

**Immigration, Globalization, and Unemployment Benefits
in Developed EU States**

November 3, 2010

Supporting Information

Overview

In this document, we present further details concerning our choices about a possible endogenous relationship, an alternative model specification, multicollinearity, and alternative figures from our paper.

Possible Endogeneity

As we mention in the paper, an alternative argument for explaining the relationship between unemployment policy and immigration would be to reverse the causality. Depending on their generosity, unemployment benefits may attract immigrant groups. To test for this possibility, we estimate a model of immigration as a function of lagged unemployment benefits and variables controlling for the economic and political contexts. Table 1 shows that while the coefficient on the lagged unemployment benefits variable is positive, it is not significant at conventionally accepted levels. These findings give us confidence that immigration influences unemployment benefits in the ways we argue in the paper.

[Table 1 about here]

Alternative Model Specification: Variables for EU Treaty Years

In this paper, we create a measure of European integration that relies on labor costs, which is a new way of thinking about integration—both theoretically and methodologically. Because much of previous literature on European integration relies on dummy variables for treaty years to indicate integration, in Table 2, we run our model of unemployment entitlement including variables for each year a treaty was enacted (1987, 1993, 1999, and 2003). These variables do not alter our substantive results, and none of them are statistically significant at conventionally accepted levels.

[Table 2 about here]

Multicollinearity

After estimating the model in Table 1 of the paper, we ran a VIF (Variance Inflation Factor) check for the variables in our model. Table 3 includes a VIF for all variables including country dummies. As Table 3 shows, we do not find an abnormally large amount of multicollinearity. As one would expect, the largest VIF values are associated with interaction terms and their linear components (Kam and Franzese 2007). The average VIF is 6.17, which is not very high given the interactive nature of our model. We also ran a correlation table for all major explanatory variables. Table 4 reports the correlations. Other than the interaction terms, correlations among our major explanatory variables are not very high. The two highest correlations between the linear terms are $\Delta Unemployment - \Delta FDI$ (-0.434) and $\Delta Unemployment - \Delta GPD$ (-0.408). The VIF statistics for these three variables, nevertheless, are all less than 2.

[Table 3 about here]

[Table 4 about here]

Alternative Figures 5 and 6

When analyzed using 90% confidence intervals, as is appropriate given our directional hypotheses, both Figures 5 and 6 illustrate statistically significant relationships. We show them here as Figures 1 and 2.

[Figure 1 about here]

[Figure 2 about here]

Alternative Combined Figures

As alternatives to the separated figures presented in the paper, we show here combined versions of the figures that include overlapping predictions and confidence intervals (similar to Figure 1 in King et.al. 2000). Although the presentation differs, the empirical results are statistically the same.

[Figure 3 about here]

[Figure 4 about here]

[Figure 5 about here]

[Figure 6 about here]

[Figure 7 about here]

[Figure 8 about here]

References

- Kam, Cindy D. & Robert J. Jr. Franzese. 2007. *Modeling and Interpreting Interactive Hypotheses in Regression Analysis*. Ann Arbor, MI: University of Michigan Press.
- King, Gary, Michael Tomz & Jason Wittenberg. 2000. "Making the Most of Statistical Analyses: Improving Interpretation and Presentation." *American Journal of Political Science* 44:347–361.

Table 1: Effects of Lagged Unemployment Benefits on Immigration

Variable	Coefficient	(PCSEs)
Δ Integration	-2.406	(4.206)
Union Density _{$t-1$}	-3.100**	(0.960)
Left Seats _{$t-1$}	-0.010	(0.016)
Δ Unemployment	0.008	(0.099)
Δ Trade	-0.027	(0.018)
Δ GDP	0.0002*	(0.0001)
Δ FDI	0.043	(0.040)
Entitlement _{$t-1$}	0.012	(0.015)
Intercept	3.566**	(1.111)
N	496	
ρ	0.745	
R^2	0.035	

* $p < .10$, two-tailed t-test

** $p < .05$, two-tailed t-test

Notes:

- Dependent variable is the level of immigration.

- Coefficients for country dummies not reported.

Table 2: Including the Years of EU Treaty Enactments on the Level of Unemployment Entitlement in Developed EU Welfare State: 1971-2007

Variable	Coefficient	(PCSEs)
Δ Immigration	-0.248	(0.170)
Δ Integration	1.979	(1.992)
Union Density _{$t-1$}	-2.539	(1.633)
Left Seats _{$t-1$}	0.010	(0.012)
Δ Immigration \times Δ Integration	-0.364	(0.960)
Δ Immigration \times Union Density _{$t-1$}	0.390	(0.261)
Δ Immigration \times Left Seats _{$t-1$}	0.004*	(0.002)
Δ GDP	-0.0001	(0.0002)
Δ Unemployment	-0.116	(0.084)
Δ Trade	0.005	(0.014)
Δ FDI	-0.069	(0.044)
Year 1987	.208	(.358)
Year 1993	-.120	(.333)
Year 1999	.255	(.318)
Year 2003	.162	(.383)
Entitlement _{$t-1$}	0.890**	(0.019)
Intercept	3.942**	(1.094)
N	496	
ρ	0.407	
R^2	0.962	

* $p < .10$, two-tailed t-test

** $p < .05$, two tailed t-test

Notes:

- Dependent variable is the level of unemployment entitlements.
- Coefficients for country dummies not reported.

Table 3: Variance Inflation Factor (VIF) for Variables

Variable	VIF
Union Density _{<i>t</i>-1}	37.43
Left Seats _{<i>t</i>-1}	21.62
Entitlement _{<i>t</i>-1}	19.69
Δ Immigration	17.44
Δ Immigration \times Union Density _{<i>t</i>-1}	9.20
Δ Immigration \times Left Seats _{<i>t</i>-1}	7.36
Δ GDP	3.95
Δ Unemployment	1.46
Δ FDI	1.35
Δ Trade	1.19
Δ Immigration \times Δ Integration	1.11
Δ Integration	1.05
<i>(State Dummies)</i>	
Danmark	4.50
Sweden	4.46
Finland	3.79
Ireland	3.38
Belgium	2.96
Netherlands	2.85
Norway	2.67
France	2.16
Spain	2.11
Italy	1.96
Greece	1.90
Germany	1.82
UK	1.81
Portugal	1.32
Mean VIF	6.17

Table 4: Correlations Between Explanatory Variables

Variables (V_k)	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	V_{10}	V_{11}	V_{12}
Entitlement $_{t-1}$ (V_1)	1.000											
Δ Immigration (V_2)	-0.006	1.000										
Δ Integration (V_3)	-0.009	0.018	1.000									
Δ Immigration \times Δ Integration (V_4)	0.048	-0.024	-0.065	1.000								
Δ Immigration \times Union Density $_{t-1}$ (V_5)	-0.006	0.940	0.010	-0.025	1.000							
Δ Immigration \times Left Seats $_{t-1}$ (V_6)	0.008	0.923	0.045	0.049	0.850	1.000						
Union Density $_{t-1}$ (V_7)	0.069	-0.001	-0.016	-0.015	0.018	0.0020	1.000					
Left Seats $_{t-1}$ (V_8)	-0.130	-0.057	0.005	0.085	-0.037	-0.014	-0.055	1.000				
Δ Unemployment (V_9)	-0.060	-0.216	0.094	-0.005	-0.207	-0.212	0.037	-0.002	1.000			
Δ Trade (V_{10})	0.026	-0.017	0.079	-0.058	-0.007	-0.013	0.026	-0.069	-0.116	1.000		
Δ GDP (V_{11})	0.134	0.159	0.014	0.010	0.162	0.143	-0.006	-0.031	-0.406	0.151	1.000	
Δ FDI (V_{12})	0.051	0.158	-0.032	-0.018	0.175	0.159	-0.031	0.023	-0.434	0.248	0.284	1.000

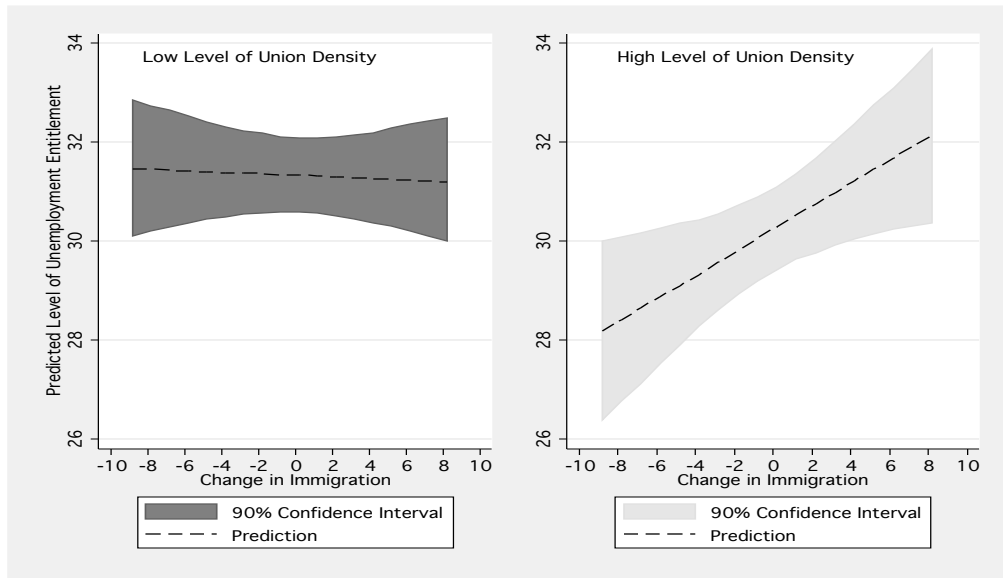


Figure 1: Levels of Change in Immigration Across the Range of Left Party Seats

- All other variables are held at their mean values.

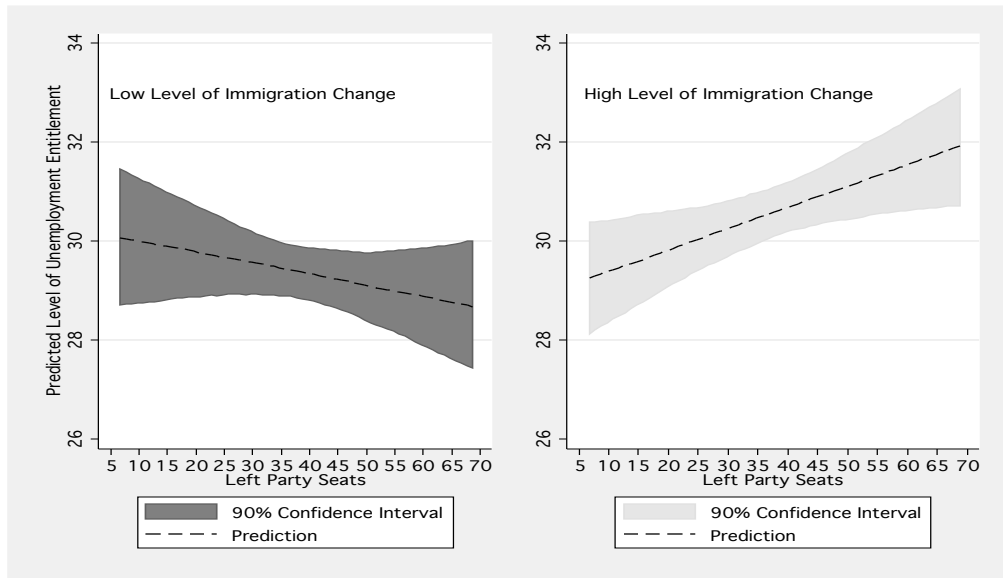


Figure 2: Levels of Union Density Across the Range of Change in Immigration

- All other variables are held at their mean values.

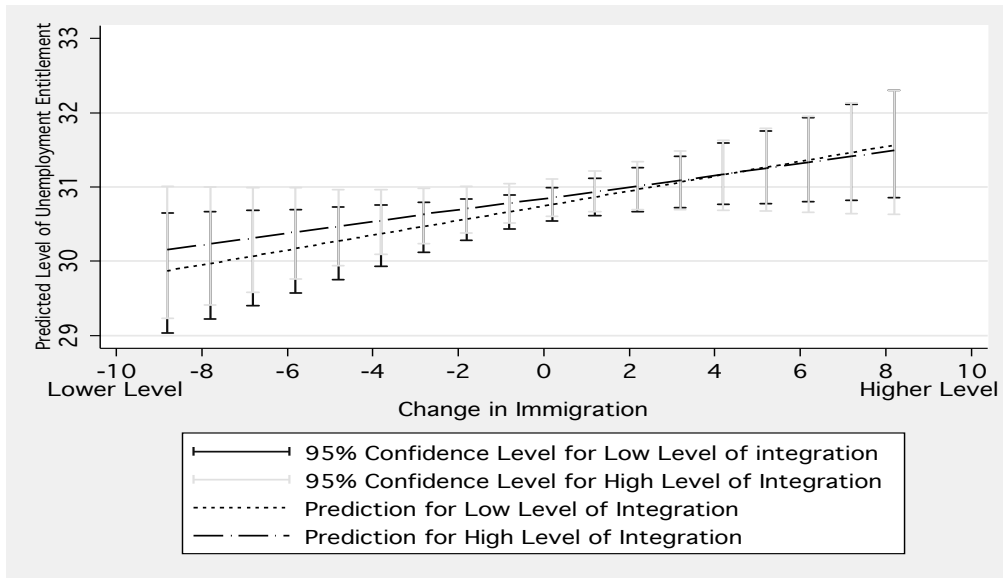


Figure 3: Levels of Integration Across the Range of Immigration

- All other variables are held at their mean values.

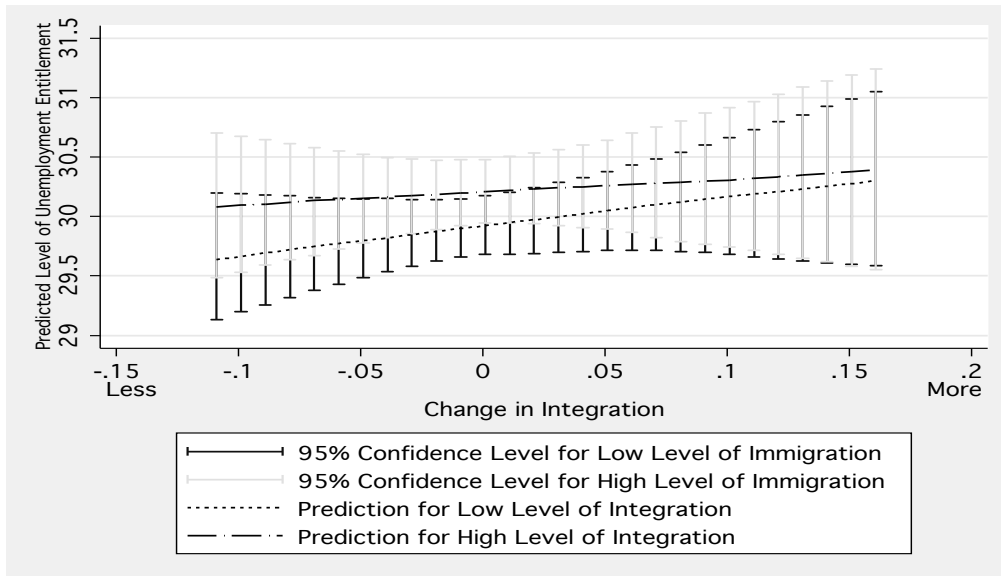


Figure 4: Levels of Immigration Across the Range of Integration

- All other variables are held at their mean values.

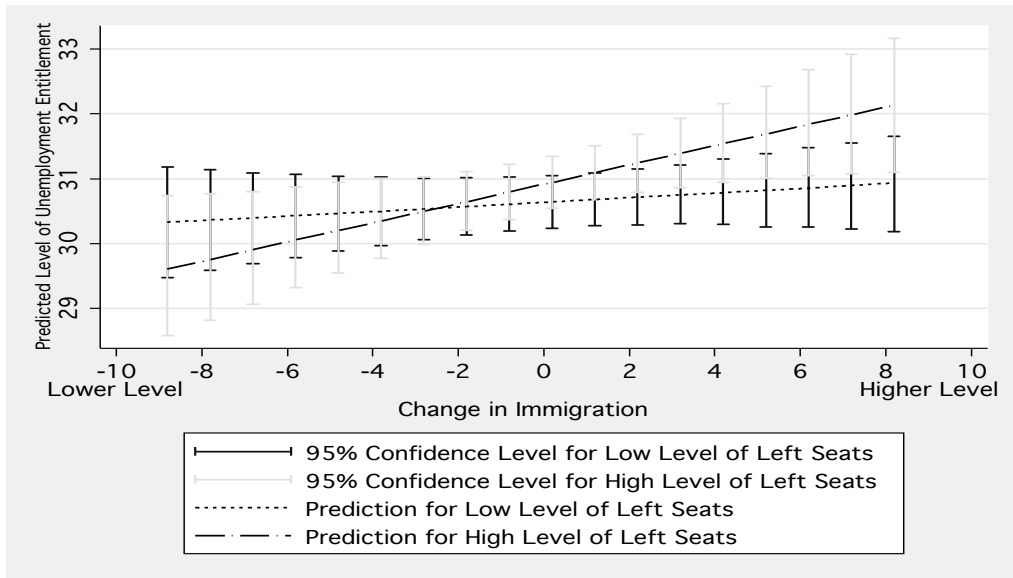


Figure 5: Levels of Left Party Seats Across the Range of Immigration

- All other variables are held at their mean values.

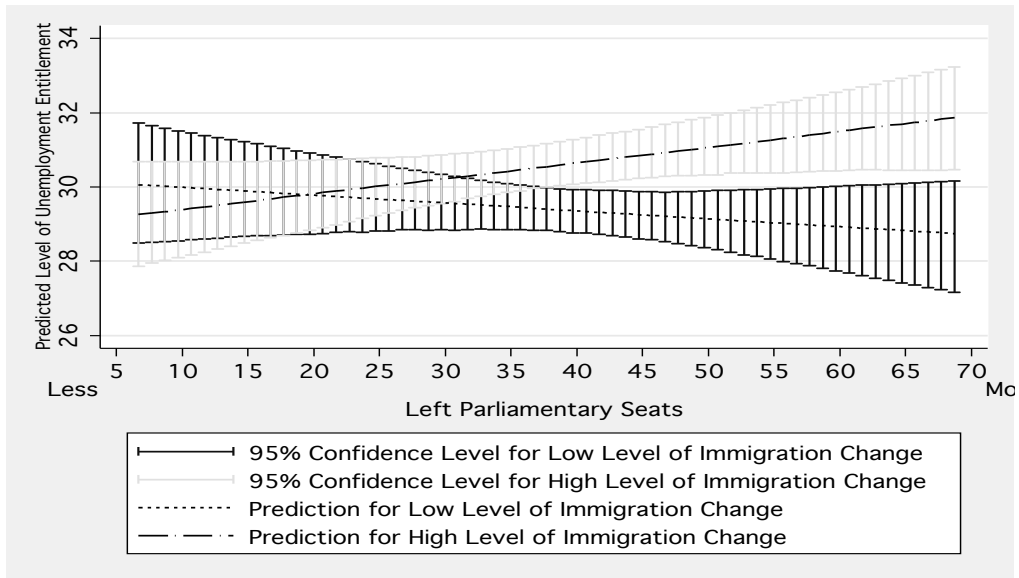


Figure 6: Levels of Immigration Across the Range of Left Party Seats

- All other variables are held at their mean values.

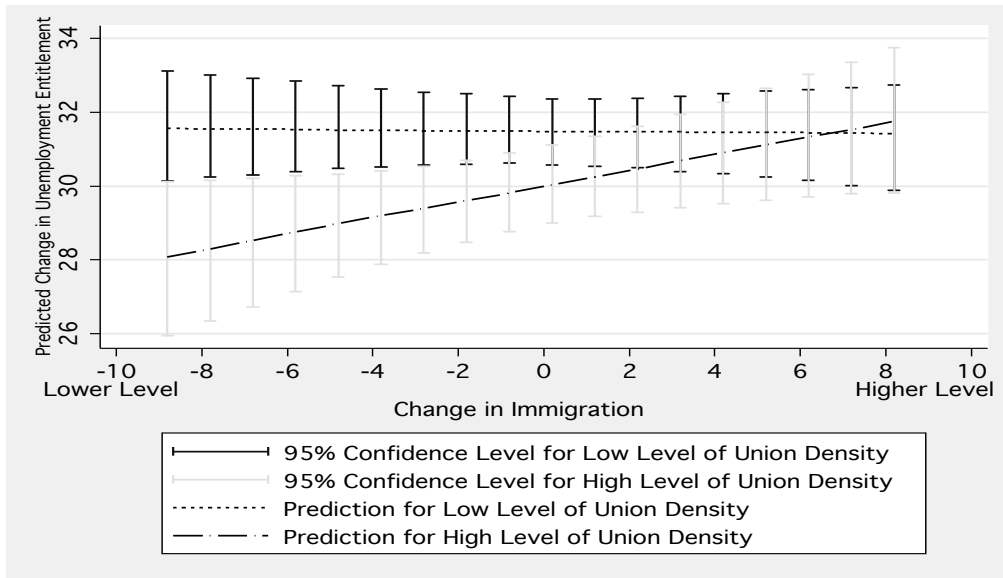


Figure 7: Levels of Union Density Across the Range of Immigration

- All other variables are held at their mean values.

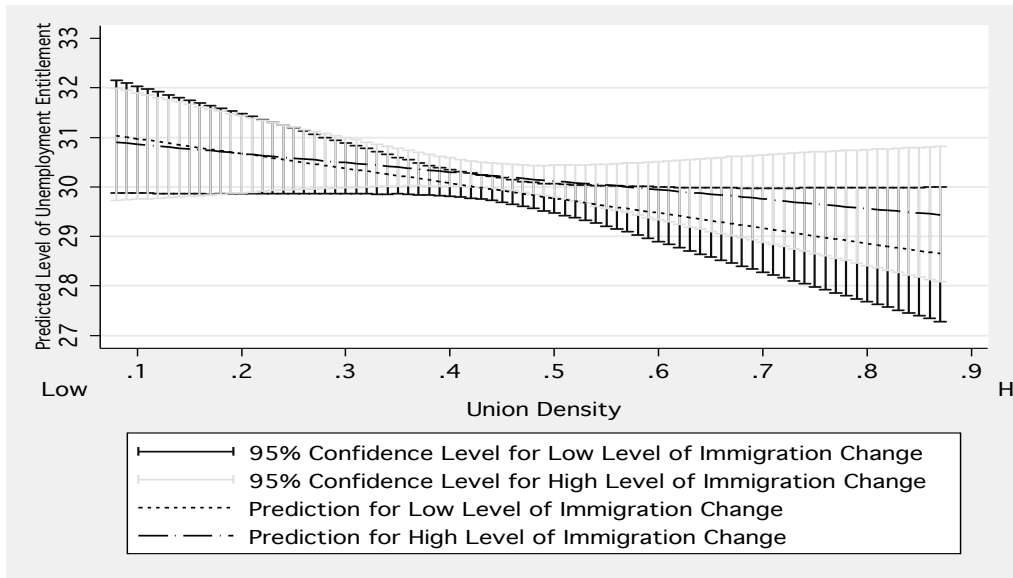


Figure 8: Levels of Immigration Across the Range of Union Density

- All other variables are held at their mean values.