

5. FIW – Forschungskonferenz „International Economics“

Unemployment Benefits as Redistribution Scheme of Trade Gains – a Positive Analysis

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Motivation (1)

- Trade liberalization – no Pareto-improvement!
 - At the macroeconomic level: Gains of trade in terms of welfare
 - At the microeconomic level: *Winners and Losers*
- Losers, e.g. low-skilled workers due to the unskilled job destruction (Biscourp/Kramarz, 2007)
- OECD (2008) and Scheve/Slaugther (2007):
 - Unequal distribution increases the resistance against free trade
 - Policy makers could be forced to rise the degree of protectionism
 - Consequence: applicable redistribution system must be installed
- One way to compensate the losers: Unemployment benefits (UB)
 - Partial analysis: UB is good news for low-skilled workers, but also reduces c. p. employment at the macroeconomic level; at least parts of the trade gains are destroyed
 - Total analysis: Implications of the UB's funding have to be taken into account

Motivation (2)

- de Pinto (2012) contribution
 - Question: Does the choice of the financial form amplify, mitigate or even avoid the destruction of trade gains caused by the UB?
 - Investigation of three different financing forms of the UB and their influences on the gains of trade
 - Tax types:
 - wage tax paid by the employees
 - payroll tax paid by the firms
 - profit tax exclusively paid by the exporters
 - Choice of funding captures the unequal distribution of trade gains
- Literature:
 - Davidson/Matusz (2006): Wage/employment subsidies, UB
 - Helpman et al. (2010): UB and lump-sum taxes, ambiguous welfare effects
 - Egger/Kreickemeier (2011): UB and a proportional income tax, welfare decreases

Motivation (3)

- The framework
 - Melitz (2003)-model with heterogeneous firms
 - de Pinto/Michaelis (2011) extension to heterogeneous workers and unionized labor markets
 - Now: Incorporation of a government sector
 - positive, comparative static analysis
- Main findings
 - Wage tax funding is neutral at the aggregate level
 - Payroll tax decreases employment and welfare
 - Profit tax decreases welfare, but benefits low-skilled workers in terms of their employment probability
 - Ranking: 1. Wage tax, 2. Profit tax, 3. Payroll tax

Agenda

- Motivation
- The model
- The redistribution schemes
- Conclusion

The model – Basic structure

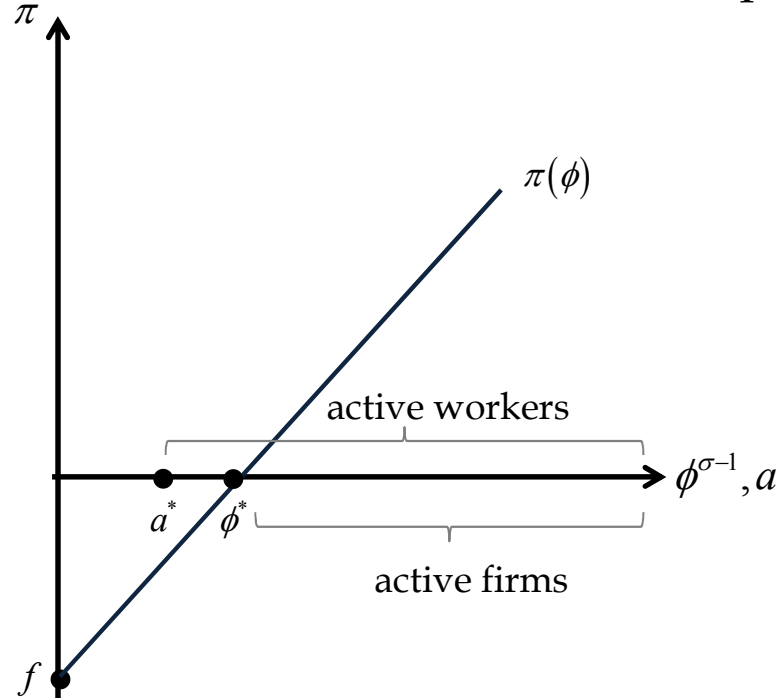
- Two-Sector open economy setting with two symmetric countries
 - Final good sector: perfect competition, homogenous good Y
 - Intermediate good sector
- Monopolistic competition, heterogeneous firms à la Melitz (2003)
- Monopoly unions at the firm level
- Worker heterogeneity (see Helpman et al., 2010)
 - Workers differ in their abilities $a_j, j = 1, \dots, \bar{L}$
 - Worker abilities are drawn from a Pareto-distribution

The model: Five-stage-game

- Stage 1:
 - Melitz-lottery; firm i discovers its entrepreneurial productivity ϕ_i
 - Production and export decision
- Stage 2: Vacancy posting
 - Minimum quality requirement $a_i^* = \phi_i^\alpha$
 - Wage offer w_i
- Stage 3
 - Workers apply for all jobs with $a \geq a_i^*$ and $w^* \leq w_i$
 - Any firm receives an applicant pool
 - To extract an economic rent, the applicants form a monopoly trade union at the firm level
- Stage 4: Wage-setting by the monopoly union
- Stage 5
 - Firm i set the optimal employment level h_i
 - Firm i draws randomly workers from the union members until h_i is reached

The model – Special features (1)

- Segregation of the labor force (see de Pinto/Michaelis, 2011)
 - marginal firm ϕ^* also sets a minimum quality requirement a^*



- active workers L : $a \geq a^* \quad u = 1 - H / L < 1$
- long-term unemployed persons L^l : $a < a^* \quad u^l = 1$
- aggregate unemployment rate: $\bar{u} = 1 - (a^*)^{-k} H / L$

The model – Special features (2)

- Monopoly union
 - The monopoly union i sets the wage rate for firm i
 - The monopoly union maximizes the **expected utility of the median member** m_i (see Booth, 1984):

$$EU_{m_i} = \frac{h_i}{n_i}(1-t_w)w_i + \left(1 - \frac{h_i}{n_i}\right)b_{m_i}$$

- Wage rate and fallback income

$$w_i = \theta b_{m_i} \qquad \theta \equiv \frac{1}{\kappa(1-t_w)}$$

$$b_{m_i} = uB_{m_i} + (1-u)(1-t_w)\bar{w}_{m_i} \qquad B_{m_i} = s(1-t_w)\bar{w}_{m_i}$$

$$\bar{w}_{m_i} = \left(a_{m_i}\right)^\omega \left(w(\tilde{\phi})\right)^{1-\omega} \qquad 0 \leq \omega \leq 1$$

RS 1 – UB financed by the wage tax

- Wage tax neutrality:
 - Effect 1: $t_w \uparrow \Rightarrow w \uparrow$
 - Effect 2: $t_w \uparrow \Rightarrow b \downarrow \Rightarrow w \downarrow$
- Labor market: Employment declines
Partial-UB-effect: $B \uparrow \Rightarrow w \uparrow \Rightarrow MC \uparrow \Rightarrow p \uparrow \Rightarrow q \downarrow \Rightarrow H \downarrow$
- Welfare (measured by output per capita) decreases due to the UB-effect
- For $s \geq s_{RS1}^*$, the gains of trade are completely destroyed

RS 2 – UB financed by the payroll tax

- Labor market: Employment declines
 - Partial-UB-effect: $B \uparrow \Rightarrow w \uparrow \Rightarrow MC \uparrow \Rightarrow p \uparrow \Rightarrow q \downarrow \Rightarrow H \downarrow$
 - Payroll-tax-effect: $t_{p_w} \uparrow \Rightarrow MC \uparrow \Rightarrow p \uparrow \Rightarrow q \downarrow \Rightarrow H \downarrow$
- Welfare decreases
- For $s \geq s_{RS_2}^*$, the gains of trade are completely destroyed

RS 3 – UB financed by the profit tax

- Composition of firms: Fraction of low-productive firms increases
 - Effect 1: Melitz-lottery $t_\pi \uparrow \Rightarrow \bar{\pi}_t^{net} \downarrow \Rightarrow M^e \downarrow \Rightarrow M \downarrow$
 - Effect 2: increasing demand $M \downarrow \Rightarrow q \uparrow \Rightarrow r \uparrow$
 - Result: Less productive firms than before the profit tax can cover their fixed costs and enter the market; formally: $t_\pi \downarrow \Rightarrow \phi^* \downarrow$
- Labor market: Employment reaction is hump-shaped
 - Positive: Reduction of L^l
 - Negative: Partial-UB-effect and increasing marginal costs
- Welfare declines due to the decline in the cutoff-productivity, but there are two positive impacts, which mitigates the welfare reduction:
 - Decrease in the number of long-term unemployed persons
 - Export-selection effect
- For $s \geq s_{RS_3}^*$, the gains of trade are completely destroyed

Conclusion

- Ranking: 1. wage tax, 2. profit tax, 3. payroll tax
 - The wage tax dominates because of its neutrality
 - The profit tax amplifies the gains of trade destruction compared to the wage tax because of the weaker firm-selection, but there is also a positive impact on the labor demand for low-skilled workers
 - The payroll tax amplifies the gains of trade destruction compared to the former cases because of the additional increase in firms' marginal costs

- Limitations
 - The measurement of welfare does not include (income) distributional aspects
 - No objective function of the government

Thank you for your attention

Appendix (1): Government sector

- UB

$$B = B^l + B^u = s(1 - t_w)w(\tilde{\phi}_t)u^l L^l + \int_{a^*}^{\infty} s(1 - t_w)a^{\omega}w(\tilde{\phi}_t)^{1-\omega}uL\mu(a)da \quad 0 \leq s \leq 1$$

- Wage tax

$$T_w = t_w W \quad 0 \leq t_w < 1$$

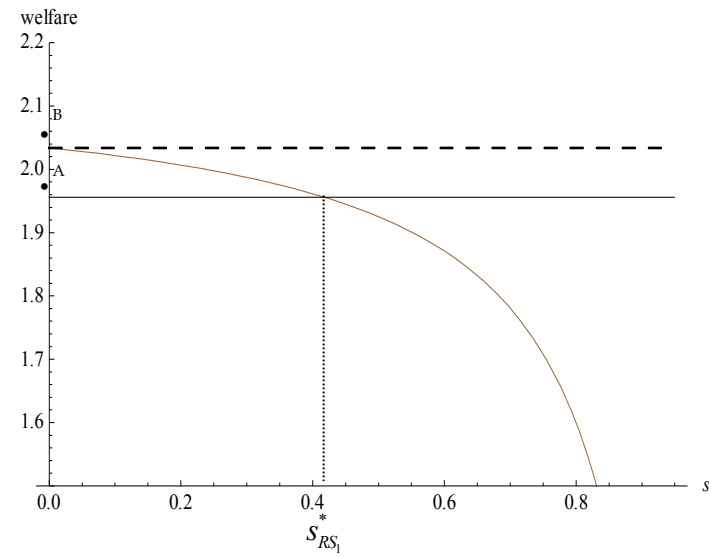
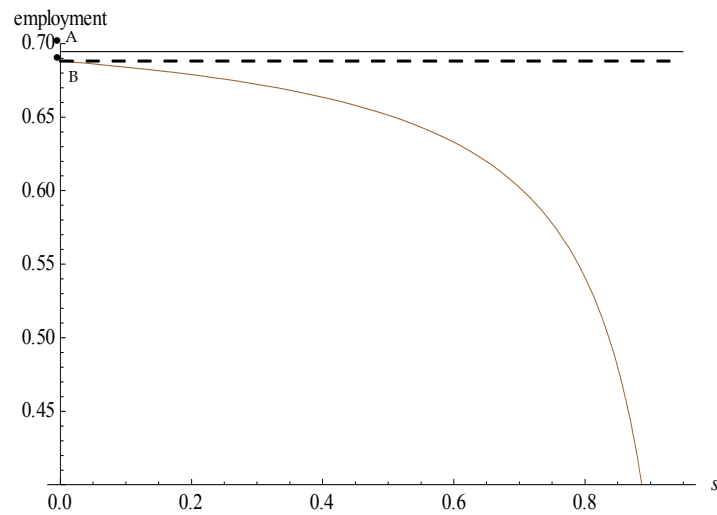
- Payroll tax

$$T_{pw} = t_{pw} W \quad 0 \leq t_{pw} < 1$$

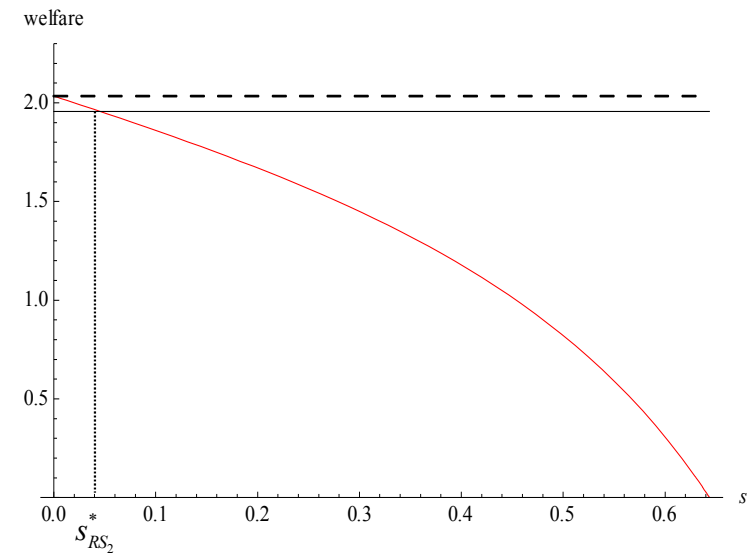
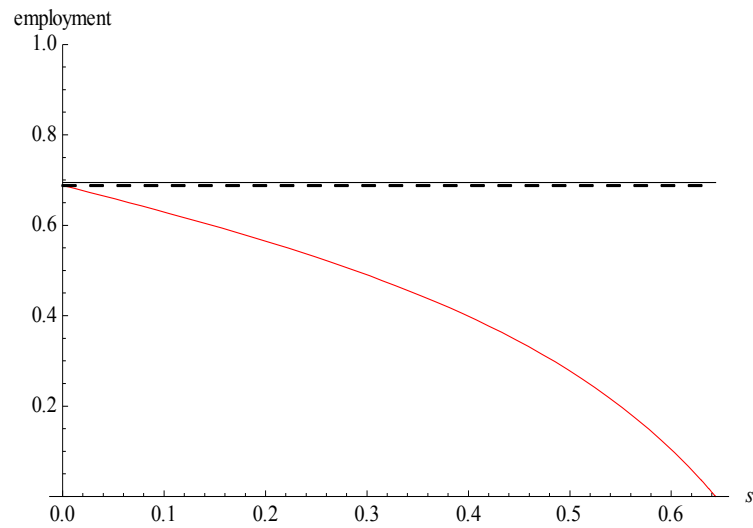
- Profit tax

$$T_{\pi} = t_{\pi} \left(\int_{\phi_x^*}^{\infty} \pi(\phi) M_x \mu_x(\phi) d\phi + \int_{\phi_x^*}^{\infty} \pi_x(\phi) M_x \mu_x(\phi) d\phi \right) \quad 0 \leq t_{\pi} < 1$$

Appendix (2): RS 1 – simulation results



Appendix (3): RS 2 – simulation results



Appendix (4): RS 3 – simulation results

