

The Macroeconomic Impact of Euro Area Labour Market Reforms

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Abstract

Reforms to unemployment benefits (UB) and employment protection legislation (EPL) have been extensively used to cope with macro-economic imbalances in euro area economies. I use narrative data on reforms to identify their macro-economic effects in a Bayesian panel VAR for 11 euro area economies.

The approach complements microeconomic evidence by aligning short- and medium-term effects and assessing state dependencies.

Euro Area Labour Market Reforms

Identification is based on reform events in the 11 initial euro area member states from the database of Aumond, Di Tommaso, and Rünstler, 2021).

1. Three types of reforms: EPL targeting regular contracts, EPL targeting temporary labour contracts, and unemployment benefits.
2. *Major* reforms are identified from annual OECD country reports (Duval et al., 2018). Quarterly legal decision and implementation dates are obtained from national legal sources.
3. No attempt to quantify the scale of reforms due to their very diverse nature.

	Deregulation	Tightenings
EPL Regular Contracts	12	2
EPL Temporary Contracts	9	7
Unemployment Benefits	5	1

Methodology

The small number of reforms per country requires a panel VAR approach.

1. Estimate the VARs for the individual countries under a prior shrinking coefficients $B_{c,s}$ towards a common mean (Canova, 2006; Jarocinski, 2012).

$$y_{c,t} = \sum_{s=1}^p B_{c,s} y_{c,t-s} + u_{c,t} \quad (1)$$

2. Structural decomposition of the VAR residuals defining reform shocks $\theta_{c,t}$

$$A_c u_{c,t} = \begin{pmatrix} \theta_{c,t} \\ \epsilon_{c,t} \end{pmatrix} \quad (2)$$

3. Define narrative instruments $z_{c,t}$ such that $z_{c,t} = \pm 1$ in periods of reforms and $z_{c,t} = 0$ otherwise. Instruments $z_{c,t}$ indicate a mean shift γ of $\theta_{c,t}$.

Assume normality of the VAR residuals conditional on $z_{c,t}$

$$\begin{pmatrix} \theta_{c,t} \\ \epsilon_{c,t} \end{pmatrix} | z_{c,t} \sim N \left(\begin{pmatrix} \gamma z_{c,t} \\ 0 \end{pmatrix}, I_n \right) \quad (3)$$

4. Let α_c^T be the 1st row of A_c . Conditional on residuals u_t , α_c can be estimated via OLS from the *discriminant regression* (Budnik and Rünstler, 2022)

$$z_{c,t} = \alpha_0 \delta_{c,t} + \alpha_c^T u_{c,t}. \quad (4)$$

$\delta_{c,t}$ is a deterministic term, $\delta_{c,t} = -1$ for $z_{c,t} = -1$ and $\delta_{c,t} = 1$ otherwise, required for sign adjustment. Given the low number of reforms in individual countries, the discriminant regression is pooled across countries.

The model is estimated via Gibbs sampling. When drawing from coefficients $B_{c,s}$ in VAR (1), an adjustment is made to account for the mean shift in the VAR residuals $u_{c,t}$ for non-zero $z_{c,t}$.

Results

The panel VAR includes GDP, CPI, employment, active population, the real wage, real house prices, and the 10y bond spread vis-a-vis Germany. Further controls are US GDP, commodity prices, and the euro area shadow rate.

Figures 1 to 3 show the average impact of reform events. All types of reforms raise output and employment. UB reforms have an immediate effect on employment owing to a jump in the labour force, while the effect of EPL reforms is delayed. The delay depends on the state of the business cycle.

Figure 1: EPL Regular Workers

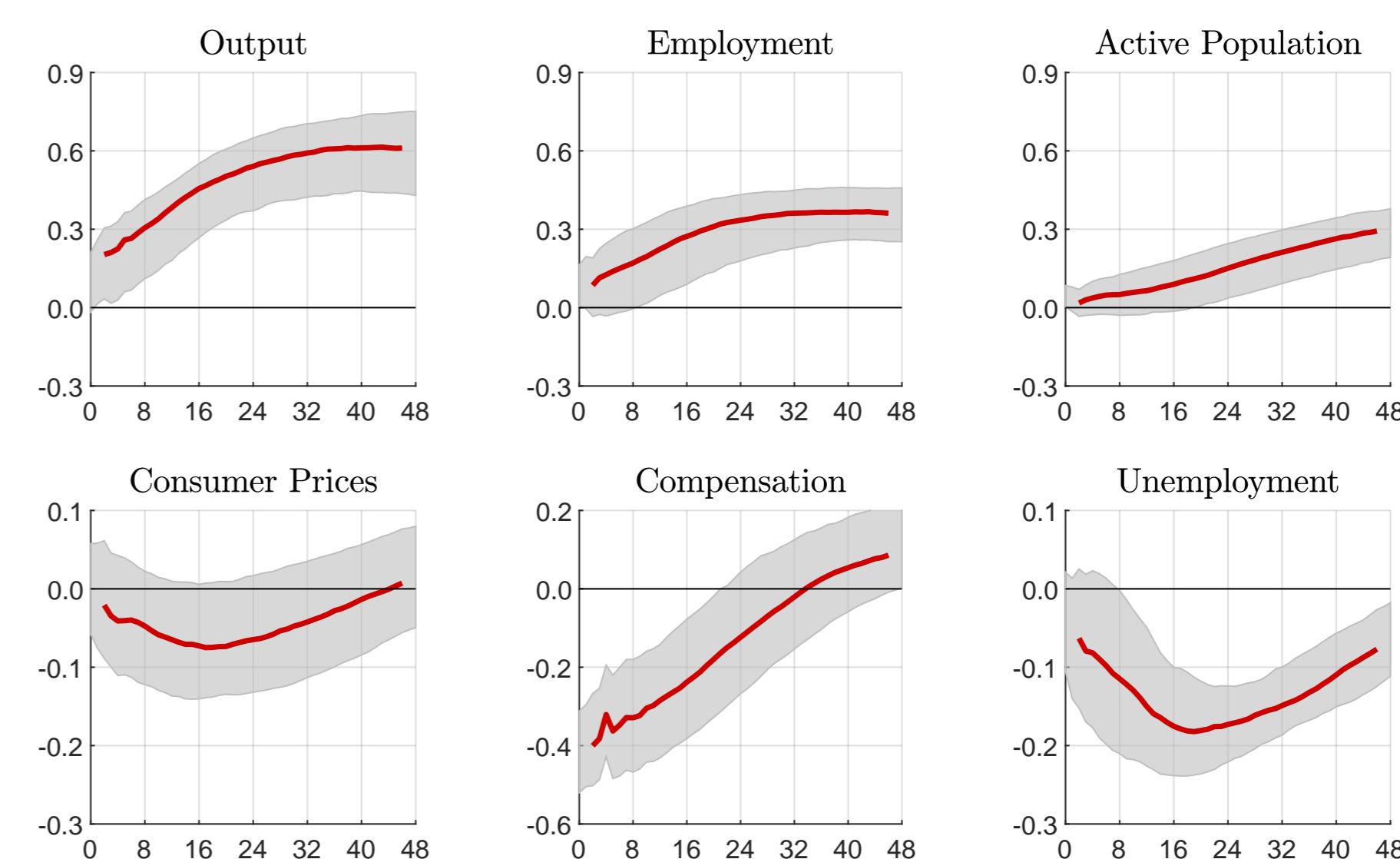


Figure 2: EPL Temporary Workers

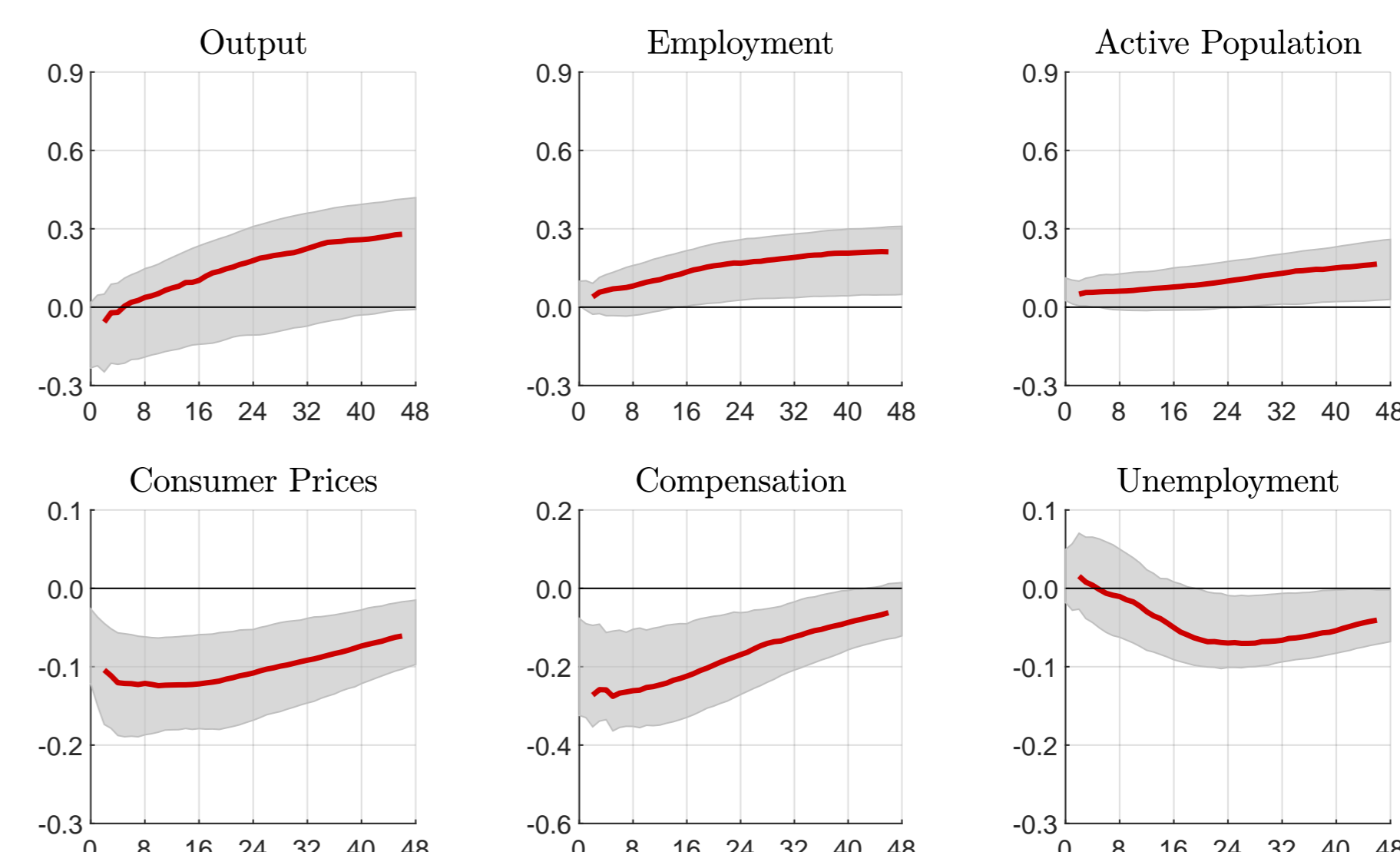
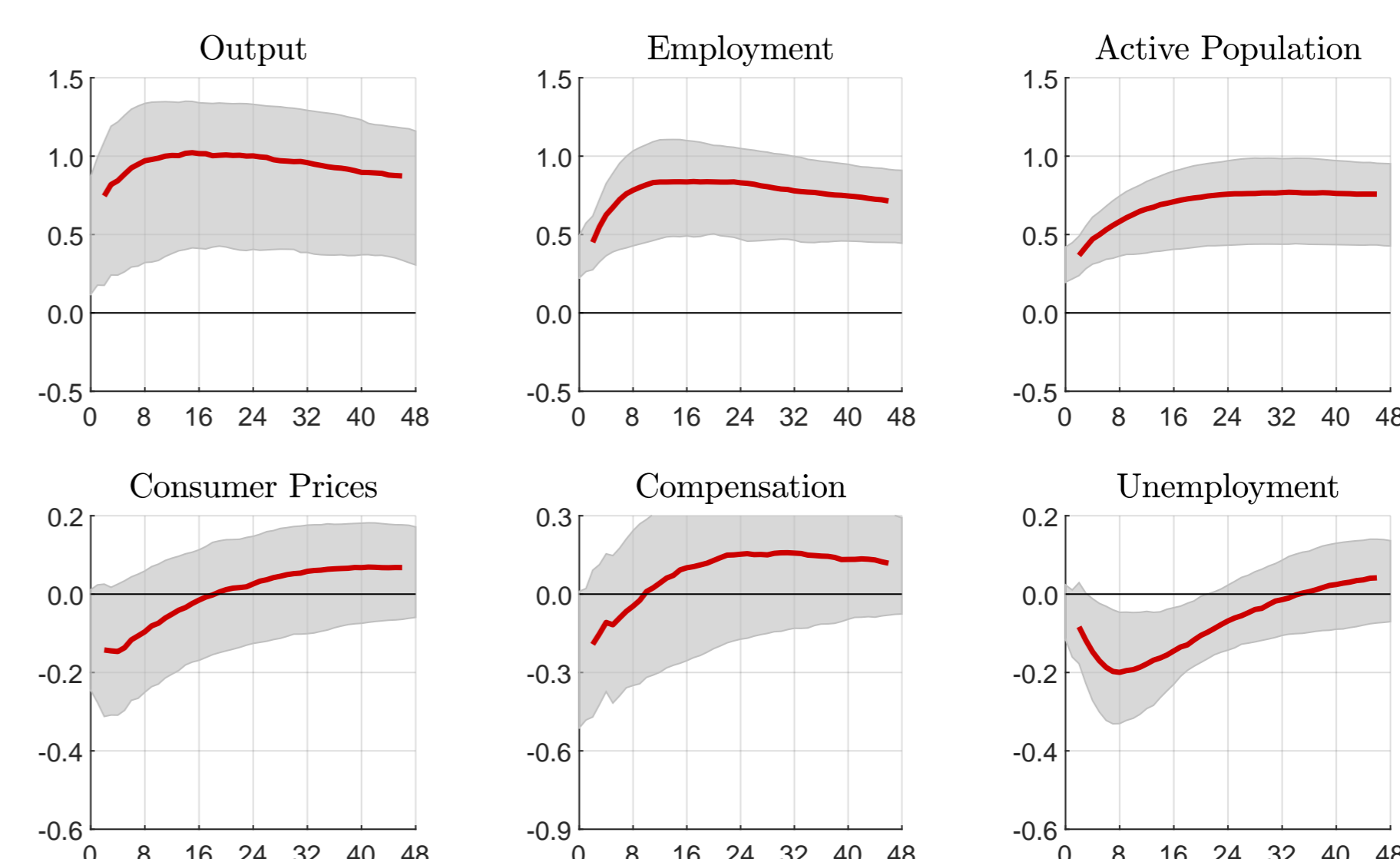


Figure 3: Unemployment Benefits



Further outcomes

1. Reforms in countries facing fiscal crises after 2011 overall raised employment by in between 1% and 2%.
2. External validation: estimates of $\theta_{c,t}$ are highly correlated with shifts in the corresponding annual OECD indicators of strictness of EPL.
3. Narrative approach allows for inspection of non-invertibility issues by using *lags* of $z_{c,t}$ as instrument. I do not find evidence for non-invertibility or announcement effects.

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