Reassessing Regional Labour Markets in Europe and the US: Has Mobility Increased?

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November 27, 2013

Motivation

- Strong and increasing regional heterogeneity in European labour markets
  - Unemployment rates in Campania and Sardinia three times higher than in Veneto
  - Also in France and Spain highest regional rates more than twice as high as lowest

  $\Rightarrow$ How do regional labour markets adjust in a monetary union?
  $\Rightarrow$ Has the role of labour mobility and migration changed?

- Cross-country migration has increased in Europe (Beine et al., 2013)
- Migration has decreased in the US (Molloy, Smith & Wozniak, 2011)

General Approach

- Framework of Blanchard and Katz (1992)
  - Regional labour markets differ permanently
  - Shocks to regional labour demand have permanent effects on the employment level but only temporary on unemployment and participation rates
  - Unexplained employment change must be due to migration
  - Identified VAR to trace out the role of migration
- Update and refinement of Decressin and Fatás (1995)
  - Longer sample
  - Comparable data for Europe and the US
  - Alternative normalisation for region-specific variables
  - Country effects in Europe

Data

	Europe	US
Frequency/Period	Annual from 1976 to 2011	
Variables	Working-age Population (P_{it}) Labour Force (L_{it}) Employment (E_{it})	
# of Regions	47[a]	51[b]
Main Data Sources	National LFS	CPS and LAUS
Total Population 2011	240 Million	214 Million
Average Population 2011	4.6 Million	4.7 Million

[a] 8 French, 7 (West)German, 11 Italian, 7 Spanish, 8 British, Belgium, Denmark, Greece, Ireland, The Netherlands, Portugal

[b] All States plus the District of Columbia

VAR with Employment Growth, Employment Rate, and Participation Rate

$$\Delta \log E_{it} = \phi_{i10} + \phi_{11}(L)\Delta \log E_{it-1} + \phi_{12}(L) \log \frac{E_{it-1}}{L_{it-1}} + \phi_{13}(L) \log \frac{L_{it-1}}{P_{it-1}} + \phi_{14}\Gamma_{it} + \epsilon_{iet} \quad (1)$$

$$\log \frac{E_{it}}{L_{it}} = \phi_{i20} + \phi_{21}(L)\Delta \log E_{it} + \phi_{22}(L) \log \frac{E_{it-1}}{L_{it-1}} + \phi_{23}(L) \log \frac{L_{it-1}}{P_{it-1}} + \phi_{24}\Gamma_{it} + \epsilon_{irt} \quad (2)$$

$$\log \frac{L_{it}}{P_{it}} = \phi_{i30} + \phi_{31}(L)\Delta \log E_{it} + \phi_{32}(L) \log \frac{E_{it-1}}{L_{it-1}} + \phi_{33}(L) \log \frac{L_{it-1}}{P_{it-1}} + \phi_{34}\Gamma_{it} + \epsilon_{ipt} \quad (3)$$

- Identification: unexpected changes of the year-to-year employment change are due to changes of the labour demand
- Pooled over different sub-samples and using different time periods
- Indirect approach to labour migration and labour mobility

$$\frac{\Delta \text{Employment}}{\text{Employment}} = \frac{\Delta \text{Employment Rate}}{\text{Employment Rate}} + \frac{\Delta \text{Participation Rate}}{\text{Participation Rate}} + \frac{\Delta \text{Population}}{\text{Population}} \quad (4)$$

Region-Specific Variables

- Simple Differences (Blanchard and Katz 1992)

$$x_{it} = X_{it} - X_{at} \tag{5}$$

  - Regions react homogeneously to aggregate shocks
  - 1 common factor per series (=aggregate) and coefficients equal to 1
- Residuals from factor model

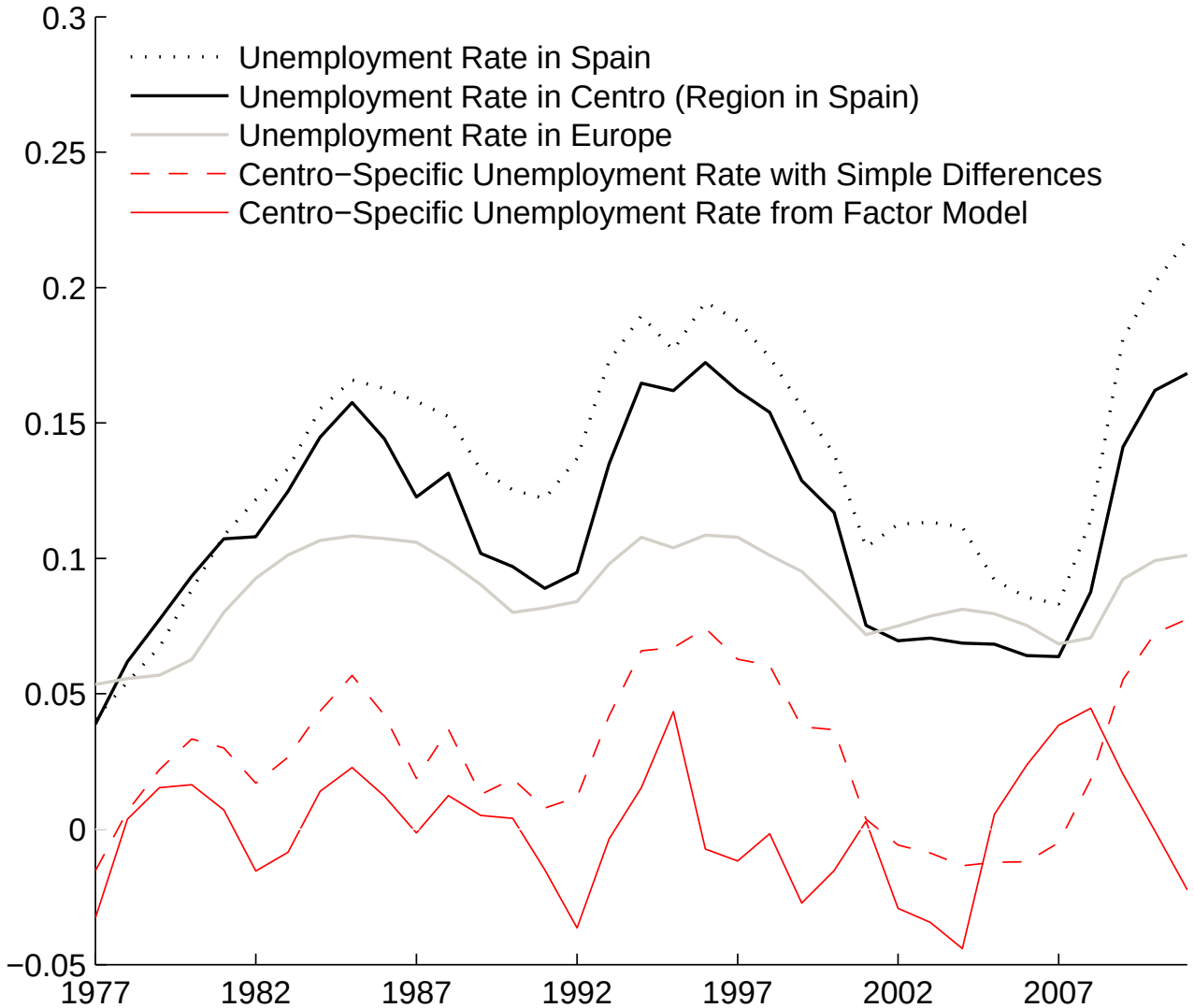
$$z_{it} = X_{it} - f_t^{'} \lambda_i \tag{6}$$

  - Regions react heterogeneously (λ_i) to different factors ($f_t^{'}$)
  - Very flexible regarding number of factors and their structure
  - Baseline: 3 global, 2 continental, 9 country/large regional factors

$$X_{it} = z_{it} + L_i^{g,1} f_t^{g,1} + L_i^{g,2} f_t^{g,2} + L_i^{g,3} f_t^{g,3} + L_i^{cont} f_t^{cont} + L_i^{lrc} f_t^{lrc} \tag{7}$$

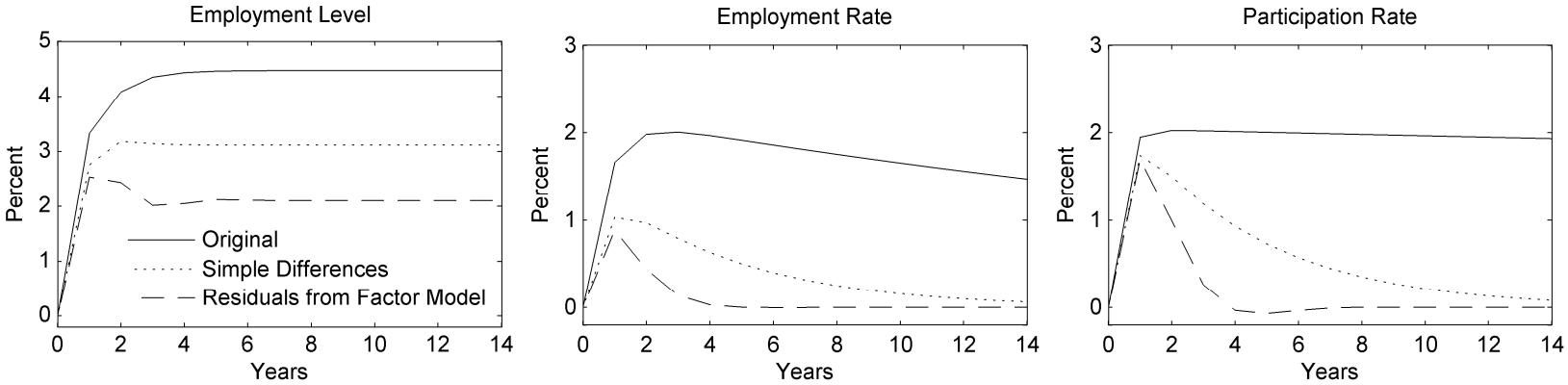
  - Estimated with QML Approach of Doz, Giannone, and Reichlin (2012)

Different Normalisations Intuitively

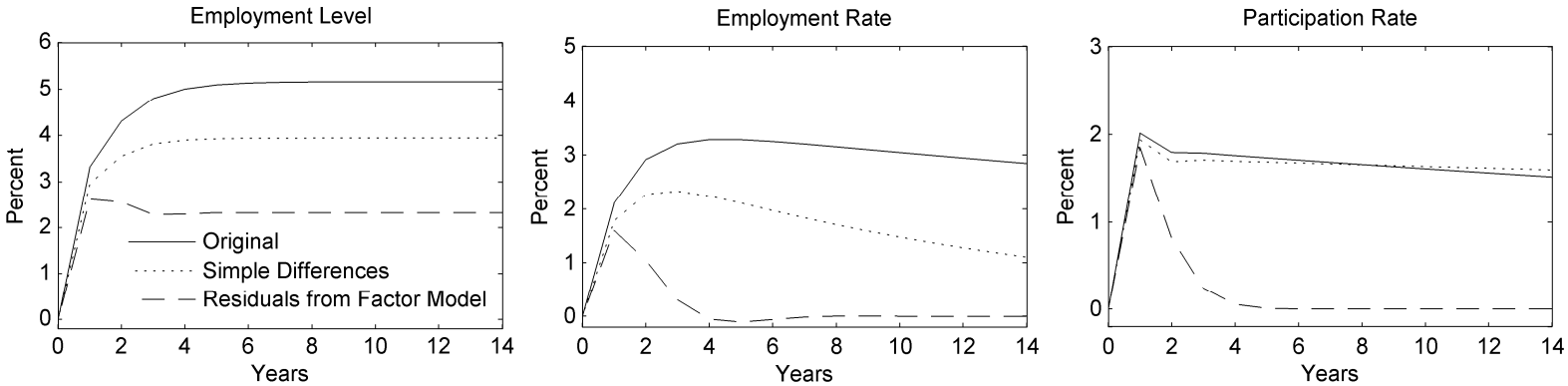


Preliminary Data Analysis

- AR(2) Processes: US



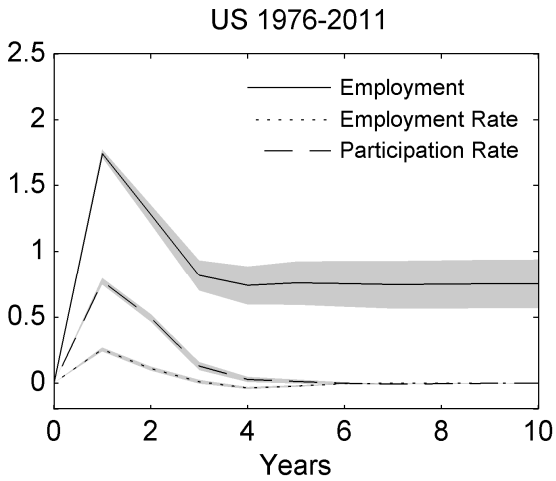
- AR(2) Processes: Europe

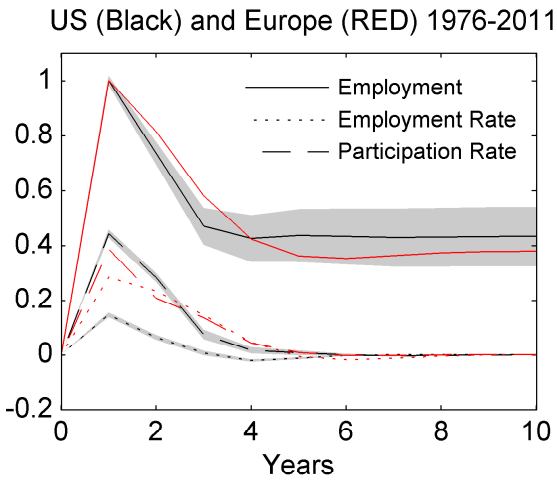


- Unit root in European employment rate and participation rate with simple and β-differences

Comparing the Regional AM in Europe and the US

- Impulse Responses





- Decomposition

	Europe						US					
Years	1	2	3	4	5	15	1	2	3	4	5	15
Employment	1	0.82	0.58	0.42	0.36	0.38	1	0.74	0.47	0.42	0.44	0.43
Employment Rate	0.28	0.23	0.15	0.05	-0.01	0	0.15	0.06	0.01	-0.02	-0.01	0
Participation Rate	0.39	0.21	0.14	0.04	0.01	0	0.44	0.28	0.07	0.02	0.01	0
Migration	0.33	0.37	0.3	0.33	0.36	0.38	0.41	0.39	0.39	0.43	0.44	0.43

Comparing the Regional AM over Time

Decomposition 1976-1993

	Europe						US					
Years	1	2	3	4	5	15	1	2	3	4	5	15
Employment	1	0.59	0.46	0.48	0.50	0.49	1	0.57	0.56	0.58	0.58	0.58
Employment Rate	0.22	0.10	-0.04	-0.02	0	0	0.14	0.03	0	0	0	0
Participation Rate	0.34	0.04	0	0	0	0	0.35	0.08	-0.02	0	0	0
Migration	0.44	0.45	0.49	0.50	0.50	0.49	0.51	0.46	0.59	0.58	0.58	0.58

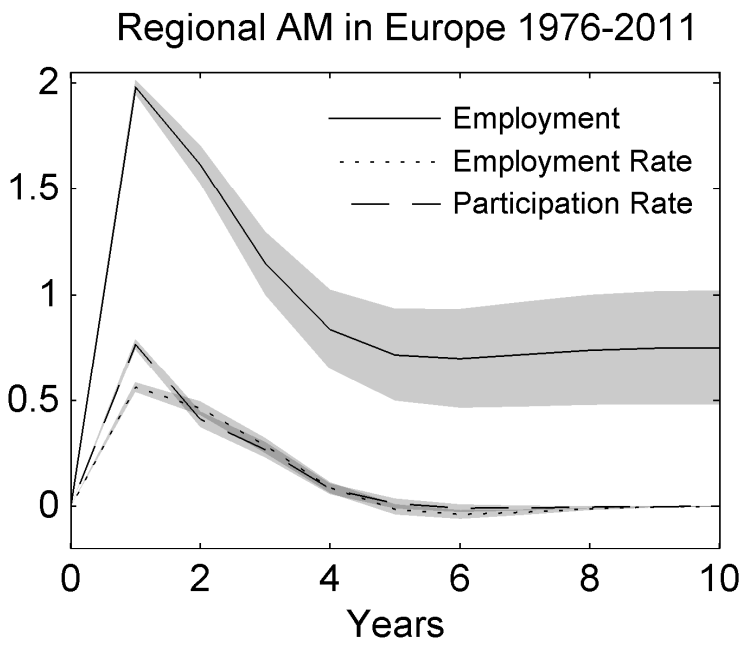
Decomposition 1994-2011

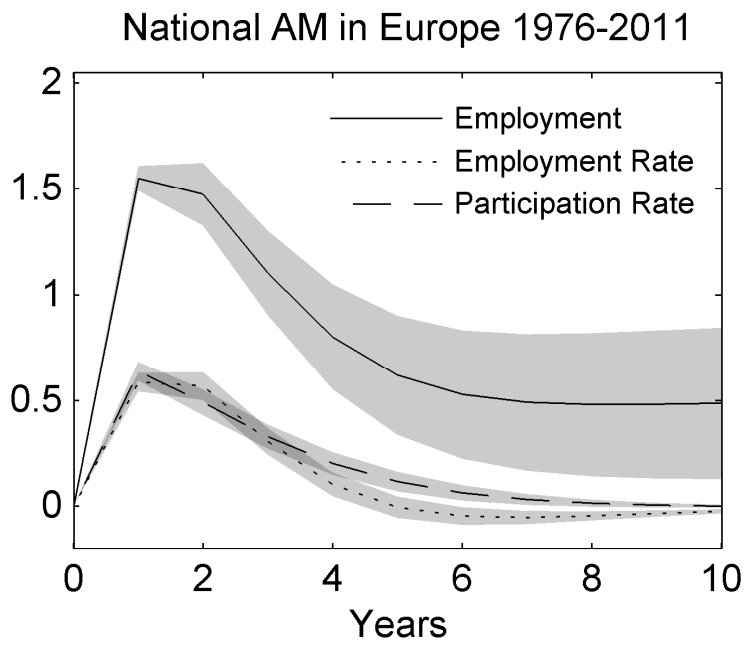
	Europe						US					
Years	1	2	3	4	5	15	1	2	3	4	5	15
Employment	1	0.69	0.57	0.49	0.44	0.39	1	0.63	0.47	0.47	0.48	0.48
Employment Rate	0.27	0.18	0.16	0.1	0.06	0	0.08	0.03	-0.02	-0.01	0	0
Participation Rate	0.44	0.21	0.09	0.03	0.01	0	0.48	0.2	0.02	-0.01	0	0
Migration	0.30	0.30	0.33	0.36	0.37	0.39	0.44	0.40	0.47	0.49	0.48	0.48

$\Rightarrow$ Participation became more and migration less important in Europe and the US

- Female labour force participation?
- Home ownership?
- Part-time jobs?

Comparing the Regional and National AM in Europe

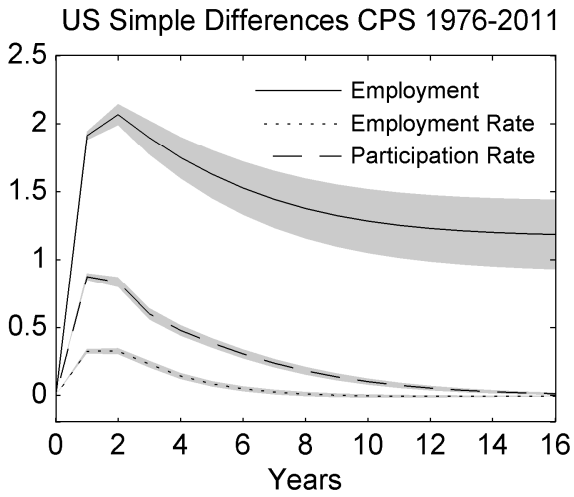




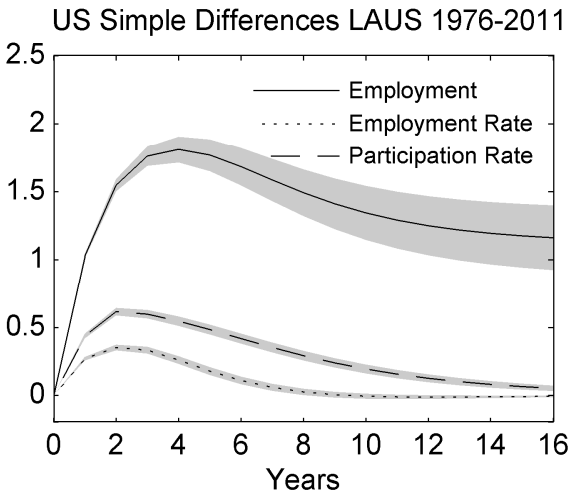
$\Rightarrow$ National AM more persistent

$\Rightarrow$ Migration contributes less to national AM

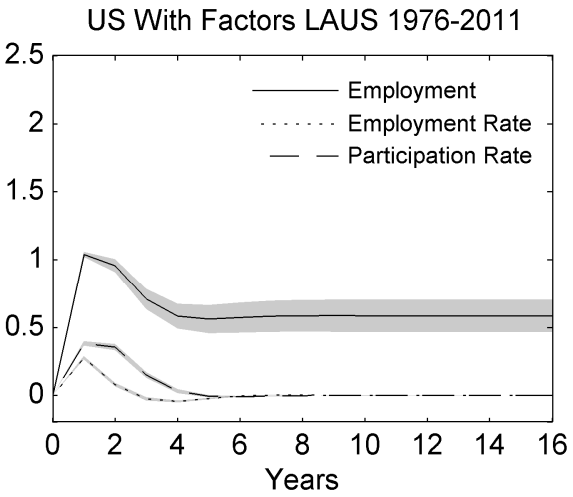
Robustness I



- Mixture of AM to heterogeneous responses to aggregate shocks and to regional specific shocks



- Similar to BK
- Humped shape response conflicts with identification



- Different from CPS
  - smaller shock
  - more migration
- Part-time jobs?

Robustness II

- Regional AM very similar in European countries
- β-differences very similar to simple differences
- Role of lag length
  - No effect for one lag
  - Permanent effect decreases with more lags
- Robust to changing the data frequency to monthly
- Robust to very different specifications of the factor analysis

Conclusion

- Comparing the regional AM in Europe and the US
  - In Europe the employment rate contributes more
  - In Europe migration contributes (a little) less
  - Both are very fast (5 years in Europe and 4 years in US)
  - Both in Europe and the US the permanent effect is below 50%
- Comparing the regional AM over time
  - In Europe and the US the contribution of the participation rate has increased
  - In both labour mobility has decreased
- Comparing the national and regional AM in Europe
  - The national AM is more persistent
  - The national AM is less driven by migration

$\Rightarrow$ In Europe some room for improvement but migration unlikely to become a major driver of regional labour market adjustment

Contributions of Factors

- Explained Variance in %

	G1	G2	G3	US	EU	LR	C	Global	Total
Employment Growth	15	16	20	4	4	10	5	51	74
Employment Rate	30	11	9	5	2	4	2	50	65
Participation Rate	34	27	11	2	3	1	4	72	83

- Filtered variation a little higher than in Decressin and Fatás (1995)
- Filtered variation slightly higher in Europe
- Loadings of European regions have wider distributions

Original Variables: Means and Standard Deviations