Global Imbalances, Labor Market Reforms and Precautionary Savings

Brigitte Hochmuth, Stéphane Moyen and Nikolai Stähler

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Introduction

- Germany’s current account surplus has been and still is subject to worldwide criticism (e.g. The Economist, 2017; Krugman, 2014; evaluation in the MIP; recent Tweets from the US).

- What caused these global imbalances?

Potential explanations:

- Financial integration.
  (Mendoza et al. 2009, JPE)

- Strong economic growth in emerging markets.
  (Caballero et al. 2008, AER)

- Population ageing.
  (Blanchard and Milesi-Ferretti 2009, IMF)

  ⇒ Labor market reforms.
  (Bertola and Lo Prete 2015, RIE, Kollman et al. 2015, EP)
Our focus: German reform of UI system (Hartz IV)

The reform:

- Cut in replacement rate for long-term unemployed.
- Cut in entitlement period for short-term benefits.

Previous findings in dynamic macroeconomic literature:

- Dynamic RBC/DSGE models can explain the following link: unemployment insurance ↓ ⇒ wages ↓ ⇒ int. competitiveness ↑.
- A consequential link to the current account is not found (see Dao 2013, Busl and Seymen 2013, Baas and Belke 2014, and Gadatsch et al. 2016).
- Why do they not find any effect?
The issue with previous studies: rep. agent model

- In steady state, the interest rate is given exogenously ($R^* = \frac{1}{\beta}$).


- **Solution:** assume some friction in international financial market (see Schmitt-Grohe and Uribe 2003).

- **But,** these frictions pin down the NFA position *independent* of policy and force it to return to that pre-determined value.

$\Rightarrow$ By assumption, effects on the NFA position and current account are restricted!
In this paper

- We introduce a **precautionary savings** motive (through incomplete insurance) into an otherwise standard two-region RBC model with labor market frictions in a tractable way.

- **Generates elastic asset demand curve**: pins down $R^*$ and NFA dependent on policy in steady state endogenously.

- Our paper offers one explanation to complete the link: UI ↓ ⇒ wages ↓ ⇒ int. competitiveness ↑ ⇒ NFA and CA ↑

- We show that existing literature underestimates the contribution of the Hartz IV reform on the current account...
- ...and find that the reform is able to explain a significant share of the current account surplus.
The Model
The model: Overview

• We extend an RBC model with labor market frictions in the spirit of Challe and Ragot (2016, EJ) to a two-region model: Germany and Rest of Euro Area (RoE).

• Model entails limited cross-sectional heterogeneity:
  • Incomplete insurance is introduced in a tractable way.
  • This generates an endogenous distribution of worker types.
  • Distribution of workers can be aggregated at every point in time.

• Advantages:
  ① Model remains analytically tractable,
  ② can be solved quickly with standard techniques,
  ③ also allows to analyze optimal policies and derive normative statements.
The model: Employed workers (i)

(based on Challe and Ragot 2016, EJ; and Challe, Matheron, Ragot and Rubio-Ramirez 2017, QE)

- Workers are either employed or unemployed.
- All employed workers live in one family.
- Every period, employed workers choose consumption and savings. They have access to international goods and asset markets.
- If a worker becomes unemployed, he has to leave the family (with a fraction of his savings).
  \[\Rightarrow\textbf{Partial risk sharing.}\]
The model: Employed workers (ii)

An employed worker maximizes

\[ V^e_t(S_t) = \max_{\{c^e_t, a_t\}} \left\{ u(c^e_t) + \beta E_t[(1 - s(1 - \rho_{t+1}))V^e_{t+1}(S_{t+1}) \right. \]
\[ + s(1 - \rho_{t+1})V^{eu}_{t+1}(a_{t+1}, S_{t+1}) \} \]

subject to the following budget constraint (in real terms):

\[ c^e_t + a_t + \bar{t} = (1 - \tau^w_t)\omega_t + \frac{\prod_t}{N_t} + (1 - s(1 - \tau^F)(1 - \rho_t)) \frac{R^W_{t-1}a_{t-1}}{1 + \pi_t} \]
\[ + \frac{\rho_t}{N_t} \sum_{k=1}^{K-1} (\mu^{eu}_{t-1} r^{eu}_t R^W_{t-k} a_{t-k} (1 - \tau^F)) \frac{1 + \pi_{t-k}}{1 + \pi_{t-k}}. \]
The model: Unemployed workers (i)

- Unemployed workers receive unemployment benefits which depend on their unemployment spell ($k_t^{BS_k} > k_t^{BL}$).
- Unemployed workers consume their savings within $K$ periods, where $k \in K$.
- Fraction of assets they want to consume ($\theta_t^k$) arises endogenously.
- If they are matched again, they re-enter the family and bring back the fraction of savings they have not consumed yet.

Risk of becoming unemployed $\Rightarrow$ **Precautionary Savings**.
The model: Unemployed workers (ii)

In period $t$ the maximization problem of a short-term unemployed worker who has assets left (i.e. in state $k < K$) is given by

$$V_{t}^{eu_{k}}(a_{t}, S_{t}) = \max_{\{c_{t}^{eu_{k}}, \theta_{t}^{k}\}} \left\{ u(c_{t}^{eu_{k}}) + \beta E_{t}[\rho_{t+1} V_{t+1}^{e} (\mu_{t+1}, e_{t+1})] \\ + (1 - \rho_{t+1}) V_{t+1}^{eu_{k+1}}((a_{t+1}, S_{t+1})] \right\}$$

subject to the budget constraint

$$c_{t}^{eu,k} + \bar{t} = \kappa_{t}^{BS} + \theta^{k} R_{t-1}^{W} \frac{a_{t-k}(1 - \tau^{F})}{1 + \pi_{t}}.$$ 

The utility function of a long-term unemployed worker is given by

$$V_{t}^{uu}(a_{t}, S_{t}) = \max_{\{c_{t}^{uu}\}} \left\{ u(c_{t}^{uu}) + \beta E_{t}[\rho_{t+1} V_{t+1}^{e} (S_{t+1}) + (1 - \rho_{t+1}) V_{t+1}^{uu} (S_{t+1})] \right\},$$

where $c_{t}^{uu} + \bar{t} = \kappa_{t}^{BL}$. 
The model: Savings decision

The optimal asset holding choice is given by

$$\Omega_t = \frac{1}{R^W_t} = \beta E_t \left[ \left( 1 - s(1 - \tau^F)(1 - \rho_{t+1})) \right) \frac{\lambda^e_{t+1}}{\lambda^e_t} \left( \frac{1}{1 + \pi_t} \right) \right. $$

$$+ \sum_{k=1}^{K-1} \beta^{k-1} \frac{\lambda^e_{t+k}}{\lambda^e_t} \frac{\rho_{t+k}}{N_{t+k}} \frac{\mu^e_{t+k-1} \cdot r^e_{t+k}(1 - \tau^F)}{1 + \pi_{t+k}}$$

$$+ s(1 - \rho_{t+1}) \frac{\lambda^e_{t+1}}{\lambda^e_t} \sum_{k=1}^{K} \tilde{r}^{e_{t+k}} (1 - \tau^F) \right] ,$$

where \( \tilde{r}^{e_{t+k}} = \theta_{t+k}^K / (1 + \pi_{t+k}) + \beta (1 - \rho_{t+k}) \lambda^e_{t+k} \cdot r^e_{t+k+1} / \lambda^e_{t+1} \) as long as \( k < K \)

and \( \tilde{r}^{e_{t+K}} = \theta_{t+K}^K / (1 + \pi_{t+K}) \).
The model: Remainder of the model is standard

• Labor market characterized by search frictions with Cobb-Douglas matching function and corresponding flow equations.

• Nash-bargaining over wages (undertaken by family head). Rotember wage adjustment costs.

• Investment is associated with investment adjustment costs.

• National fiscal authorities finances unemployment benefits, government spending and interest payments by labor and lump-sum taxation as well as new debt issuance. Standard fiscal reaction functions.

• Standard NFA and CA identities (w/out additional frictions based on initial NFA position, however).

• All markets must clear.
Reform implementation

We implement two components of the Hartz IV reform:

1. The reduction of the replacement rate for long-term unemployed by 20 percent (2005).

2. The entitlement cut for short-term unemployment benefits from 8 to 4 quarters (2006).
Results
Results for Germany: Labor Market (medium term)
Results for Germany: Aggregates (medium term)
Results for Germany: Summary

• Labor market effects (as expected):
  • UI ↓ ⇒ wages/unit labor costs ↓ ⇒ employment ↑

• Savings:
  1. Consumption loss in case of unemployment ↑ ⇒ savings ↑
  2. Higher job-finding rate ⇒ savings ↓
     → For the full reform, (1) dominates ⇒ savings ↑
     ⇒ This leads to an increase in NFA position and the current account.

• Macro variables:
  • Savings ↑ ⇒ \( R^w_t \) ↓ ⇒ investment & output ↑
  • Consumption ↑ (in long run)
Results for RoE: Aggregates (medium term)
Results for RoE: Summary

• Short to medium term:
  • DE demand for RoE goods ↑ ⇒ output ↑ ⇒ employment ↑ (initially)
  • $R^w_t$ ↓ ⇒ savings ↓, capital in production ↑

• Long run:
  • Shift from producing with capital instead of labor ⇒ employment ↓
  • Income loss for households (through lower wages, employment and savings)
  ⇒ Consumption & output ↓
  ⇒ Small negative spillovers to RoE of reform possible

Transition takes long, however...
Implied contribution of Hartz IV to CA surplus
Comparison to the representative agent framework
Conclusion

• We present a two-region RBC model with labor market frictions and limited cross-sectional heterogeneity to derive an endogenous demand for assets:
  → Solves the problem of steady-state indeterminacy and non-stationarity of NFAs.
  → Allows for permanent effects on NFA position after policy changes.

• We show that the German UI reform (Hartz IV) contributed significantly to the increase in its CA and NFA position.

• A standard representative agent version of the model is not suitable to study the effects on the CA.