0.012	No survey	Ref.
	(0.026)		(0.024)	(0.052)	(0.016)	(0.021)		
2006	0.030	-0.021	0.024	0.099+	0.032+	0.012	No survey	0.044*
	(0.026)	(0.027)	(0.022)	(0.051)	(0.017)	(0.018)		(0.020)
2007	0.016	-0.024	0.058**	0.262***	0.072***	0.006	No survey	0.062**
	(0.027)	(0.026)	(0.021)	(0.053)	(0.018)	(0.019)		(0.020)
2008	0.003	0.026	0.103***	0.257***	0.085***	0.019	Ref.	-0.070***
	(0.029)	(0.026)	(0.021)	(0.044)	(0.017)	(0.019)		(0.021)
2009	0.061*	0.037	0.118***	0.213***	0.125***	-0.008	-0.008	-0.206***
	(0.025)	(0.025)	(0.021)	(0.044)	(0.017)	(0.019)	(0.027)	(0.020)
2010	0.086***	0.076**	0.053**	0.269***	0.140***	-0.090***	0.073**	-0.160***
	(0.026)	(0.024)	(0.020)	(0.044)	(0.016)	(0.019)	(0.025)	(0.021)
2011	0.066**	0.082***	0.146***	0.267***	0.118***	0.013	0.144***	-0.248***
	(0.024)	(0.023)	(0.021)	(0.046)	(0.016)	(0.019)	(0.026)	(0.022)
2012	0.063**	0.070**	0.239***	0.335***	0.148***	0.028	0.258***	-0.116***
	(0.024)	(0.024)	(0.021)	(0.047)	(0.015)	(0.019)	(0.025)	(0.021)
2013	0.088***	0.035	0.342***	0.265***	0.191***	0.090***	0.274***	-0.182***
	(0.026)	(0.025)	(0.020)	(0.046)	(0.017)	(0.019)	(0.025)	(0.021)
Constant	10.665***	9.910***	9.576***	8.937***	9.497***	9.947***	10.090***	9.680***
	(0.022)	(0.021)	(0.025)	(0.041)	(0.013)	(0.016)	(0.030)	(0.017)
N	4717	12165	7807	12581	27712	11210	6103	17064

Notes: Multiple imputation estimates (10 imputations). Generalized Linear Models (GLM) with log link and Gaussian error distribution. Survey weights applied. Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$. ISCED = International Standard Classification of Education. ISEI = International Socio-Economic Index of Occupational Status. Ref. = Reference category.
Source: EU-SILC 2004-2013, authors' calculations.

Table S3. Country-specific GLM regressions of retirement income in 16 Western European countries, women aged 65+

(Exponentiated coefficients depicted in Panel I of Figure 2 in main article)

	Austria	Belgium	Denmark	Finland	France	Greece	Ireland	Italy
Immigrant status								
Born in survey country	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Born outside EU	-0.129	-0.271**	-0.296***	-1.199***	-0.046	-0.531**	-0.137	-0.474***
	(0.088)	(0.084)	(0.081)	(0.113)	(0.038)	(0.178)	(0.145)	(0.072)
Age								
65-69	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
70-74	-0.006	-0.022	0.189***	0.006	0.043**	-0.021	0.112**	0.055***
	(0.024)	(0.022)	(0.017)	(0.010)	(0.016)	(0.031)	(0.042)	(0.011)
75-79	0.061*	0.043+	0.214***	-0.010	0.057***	-0.066*	0.270***	0.168***
	(0.024)	(0.023)	(0.018)	(0.011)	(0.017)	(0.030)	(0.041)	(0.012)
80+	0.268***	0.171***	0.241***	-0.006	0.153***	-0.077*	0.355***	0.339***
	(0.022)	(0.021)	(0.017)	(0.012)	(0.015)	(0.034)	(0.038)	(0.010)
Education (highest degree)								
Low (ISCED 0-2)	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Med (ISCED 3-4)	0.215***	0.030	0.089***	0.065***	0.121***	0.358***	0.062*	0.267***
	(0.019)	(0.021)	(0.014)	(0.010)	(0.014)	(0.037)	(0.028)	(0.011)
High (ISCED 5-6)	0.439***	0.264***	0.352***	0.275***	0.313***	0.546***	0.370***	0.528***
	(0.036)	(0.027)	(0.022)	(0.014)	(0.022)	(0.069)	(0.036)	(0.019)
Ever worked								
Yes	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
No	-0.530***	-0.507***	-0.078***	-0.312***	-0.723***	-2.429***	-0.180***	-0.492***
	(0.027)	(0.024)	(0.018)	(0.026)	(0.039)	(0.049)	(0.018)	(0.010)
Occupational status								
ISEI score	0.246***	0.220***	0.092***	0.174***	0.242***	0.139***	0.140***	0.131***
	(0.011)	(0.011)	(0.007)	(0.006)	(0.007)	(0.024)	(0.013)	(0.004)
Self-employed								
No	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Yes	-0.225***	-0.383***	-0.124***	-0.256***	-0.471***	-0.312***	-0.354***	-0.250***
	(0.026)	(0.027)	(0.028)	(0.012)	(0.018)	(0.024)	(0.047)	(0.009)
Survey year								
2004	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
2005	0.039	0.026	0.001	0.075+	0.016	0.038	0.022	0.002
	(0.044)	(0.038)	(0.034)	(0.036)	(0.028)	(0.048)	(0.033)	(0.014)
2006	-0.026	0.004	0.094**	0.083*	0.042	-0.034	0.064+	0.011
	(0.037)	(0.037)	(0.033)	(0.035)	(0.028)	(0.045)	(0.035)	(0.014)
2007	-0.012	0.003	0.102**	0.083*	0.033	0.081	0.109**	0.125***
	(0.036)	(0.035)	(0.033)	(0.035)	(0.025)	(0.051)	(0.038)	(0.015)
2008	-0.036	-0.020	0.125***	0.113**	0.417***	0.123**	0.156***	0.146***
	(0.037)	(0.034)	(0.036)	(0.034)	(0.026)	(0.046)	(0.038)	(0.014)
2009	-0.021	0.021	0.109***	0.116**	0.066**	0.142**	0.156***	0.159***
	(0.037)	(0.035)	(0.030)	(0.035)	(0.024)	(0.046)	(0.045)	(0.014)
2010	0.020	0.064+	0.157***	0.165***	0.091***	0.118*	0.238***	0.169***
	(0.037)	(0.035)	(0.029)	(0.034)	(0.024)	(0.050)	(0.049)	(0.014)
2011	-0.216***	-0.403***	0.219***	0.027	0.099***	0.095*	0.122**	0.167***
	(0.041)	(0.047)	(0.030)	(0.034)	(0.024)	(0.047)	(0.045)	(0.014)
2012	-0.247***	-0.272***	0.202***	0.032	0.083***	0.112*	0.142**	0.186***
	(0.040)	(0.046)	(0.030)	(0.033)	(0.024)	(0.053)	(0.044)	(0.014)
2013	-0.281***	0.068*	0.174***	0.053	0.101***	0.057	0.208***	0.172***
	(0.040)	(0.034)	(0.029)	(0.033)	(0.025)	(0.042)	(0.043)	(0.015)
Constant	9.592***	9.323***	9.571***	9.491***	9.439***	8.817***	8.916***	9.185***
	(0.034)	(0.031)	(0.028)	(0.032)	(0.023)	(0.039)	(0.039)	(0.012)
N	11645	10643	9350	16853	21408	19578	12575	58387

Notes: Multiple imputation estimates (10 imputations). Generalized Linear Models (GLM) with log link and Gaussian error distribution. Survey weights applied. Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$. ISCED = International Standard Classification of Education. ISEI = International Socio-Economic Index of Occupational Status. Ref. = Reference category.
Source: EU-SILC 2004-2013, authors' calculations.

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Table S3. Country-specific GLM regressions of retirement income in 16 Western European countries, women aged 65+ (continued)

(Exponentiated coefficients depicted in Panel I of Figure 2 in main article)

	Luxem-bourg	Nether-lands	Norway	Portugal	Spain	Sweden	Switzer-land	United Kingdom
Immigrant status								
Born in survey country	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Born outside EU	-0.913***	-0.118*	-0.303**	-0.469*	-1.039***	-0.178***	-0.180+	-0.081*
	(0.188)	(0.053)	(0.116)	(0.202)	(0.119)	(0.051)	(0.106)	(0.036)
Age								
65-69	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
70-74	0.015	0.075***	0.563***	-0.048	0.120***	0.029*	0.009	0.012
	(0.038)	(0.016)	(0.024)	(0.031)	(0.024)	(0.011)	(0.018)	(0.016)
75-79	0.098*	0.156***	0.565***	-0.016	0.196***	0.012	0.057**	0.076***
	(0.041)	(0.018)	(0.024)	(0.035)	(0.023)	(0.012)	(0.018)	(0.016)
80+	0.287***	0.341***	0.593***	-0.040	0.293***	0.052***	0.096***	0.149***
	(0.038)	(0.018)	(0.025)	(0.032)	(0.020)	(0.012)	(0.017)	(0.015)
Education (highest degree)								
Low (ISCED 0-2)	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Med (ISCED 3-4)	0.033	0.124***	0.100***	0.408***	0.274***	0.068***	0.096***	0.047***
	(0.034)	(0.017)	(0.013)	(0.055)	(0.033)	(0.009)	(0.014)	(0.014)
High (ISCED 5-6)	0.422***	0.325***	0.345***	0.890***	0.513***	0.088***	0.274***	0.309***
	(0.058)	(0.023)	(0.025)	(0.045)	(0.030)	(0.018)	(0.031)	(0.017)
Ever worked								
Yes	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
No	-0.394***	-0.144***	-0.167***	-1.228***	-0.849***	-0.272***	-0.058**	-0.183***
	(0.048)	(0.014)	(0.021)	(0.037)	(0.019)	(0.021)	(0.021)	(0.028)
Occupational status								
ISEI score	0.203***	0.140***	0.124***	0.335***	0.223***	0.147***	0.111***	0.115***
	(0.019)	(0.009)	(0.008)	(0.016)	(0.011)	(0.007)	(0.009)	(0.007)
Self-employed								
No	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Yes	0.097**	-0.086**	-0.131***	-0.369***	-0.223***	-0.139***	-0.208***	-0.266***
	(0.035)	(0.030)	(0.019)	(0.028)	(0.016)	(0.017)	(0.017)	(0.025)
Survey year								
2004	Ref.	No survey	Ref.	Ref.	Ref.	Ref.	No survey	No survey
2005	0.014	Ref.	-0.015	0.064	0.013	0.006	No survey	Ref.
	(0.067)		(0.034)	(0.052)	(0.029)	(0.019)		
2006	-0.012	-0.009	0.090**	0.116*	0.074*	-0.005	No survey	0.025
	(0.070)	(0.028)	(0.029)	(0.058)	(0.032)	(0.019)		(0.021)
2007	0.045	-0.047+	0.118***	0.252***	0.095***	0.010	No survey	0.053*
	(0.070)	(0.028)	(0.028)	(0.068)	(0.028)	(0.018)		(0.021)
2008	0.028	0.000	0.182***	0.258***	0.113***	0.036*	Ref.	-0.052*
	(0.071)	(0.027)	(0.028)	(0.057)	(0.030)	(0.018)		(0.023)
2009	0.071	0.006	0.175***	0.224***	0.161***	-0.020	0.032	-0.197***
	(0.063)	(0.028)	(0.028)	(0.054)	(0.028)	(0.018)	(0.025)	(0.021)
2010	0.133*	0.037	0.126***	0.297***	0.192***	-0.094***	0.118***	-0.166***
	(0.062)	(0.028)	(0.028)	(0.050)	(0.026)	(0.018)	(0.024)	(0.021)
2011	0.175**	0.026	0.258***	0.277***	-0.171***	-0.002	0.093***	-0.304***
	(0.059)	(0.026)	(0.027)	(0.053)	(0.034)	(0.018)	(0.023)	(0.021)
2012	0.168**	0.030	0.336***	0.351***	-0.138***	0.040*	0.250***	-0.195***
	(0.057)	(0.027)	(0.029)	(0.052)	(0.038)	(0.018)	(0.023)	(0.022)
2013	0.216***	0.006	0.390***	0.244***	-0.141***	0.099***	0.293***	-0.201***
	(0.062)	(0.027)	(0.026)	(0.056)	(0.037)	(0.018)	(0.022)	(0.021)
Constant	9.971***	9.446***	9.234***	8.424***	8.766***	9.604***	9.748***	9.312***
	(0.053)	(0.023)	(0.030)	(0.045)	(0.025)	(0.016)	(0.022)	(0.018)
N	4609	13666	7780	17239	35961	11593	7197	19460

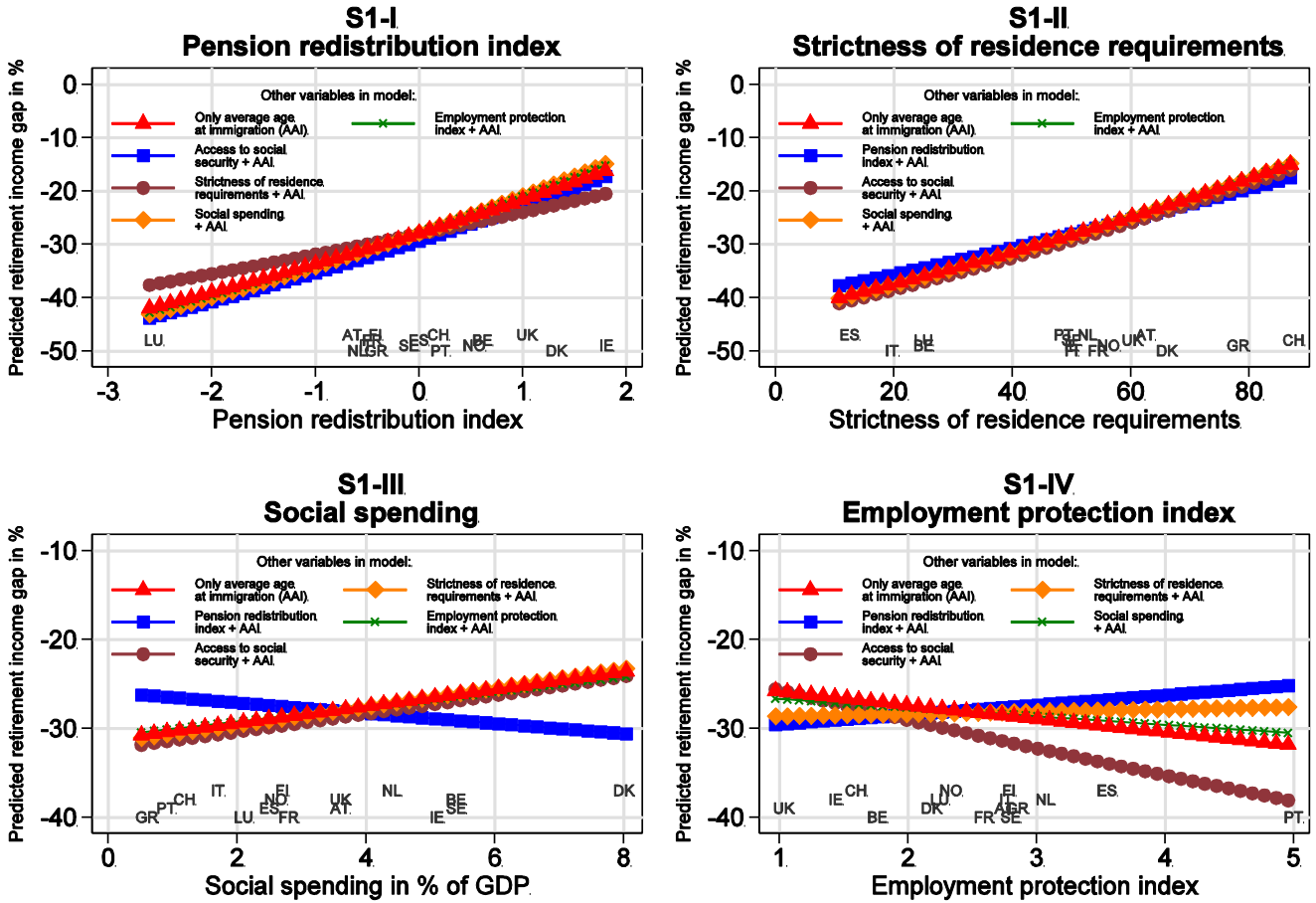
Notes: Multiple imputation estimates (10 imputations). Generalized Linear Models (GLM) with log link and Gaussian error distribution. Survey weights applied. Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$. ISCED = International Standard Classification of Education. ISEI = International Socio-Economic Index of Occupational Status. Ref. = Reference category.

Source: EU-SILC 2004-2013, authors' calculations.

S4 Predicted retirement income gap (in %) based on results depicted in Figures 3 and 4

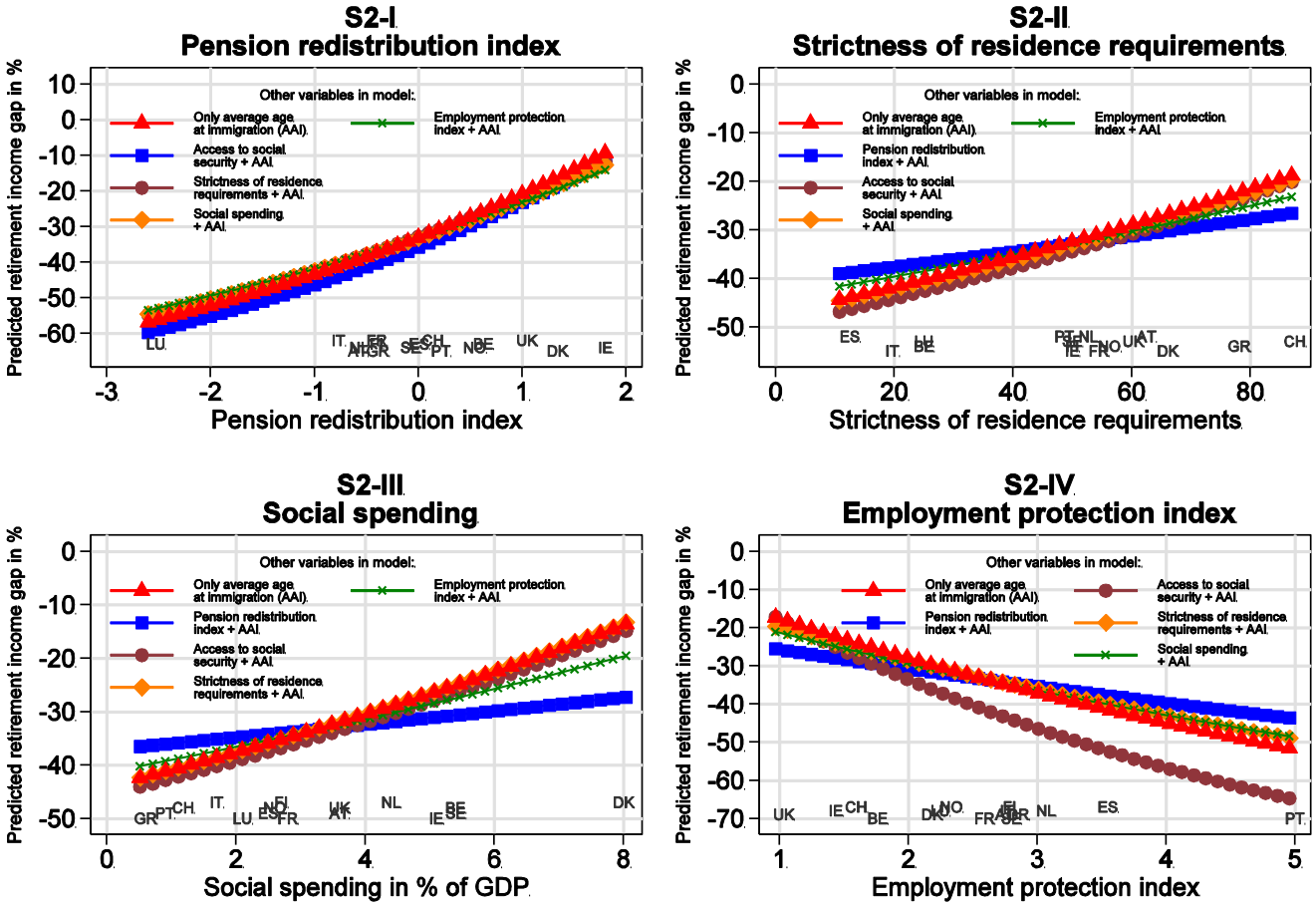
The country-level regressions presented in the main article model the retirement income gap in log points. To provide a more intuitive interpretation, Figures S1 and S2 show predicted RIGs for men and women, respectively. These figures translate the coefficients shown in Figures 3 and 4 (and Tables A1 and A2) in the main article into the percentage space. Each of the four panels in both figures shows the predicted retirement income gap for one independent variable, as it varies from the minimum to the maximum observed value. We show five lines that correspond to the five model specifications presented in Figures 3 and 4. For brevity, we do not report predicted RIGs for the full access to social security dummy (available upon request). To obtain the predictions, we set all other predictors in the model to their respective means (and access to social security to the reference category "less than full access"). At the bottom of each panel, we show how the countries are distributed along the values of the respective covariate. Note that the country codes are vertically offset for readability only, that is, their position in the y direction is unrelated to the size of the RIG.

Figure S1. Predicted retirement income gap (in %),



men

Figure S2. Predicted retirement income gap (in %), women



S5 Robustness checks

In this section, we subject the country-level results presented in the main article to several robustness checks. In Section 6.1 we show the results from equivalent models that use unadjusted rather than adjusted estimates of retirement income gaps. In Section 6.2 we provide results from a complete-case analysis (i.e., excluding respondents with incomplete information). In Section 6.3 we consider a more comprehensive income measure than the measure of "old-age benefits" used in the main article. In Section 6.4 we show the results from an extensive outlier analysis.

S5.1 Regression results for unadjusted RIG

Our preferred model specifications in Figures 3 and 4 in the article are based on RIGs that are adjusted for age (5 year groups), education (highest degree, three categories), never having worked, occupational attainment (last/current job, International Socio-Economic Index score, linear effect), self-employment (last/current job), and survey year. Tables S4 (men) and S5 (women) show equivalent country-level regressions models based on first stage regressions that do not control for other characteristics than age and survey year.

Table S4. Country-level regressions of retirement income gaps in 16 Western European countries, men aged 65+
(Only adjusted for age and survey year - education and employment/job characteristics excluded from within-country regressions)

	Included separately	Model1	Model2	Model3	Model4	Model5	Model6	Model7	Model8	Model9	Model10
Pension redistribution index	9.6	11.0+	6.4	13.0+	12.6+						
	(0.13)	(0.09)	(0.29)	(0.07)	(0.06)						
Full access to social security	10.5	13.8				13.1	10.4	8.9			
(ref.: less than full)	(0.38)	(0.22)				(0.20)	(0.41)	(0.59)			
Strictness of residence requirements	11.2*		9.5+			12.0*			11.1+	12.8*	
	(0.05)		(0.09)			(0.03)			(0.06)	(0.02)	
Social spending	-1.8			-7.5			-0.9		-1.5		-0.2
	(0.77)			(0.24)			(0.89)		(0.79)		(0.97)
Employment protection index	4.4				8.5			1.4		7.5	4.2
	(0.47)				(0.15)			(0.86)		(0.16)	(0.53)
Average age at immigration	Controlled	-1.9	-1.3	-3.2	-4.5	1.3	0.1	-0.2	0.1	-0.8	-1.3
		(0.73)	(0.80)	(0.56)	(0.42)	(0.80)	(0.99)	(0.97)	(0.99)	(0.88)	(0.84)
Intercept	---	-32.4**	-24.8***	-24.7***	-24.8***	-32.3***	-30.8**	-29.9*	-25.0***	-25.2***	-25.1**
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.02)	(0.00)	(0.00)	(0.00)
N	16	16	16	16	16	16	16	16	16	16	16
R2 (adjusted)	---	0.27	0.35	0.27	0.31	0.38	0.06	0.07	0.28	0.40	0.04

Notes: FGLS estimates following Lewis and Linzer (2005). Dependent variable is the retirement income gap (in log points) between non-EU immigrants and native-born men aged 65 and older. Retirement income gaps estimated using 16 within-country regressions with controls for age (5 year groups) and survey year. All predictors except access to social security are standardized (mean of zero and standard deviation of 1). Two-sided p-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.: EU-SILC 2004-2013, authors' calculations.

Table S5. Country-level regressions of retirement income gaps in 16 Western European countries, women aged 65+
(Only adjusted for age and survey year - education and employment/job characteristics excluded from within-country regressions)

	Included separately	Model1	Model2	Model3	Model4	Model5	Model6	Model7	Model8	Model9	Model10
Pension redistribution index	14.5+	16.5*	10.8	20.4*	17.6*						
	(0.07)	(0.04)	(0.16)	(0.03)	(0.04)						
Full access to social security	15.9	20.5				22.5	16.3	20.4			
(ref.: less than full)	(0.32)	(0.15)				(0.11)	(0.34)	(0.32)			
Strictness of residence requirements	14.9+		11.4			17.5*			15.0+	16.5*	
	(0.06)		(0.14)			(0.03)			(0.07)	(0.05)	
Social spending	-1.3			-10.9			0.3		-0.9		-0.5
	(0.87)			(0.18)			(0.97)		(0.90)		(0.95)
Employment protection index	2.5				8.3			-3.6		6.2	2.3
	(0.76)				(0.28)			(0.72)		(0.41)	(0.80)
Average age at immigration	Controlled	-17.7*	-16.5*	-20.8*	-20.4*	-11.7	-16.9+	-16.2+	-14.8+	-14.8+	-18.7*
		(0.02)	(0.03)	(0.01)	(0.01)	(0.11)	(0.06)	(0.08)	(0.07)	(0.06)	(0.05)
Intercept	---	-39.5**	-27.5**	-27.4**	-27.7**	-40.1**	-36.6*	-39.0*	-27.2**	-27.2**	-27.3**
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.02)	(0.00)	(0.00)	(0.01)
N	16	16	16	16	16	16	16	16	16	16	16
R2 (adjusted)	---	0.56	0.56	0.55	0.52	0.59	0.35	0.36	0.48	0.51	0.30

Notes: FGLS estimates following Lewis and Linzer (2005). Dependent variable is the retirement income gap (in log points) between non-EU immigrants and native-born women aged 65 and older. Retirement income gaps estimated using 16 within-country regressions with controls for age (5 year groups) and survey year. All predictors except access to social security are standardized (mean of zero and standard deviation of 1). Two-sided p-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.: EU-SILC 2004-2013, authors' calculations.

S5.2 Regression results using augmented non-earned income

The retirement income gaps (RIG) analyzed in the main article are (adjusted) relative differences in the EU-SILC variable "old-age benefits", which "cover benefits that: provide a replacement income when the aged person retires from the labor market, or guarantee a certain income when a person has reached a prescribed age" (Eurostat, 2013, p. 327).

Because of the complex nature and vast international differences in the design of old age provisions, cross-country differences in pension incomes could conceivably be due to certain sources of income (such as certain types of occupational pensions or means-tested benefits) being included some countries, but not in others. In the following tables, we therefore replicate the country-level regressions using RIG estimates for a more comprehensive income measure. Specifically, the measure of augmented non-earned income used here additionally includes the respondent's income from individual private pensions, survivor pensions, unemployment benefits, sickness benefits, disability benefits, and education-related allowances. It further includes the following types of public transfers to the respondent's household on a per capita basis (i.e., divided by household size): family allowances, housing allowances, and other means-tested transfers. Finally, it includes several additional private income sources (again, on a per capita basis to adjust for household size): property income, capital income, and imputed rent. Retirement benefits or other types of individual-level transfers (e.g., unemployment benefits) received by the respondent's partner are not included. Table S6 is for men and Table S7 for women.

Table S6. Country-level regressions of immigrant-native gap in augmented non-earned income in 16 Western European countries, men aged 65+

	Included separately	Model1	Model2	Model3	Model4	Model5	Model6	Model7	Model8	Model9	Model10
Pension redistribution index	7.8*	8.2*	5.1+	7.9+	8.1+						
	(0.04)	(0.04)	(0.10)	(0.07)	(0.05)						
Full access to social security	0.4	3.0				1.3	1.7	6.4			
(ref.: less than full)	(0.96)	(0.66)				(0.84)	(0.83)	(0.55)			
Strictness of residence requirements	8.9*		7.2*			9.0*			9.2**	8.8*	
	(0.01)		(0.03)			(0.02)			(0.01)	(0.02)	
Social spending	3.7			-0.1			3.9		4.0		3.3
	(0.36)			(0.99)			(0.36)		(0.22)		(0.45)
Employment protection index	-2.7				0.5			-4.9		-0.7	-1.6
	(0.53)				(0.90)			(0.40)		(0.85)	(0.73)
Average age at immigration	Controlled	-2.5	-1.8	-2.7	-2.7	-0.7	-1.2	-0.1	-1.0	-0.7	-1.2
		(0.47)	(0.49)	(0.44)	(0.43)	(0.82)	(0.76)	(0.97)	(0.73)	(0.82)	(0.77)
Intercept	---	-31.1***	-29.7***	-29.5***	-29.5***	-30.8***	-31.0***	-33.7***	-30.2***	-30.2***	-30.1***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N	16	16	16	16	16	16	16	16	16	16	16
R2 (adjusted)	---	0.32	0.55	0.31	0.31	0.42	0.08	0.07	0.50	0.42	0.09

Notes: FGLS estimates following Lewis and Linzer (2005). Dependent variable is the income gap in augmented non-earned income (in log points) between non-EU immigrants and native-born men aged 65 and older. Retirement income as defined in the main analysis includes public and occupational old age pensions. Augmented non-earned income additionally includes the respondent's income from individual private pensions, survivor pensions, unemployment benefits, sickness benefits, disability benefits, and education-related allowances. It further includes the following types of public transfers to the respondent's household on a per capita basis (i.e., divided by household size): family allowances, housing allowances, and other means-tested transfers. Finally, it includes several additional private income sources (again, on a per capita basis to adjust for household size): property income, capital income, and imputed rent. Retirement benefits or other types of individual-level transfers (e.g., unemployment benefits) received by the respondent's partner are not included. Income gaps are estimated using 16 within-country regressions with controls for age (5 year groups), education (highest degree, three categories), never having worked, occupational attainment (last/current job, International Socio-Economic Index score, linear effect), self-employment (last/current job), and survey year. All predictors except access to social security are standardized (mean of zero and standard deviation of 1). Two-sided p-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.
Source: EU-SILC 2004-2013, authors' calculations.

Table S7. Country-level regressions of immigrant-native gap in augmented non-earned income in 16 Western European countries, women aged 65+

	Included separately	Model1	Model2	Model3	Model4	Model5	Model6	Model7	Model8	Model9	Model10
Pension redistribution index	12.9*	12.9*	10.3+	13.3*	8.8						
	(0.02)	(0.03)	(0.05)	(0.05)	(0.12)						
Full access to social security	-5.4	-0.3				-1.5	-3.1	12.1			
(ref.: less than full)	(0.64)	(0.98)				(0.89)	(0.79)	(0.30)			
Strictness of residence requirements	11.2*		8.1			11.1+			11.3*	8.5+	
	(0.05)		(0.11)			(0.06)			(0.04)	(0.09)	
Social spending	6.2			-0.7			5.9		6.2		2.6
	(0.28)			(0.91)			(0.33)		(0.21)		(0.62)
Employment protection index	-13.0*				-9.0			-17.1*		-11.0*	-12.1+
	(0.03)				(0.12)			(0.02)		(0.05)	(0.05)
Average age at immigration	Controlled	-19.3**	-17.5**	-19.4**	-18.4**	-16.3**	-18.3**	-16.1**	-15.7**	-16.0**	-17.4**
		(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
Intercept	---	-31.7**	-31.7***	-31.8***	-32.1***	-30.8**	-30.2**	-39.0***	-31.9***	-32.1***	-32.3***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N	16	16	16	16	16	16	16	16	16	16	16
R2 (adjusted)	---	0.65	0.72	0.65	0.72	0.61	0.51	0.67	0.66	0.73	0.65

Notes: FGLS estimates following Lewis and Linzer (2005). Dependent variable is the income gap in augmented non-earned income (in log points) between non-EU immigrants and native-born men aged 65 and older. Retirement income as defined in the main analysis includes public and occupational old age pensions. Augmented non-earned income additionally includes the respondent's income from individual private pensions, survivor pensions, unemployment benefits, sickness benefits, disability benefits, and education-related allowances. It further includes the following types of public transfers to the respondent's household on a per capita basis (i.e., divided by household size): family allowances, housing allowances, and other means-tested transfers. Finally, it includes several additional private income sources (again, on a per capita basis to adjust for household size): property income, capital income, and imputed rent. Retirement benefits or other types of individual-level transfers (e.g., unemployment benefits) received by the respondent's partner are not included. Income gaps are estimated using 16 within-country regressions with controls for age (5 year groups), education (highest degree, three categories), never having worked, occupational attainment (last/current job, International Socio-Economic Index score, linear effect), self-employment (last/current job), and survey year. All predictors except access to social security are standardized (mean of zero and standard deviation of 1). Two-sided p-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.
Source: EU-SILC 2004-2013, authors' calculations.

S5.3 Regression results with additional control for gross vs. net income

As noted in the main article (see Section "Data and Methods"), the dependent variable—retirement income—is recorded in gross (i.e., pre-tax) terms in twelve of the 16 countries in our sample and net of income taxes and/or certain types of social security contributions in the remaining four (France, Greece, Italy, and Sweden). To assess the robustness of the country-level regression results reported in Figure 3 and 4 (as well as Tables A1 and A2 in the main article), we reran them with an additional dichotomous predictor indicating the twelve countries that provide gross income.

The results are reported in Tables S10 (men) and S11 (women). For men, coefficient estimates on the indicator variable for gross income are statistically insignificant throughout. Depending on the specifications, point estimates imply that the Retirement income gap was larger by 1.0 to 7.3 log points in countries where income was recorded in gross terms. Most importantly, coefficient estimates and levels of statistical significance are very similar to the main analysis for all of the five focal predictors (pension redistribution index, access to social security, strictness of residence requirements, social spending, and employment protection index).

For women, the coefficient estimate on the indicator variable for gross income is statistically significant at the ten per cent level in two of the ten multivariate specifications (models 2 and 4). As for men, coefficient estimates generally imply a larger Retirement income gap for countries that provide retirement income in gross terms, with the estimated difference ranging between 3.8 and 20.1 log points. Again, however, coefficient estimates on the predictors of interest do not change substantially when the indicator variable is included, and neither do their levels of statistical significance.

Table S8. Country-level regressions of retirement income gaps in 16 Western European countries, men aged 65+
(Regression results with additional dichotomous variable indicating the 12 of the 16 countries that provide retirement income in gross terms)

	Included separately	Model1	Model2	Model3	Model4	Model5	Model6	Model7	Model8	Model9	Model10
Pension redistribution index	9.2*	9.3*	6.3+	9.8+	9.6+						
	(0.04)	(0.05)	(0.10)	(0.05)	(0.05)						
Full access to social security	-0.4	-0.1				1.8	0.2	6.1			
(ref.: less than full)	(0.97)	(0.99)				(0.85)	(0.99)	(0.70)			
Strictness of residence requirements	9.4*		7.4*			9.5*			9.6*	9.4*	
	(0.02)		(0.05)			(0.03)			(0.02)	(0.03)	
Social spending	3.0			-1.3			3.1		3.3		2.7
	(0.53)			(0.78)			(0.54)		(0.40)		(0.61)
Employment protection index	-2.3				0.9			-4.2		0.0	-1.5
	(0.63)				(0.84)			(0.55)		(1.00)	(0.77)
Average age at immigration	Controlled	-5.5	-4.1	-5.5	-5.6	-2.7	-3.8	-2.6	-3.1	-2.8	-3.6
		(0.19)	(0.21)	(0.18)	(0.18)	(0.49)	(0.45)	(0.61)	(0.40)	(0.45)	(0.46)
Retirement income measure is pre-tax	-4.6	-7.6	-6.5	-7.3	-7.3	-2.3	-4.5	-1.0	-4.7	-3.4	-4.9
(ref.: income measure not pre-tax)	(0.66)	(0.47)	(0.34)	(0.40)	(0.40)	(0.81)	(0.72)	(0.94)	(0.55)	(0.68)	(0.64)
Intercept	---	-27.3*	-28.4***	-27.5**	-27.5**	-32.5*	-30.1+	-35.8+	-30.0***	-30.8**	-29.7**
		(0.04)	(0.00)	(0.00)	(0.00)	(0.01)	(0.06)	(0.06)	(0.00)	(0.00)	(0.01)
N	16	16	16	16	16	16	16	16	16	16	16
R2 (adjusted)	---	0.36	0.57	0.37	0.37	0.42	0.09	0.09	0.46	0.42	0.10

Notes: FGLS estimates following Lewis and Linzer (2005). Dependent variable is the retirement income gap (in log points) between non-EU immigrants and native-born men aged 65 and older. Retirement income gaps estimated using 16 within-country regressions with controls for age (5 year groups), education (highest degree, three categories), never having worked, occupational attainment (last/current job, International Socio-Economic Index score, linear effect), self-employment (last/current job), and survey year. All predictors except access to social security are standardized (mean of zero and standard deviation of 1). Two-sided p-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.
Source: EU-SILC 2004-2013, authors' calculations.

Table S9. Country-level regressions of retirement income gaps in 16 Western European countries, women aged 65+
(Regression results with additional dichotomous variable indicating the 12 of the 16 countries that provide retirement income in gross terms)

	Included separately	Model1	Model2	Model3	Model4	Model5	Model6	Model7	Model8	Model9	Model10
Pension redistribution index	19.9**	19.8**	18.3**	17.6*	16.7*						
	(0.00)	(0.01)	(0.01)	(0.02)	(0.02)						
Full access to social security	-4.2	-1.5				1.3	-2.3	19.9			
(ref.: less than full)	(0.80)	(0.90)				(0.94)	(0.88)	(0.28)			
Strictness of residence requirements	10.6		5.1			10.8			10.7	7.7	
	(0.14)		(0.36)			(0.17)			(0.10)	(0.25)	
Social spending	11.9+			4.2			11.8		12.1+		9.0
	(0.09)			(0.48)			(0.11)		(0.06)		(0.17)
Employment protection index	-13.7+				-7.2			-19.3*		-11.8	-11.1
	(0.06)				(0.23)			(0.04)		(0.11)	(0.12)
Average age at immigration	Controlled	-27.1***	-25.4***	-26.7***	-26.3***	-22.3*	-24.8**	-22.2**	-21.8**	-22.4**	-24.0**
		(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Retirement income measure is pre-tax	-13.3	-20.0	-19.4+	-19.5	-20.1+	-9.2	-14.7	-3.8	-14.9	-13.9	-16.1
(ref.: income measure not pre-tax)	(0.43)	(0.15)	(0.10)	(0.10)	(0.08)	(0.60)	(0.40)	(0.81)	(0.25)	(0.31)	(0.24)
Intercept	---	-24.9	-26.0*	-26.5*	-26.1*	-33.1	-28.1	-48.6*	-29.2*	-29.6*	-28.9*
		(0.11)	(0.02)	(0.02)	(0.01)	(0.13)	(0.17)	(0.03)	(0.02)	(0.02)	(0.02)
N	16	16	16	16	16	16	16	16	16	16	16
R2 (adjusted)	---	0.79	0.81	0.80	0.82	0.62	0.64	0.70	0.73	0.70	0.72

Notes: FGLS estimates following Lewis and Linzer (2005). Dependent variable is the retirement income gap (in log points) between non-EU immigrants and native-born women aged 65 and older. Retirement income gaps estimated using 16 within-country regressions with controls for age (5 year groups), education (highest degree, three categories), never having worked, occupational attainment (last/current job, International Socio-Economic Index score, linear effect), self-employment (last/current job), and survey year. All predictors except access to social security are standardized (mean of zero and standard deviation of 1). Two-sided p-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.
Source: EU-SILC 2004-2013, authors' calculations.

S5.4 Complete-case analysis

Results in the main article are based on multiply imputed data (ten imputations; see Section S1 above). As a robustness check, we reran the two-step analysis using only complete cases in the first-stage regressions and repeated the country-level analysis with the resulting RIG estimates as the dependent variable. Tables S6 and S7 present the results. They are similar to the ones presented in the main article (see Tables A1 and A2 as well as Figures 3 and 4 in the main article).

Table S10. Country-level regressions of retirement income gaps in 16 Western European countries, men aged 65+
(Complete case analysis)

	Included separately	Model1	Model2	Model3	Model4	Model5	Model6	Model7	Model8	Model9	Model10
Pension redistribution index	6.7+	7.6+	4.0	7.5+	8.1+						
	(0.06)	(0.06)	(0.21)	(0.07)	(0.06)						
Full access to social security	-1.6	2.8				0.1	-1.0	-1.0			
(ref.: less than full)	(0.84)	(0.69)				(0.98)	(0.91)	(0.94)			
Strictness of residence requirements	8.6*		6.9+			8.6*			8.7*	8.7*	
	(0.02)		(0.07)			(0.03)			(0.03)	(0.03)	
Social spending	2.2			-1.6			2.3		1.9		2.2
	(0.61)			(0.72)			(0.62)		(0.62)		(0.64)
Employment protection index	-1.0				2.6			-0.6		0.1	-0.4
	(0.82)				(0.54)			(0.93)		(0.96)	(0.93)
Average age at immigration	Controlled	-3.3	-3.1	-3.7	-4.1	-2.4	-2.2	-1.9	-2.5	-2.4	-2.1
		(0.35)	(0.29)	(0.29)	(0.24)	(0.45)	(0.61)	(0.67)	(0.41)	(0.43)	(0.62)
Intercept	---	-31.0***	-29.9***	-29.5***	-29.1***	-30.1***	-29.4***	-29.4**	-30.1***	-30.0***	-30.0***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N	16	16	16	16	16	16	16	16	16	16	16
R2 (adjusted)	---	0.29	0.48	0.29	0.31	0.40	0.04	0.02	0.41	0.40	0.04

Notes: FGLS estimates following Lewis and Linzer (2005). Dependent variable is the retirement income gap (in log points) between non-EU immigrants and native-born men aged 65 and older. Retirement income gaps estimated using 16 within-country regressions with controls for age (5 year groups), education (highest degree, three categories), never having worked, occupational attainment (last/current job, International Socio-Economic Index score, linear effect), self-employment (last/current job), and survey year. All predictors except access to social security are standardized (mean of zero and standard deviation of 1). Two-sided p-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.: EU-SILC 2004-2013, authors' calculations.

Table S11. Country-level regressions of retirement income gaps in 16 Western European countries, women aged 65+
(Complete case analysis)

	Included separately	Model1	Model2	Model3	Model4	Model5	Model6	Model7	Model8	Model9	Model10
Pension redistribution index	17.2**	17.7**	15.3*	14.1*	13.9*						
	(0.01)	(0.01)	(0.02)	(0.04)	(0.04)						
Full access to social security	-4.4	3.0				0.3	-1.0	15.3			
(ref.: less than full)	(0.75)	(0.78)				(0.98)	(0.94)	(0.30)			
Strictness of residence requirements	10.5		5.2			10.6			10.2+	7.5	
	(0.12)		(0.37)			(0.15)			(0.09)	(0.24)	
Social spending	12.2+			5.6			12.1+		12.1*		9.4
	(0.06)			(0.35)			(0.07)		(0.04)		(0.12)
Employment protection index	-13.2*				-6.8			-18.4*		-11.2+	-10.4
	(0.05)				(0.27)			(0.03)		(0.10)	(0.11)
Average age at immigration	Controlled	-23.9***	-22.3**	-23.8***	-23.4***	-19.4*	-22.1**	-19.7**	-18.9**	-19.4**	-21.5**
		(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.01)	(0.01)	(0.01)	(0.00)
Intercept	---	-38.0***	-35.8***	-36.7***	-36.6***	-35.4**	-35.9**	-45.0***	-35.8***	-35.9***	-36.9***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N	16	16	16	16	16	16	16	16	16	16	16
R2 (adjusted)	---	0.70	0.72	0.72	0.72	0.55	0.59	0.64	0.69	0.65	0.68

Notes: FGLS estimates following Lewis and Linzer (2005). Dependent variable is the retirement income gap (in log points) between non-EU immigrants and native-born men aged 65 and older. Retirement income gaps estimated using 16 within-country regressions with controls for age (5 year groups), education (highest degree, three categories), never having worked, occupational attainment (last/current job, International Socio-Economic Index score, linear effect), self-employment (last/current job), and survey year. All predictors except access to social security are standardized (mean of zero and standard deviation of 1). Two-sided p-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$.: EU-SILC 2004-2013, authors' calculations.

S5.5 Outlier analysis

In the following figures, we present sensitivity analyses regarding potentially influential outliers. Specifically, the figures show how estimates vary when leaving out one country at a time. Figures S3 and S4 are for men, and figures S5 and S6 are for women. Each panel is dedicated to one specific predictor and includes the same model specifications as Figures 3 and 4 of the main article. For brevity, we do not show results for the full access to social security dummy (available upon request). For each predictor and specification, a white dot indicates the full-sample point estimate and a red bar the associated 90 percent confidence interval. 16 blue markers indicate the point estimates obtained when omitting one country from the analysis. For better readability, the middle 12 of the resulting point estimates are indicated by unlabeled plus signs. For the two smallest and the two largest point estimates, we use the country code instead. For example, the "FI" markers in panel S3-I show point estimates for the pension redistribution index in a 15-country sample that excludes Finland.

Figure S3. Outlier analysis on the effects of pension redistribution index and residence requirements, men (in reference to Figure 3, panels I and II)

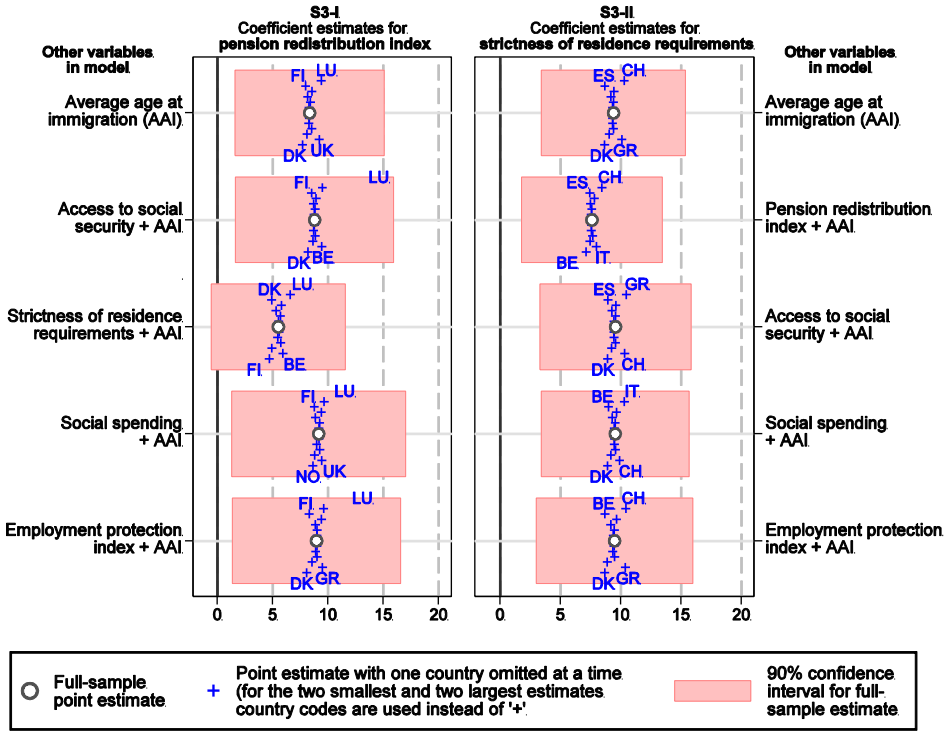


Figure S4. Outlier analysis for the effects of social spending and employment protection legislation, men (in reference to Figure 3, panels III and IV)

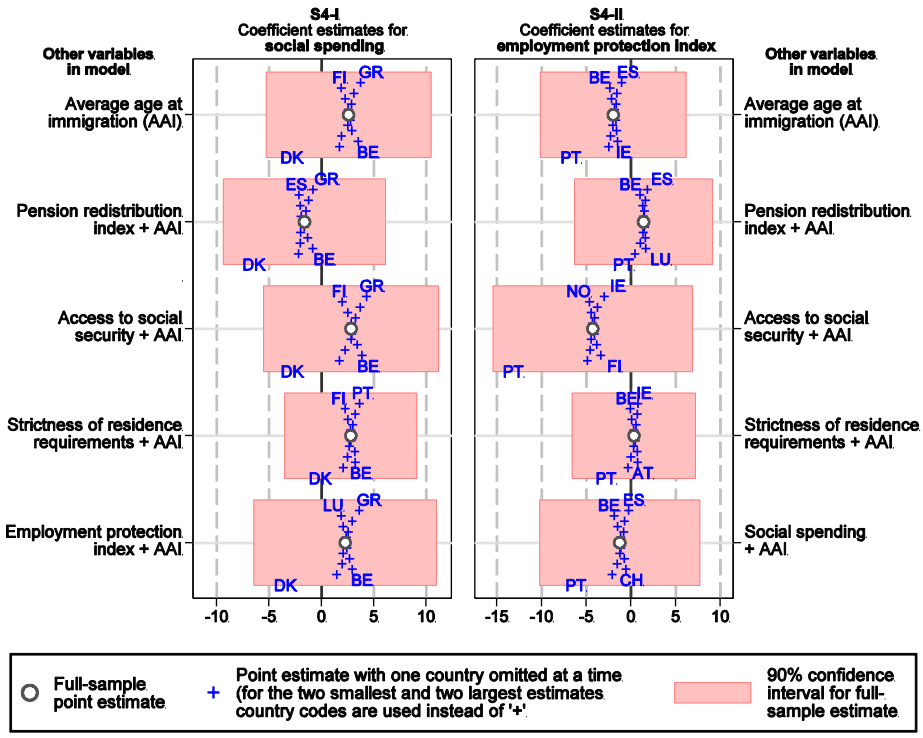


Figure S5. Outlier analysis on the effects of pension redistribution index and residence requirements, women (in reference to Figure 4, panels I and II)

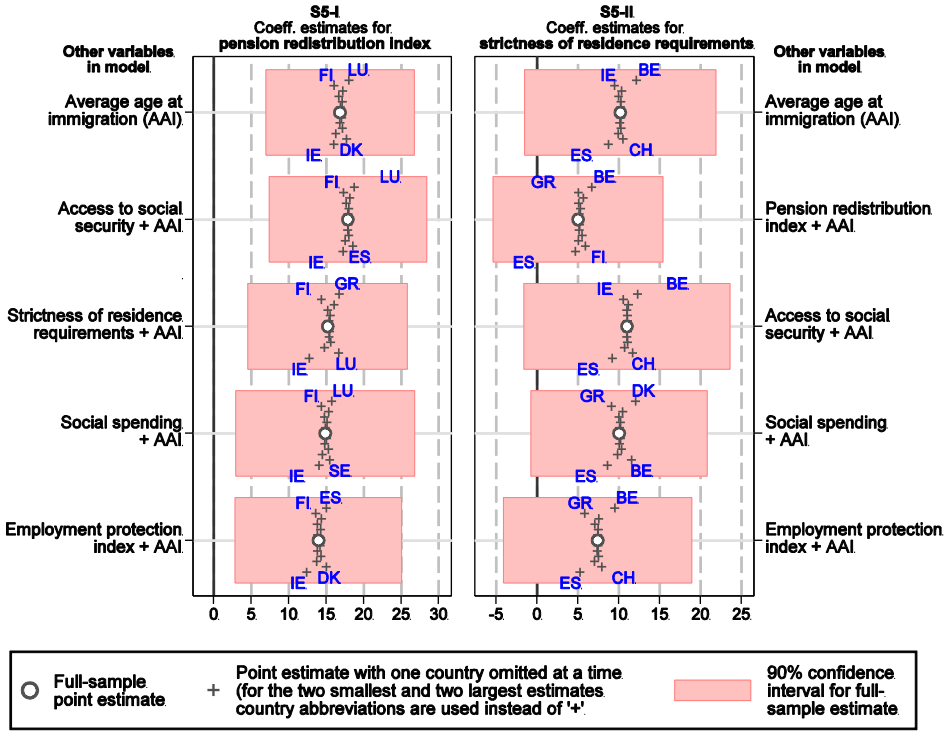
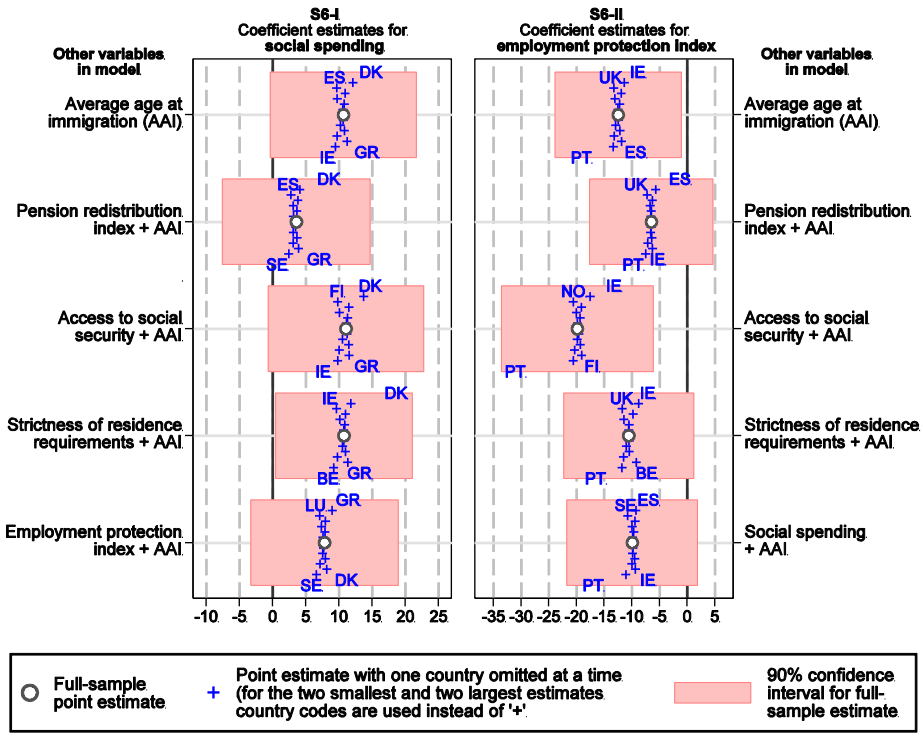


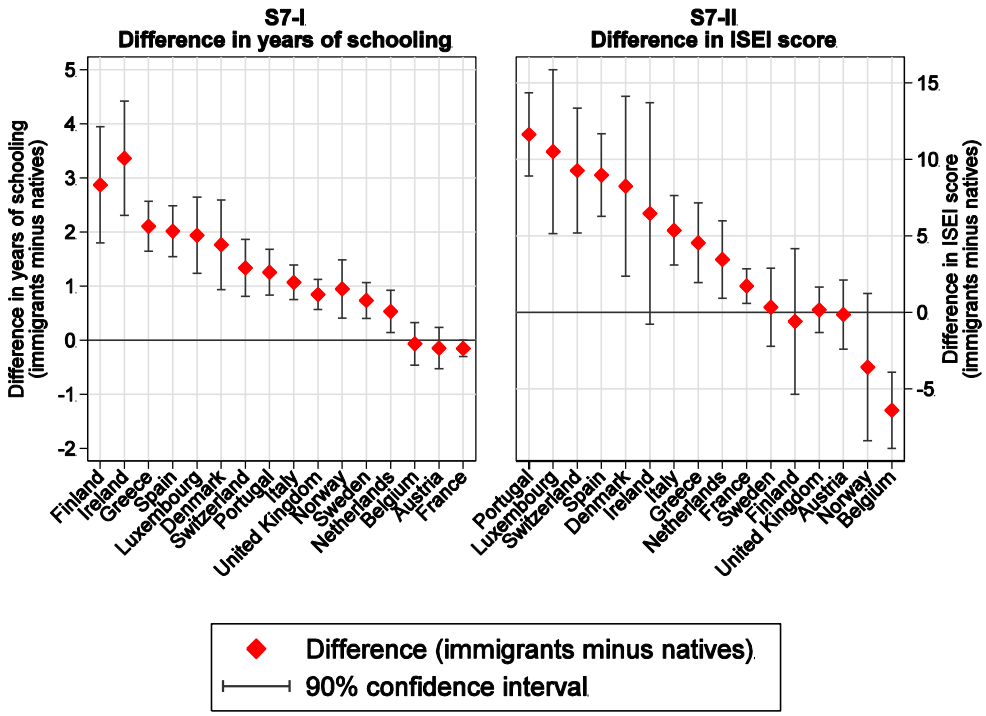
Figure S6. Outlier analysis for the effects of social spending and employment protection legislation, women (in reference to Figure 4, panels III and IV)



S6 Immigrant-native differences in educational attainment and occupational status of immigrants and natives

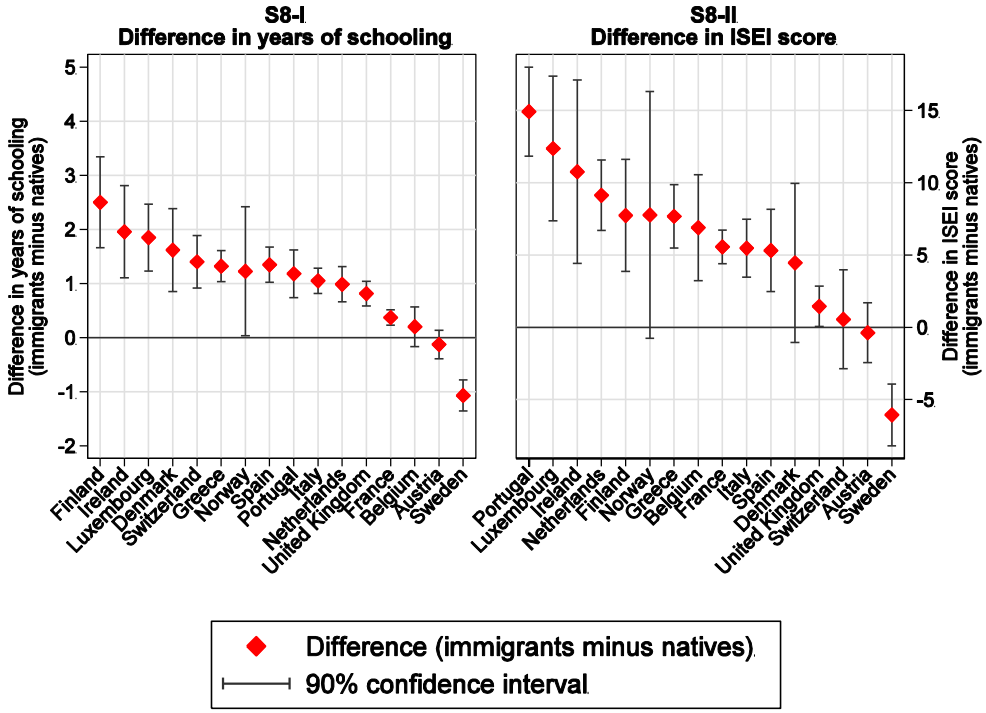
Figures S7 and S8 compare the socio-economic profile of male and female non-EU immigrants aged 65 and older with that of older natives. Panels S7-I and S8-I display immigrant-native differences in educational attainment. For simplicity, we converted information on the highest educational degree to the (approximate) years of schooling required for obtaining it.[3] Results are similar when looking at immigrant-native differences in the proportion belonging to the three educational categories. Panels S7-II and S8-II display immigrant-native differences in ISEI scores of occupational status. In the majority of European countries analyzed, older immigrants have better schooling and higher occupational status than older natives. It should be noted that among working-age persons, this pattern is generally reversed (age-specific analyses available upon request).

Figure S7. Immigrant-native difference in educational attainment and occupational status, men aged 65+



[3] We used the following scheme: ISCED 0-2=8 years; ISCED 3-4=12 years; ISCED 5-6=16 years.

Figure S8. Immigrant-native difference in educational attainment and occupational status, women aged 65+



S7 Regression results depicted in Figures 3 and 4

For the sake of completeness, in Tables S12 and S13 we report the exact point estimates for the model results illustrated in figures 3 and 4 of the article.

TABLE S12. *Country-level regressions of retirement income gaps in 16 Western European countries, men aged 65+*
(Results depicted in Figure 3)

	Included separately	Model1	Model2	Model3	Model4	Model5	Model6	Model7	Model8	Model9	Model10
Pension redistribution index	8.4*	8.8*	5.5	9.2+	9.0+						
	(0.05)	(0.05)	(0.13)	(0.06)	(0.06)						
Full access to social security	1.3	3.9				2.8	2.3	6.6			
(ref.: less than full)	(0.88)	(0.61)				(0.68)	(0.81)	(0.58)			
Strictness of residence requirements	9.4*		7.6*			9.6*			9.6*	9.5*	
	(0.02)		(0.04)			(0.02)			(0.02)	(0.02)	
Social spending	2.6			-1.6			2.8		2.8		2.3
	(0.57)			(0.71)			(0.55)		(0.44)		(0.65)
Employment protection index	-2.0				1.4			-4.3		0.3	-1.2
	(0.67)				(0.75)			(0.50)		(0.93)	(0.81)
Average age at immigration	Controlled	-4.9	-3.9	-5.2	-5.4	-2.5	-3.5	-2.5	-2.9	-2.8	-3.5
		(0.22)	(0.23)	(0.20)	(0.19)	(0.49)	(0.45)	(0.60)	(0.40)	(0.44)	(0.45)
Intercept	---	-34.8***	-32.9***	-32.7***	-32.7***	-34.7***	-34.4***	-36.8***	-33.3***	-33.2***	-33.2***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N	16	16	16	16	16	16	16	16	16	16	16
R2 (adjusted)	---	0.33	0.53	0.32	0.32	0.42	0.08	0.09	0.44	0.41	0.08

Notes: The results are depicted in Figure 3. Values are FGLS estimates following Lewis and Linzer (2005), with two-sided p-values in parentheses. Dependent variable is the retirement income gap (in log points) between non-EU immigrants and native-born men aged 65 and older. Retirement income gaps estimated using 16 within-country regressions with controls for age (5 year groups), education (highest degree, three categories), never having worked, occupational attainment (last/current job, International Socio-Economic Index score, linear effect), self-employment (last/current job), and survey year. All predictors except access to social security are standardized (mean of zero and standard deviation of 1). Ref.: reference category. Two-sided p-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.: EU-SILC 2004-2013, authors' calculations.

TABLE S13. *Country-level regressions of retirement income gaps in 16 Western European countries, women aged 65+*
(Results depicted in Figure 4)

	Included separately	Model1	Model2	Model3	Model4	Model5	Model6	Model7	Model8	Model9	Model10
Pension redistribution index	16.8*	17.9*	15.2*	14.9*	14.0*						
	(0.01)	(0.01)	(0.03)	(0.05)	(0.05)						
Full access to social security	0.9	7.6				5.7	4.4	22.0			
(ref.: less than full)	(0.95)	(0.49)				(0.67)	(0.74)	(0.14)			
Strictness of residence requirements	10.2		5.0			11.0			10.0	7.4	
	(0.15)		(0.40)			(0.14)			(0.12)	(0.27)	
Social spending	10.7			3.6			11.0		10.7+		7.8
	(0.11)			(0.57)			(0.12)		(0.09)		(0.23)
Employment protection index	-12.5+				-6.5			-19.8*		-10.5	-9.9
	(0.08)				(0.32)			(0.03)		(0.14)	(0.16)
Average age at immigration	Controlled	-26.6***	-25.8***	-27.0***	-26.7***	-22.1**	-24.6**	-22.0**	-22.5**	-23.0**	-24.7**
		(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Intercept	---	-44.3***	-39.9***	-40.4***	-40.5***	-42.3**	-42.6***	-52.6***	-40.0***	-39.8***	-40.5***
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
N	16	16	16	16	16	16	16	16	16	16	16
R2 (adjusted)	---	0.74	0.75	0.74	0.75	0.61	0.62	0.70	0.69	0.67	0.68

Notes: The results are depicted in Figure 4. Values are FGLS estimates following Lewis and Linzer (2005), with two-sided p-values in parentheses. Dependent variable is the retirement income gap (in log points) between non-EU immigrants and native-born women aged 65 and older. Retirement income gaps estimated using 16 within-country regressions with controls for age (5 year groups), education (highest degree, three categories), never having worked, occupational attainment (last/current job, International Socio-Economic Index score, linear effect), self-employment (last/current job), and survey year. All predictors except access to social security are standardized (mean of zero and standard deviation of 1). Ref.: reference category. Two-sided p-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.: EU-SILC 2004-2013, authors' calculations.

References

Eurostat (2013). *Description of target variables: Cross-sectional and Longitudinal*. Brussels: Eurostat.
StataCorp (2015). *Stata Statistical Software: Release 14*. College Station, TX: StataCorp LP.
Van Buuren, S. (2012). *Flexible Imputation of Missing Data*. Boca Raton: Chapman & Hall.