

# Preferences over Taxation of High Income Individuals: Evidence from Online and Laboratory Experiments

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# Motivation

- Mobility of high income individuals
  - is important for design of optimal income tax (Piaser 2009, Simula and Trannoy 2010, Lehmann et al. 2014, Bierbrauer et al. 2013)
  - is relevant empirically (Kleven et al., 2013, 2014; Akcigit et al. 2016)
- High mobility puts pressure on governments to lower taxes
  - Simula/Trannoy (2010) show drastic calibration for France
  - increase in (post tax-transfer) income inequality

# Research agenda

- Questions:
  - Do individuals migrate if conditions are favorable? Do they believe that others will do?
  - Do citizens understand the role of mobility for (optimal) taxation?
  - Does political ideology matter for tax and mobility choices?
- Doubts about full rationality and pure selfishness
  - survey of German policy makers (Heinemann and Janeba, 2011) and classroom experiment (Janeba, 2014)
  - Existing evidence suggestive but not fully conclusive

# Outline

- Motivation
- Simple model of mobility and taxation
- Online experiment via German Internet Panel (GIP)
- Results
- Laboratory experiment
- Conclusion

# Simple Model of Mobility and Taxation

- (Home) country populated by two types of individuals:
  - two poor/low income  $y_p = 20$
  - one rich/high income  $y_r = 90$
- Purely redistributive tax-transfer system
  - rich pays tax  $t$
  - fully redistributed to the poor
- Three feasible tax rates (low, medium, high)

$$t_L = 10, t_M = 20, t_H = 40$$

- Net income:
  - poor:  $z_p = 20 + 0.5t$
  - rich:  $z_r = 90 - t$
- Ranking of pretax incomes preserved:  $z_r > z_p$  for all  $t$

# Closed Economy

- Base case: closed economy = no migration
- Implemented tax is random choice among preferred tax rates of three individuals (random dictator mechanism)
- Preferred taxes in closed economy
  - poor:  $t = t_H$  leads to  $z_p = 40, z_r = 50$
  - rich:  $t = t_L$  leads to  $z_p = 25, z_r = 80$

# Open Economy

- After taxation decision, rich have option to migrate to a foreign country at cost  $m = 15$
- In Foreign country: same gross income
  - Foreign tax rate  $t^*$  exogenous (same tax rates: 10,20,40)
  - Net income of rich after migration  $z_r^{mig} = 90 - t^* - 15$
- Rich migrates if and only if
  - moving cost less than tax advantage  $m < t - t^*$
  - i.e., home tax is high, and foreign tax is low or medium
- Poor obtain  $z_p = y_p = 20$  if rich emigrates
- Preferred taxes in open economy
  - poor:  $t = t_M$  if  $t^* \in \{t_L, t_M\}$ , and  $t = t_H$  if  $t^* = t_H$
  - rich:  $t = t_L$

# Implementation

- Online experiment via German Internet Panel (GIP), conducted by Collaborative Research Center “Political Economy of Reforms” at U Mannheim
  - longitudinal survey with 3,000+ households
  - representative for German population age 16-75
  - equipment and internet provided if needed
  - high retention rate due to incentive pay
- In our sample
  - 15% of participants are 65 and above
  - 10% have a monthly household income above €5000
  - 50% do not have university entry qualification



## Implementation cont.

- Participants go through detailed explanation of model
  - average time: 11 minutes
  - instructions tailored to type and treatment
- Extra incentive pay on top of general GIP scheme
  - 20 out of 1020 “countries” randomly drawn
  - 60 participants got their income from the game as bonus payment
  - belief statements not incentivized
  - average bonus payment €41.33
- Treatment assignment (25%/75% immobile/mobile; 30/30/15 division for foreign tax)

# Experimental Tasks

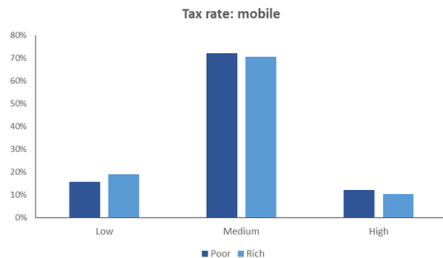
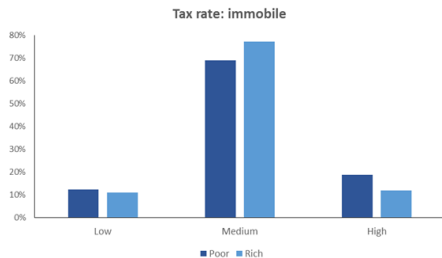
- For all
  - which tax do you vote for?
  - which tax do you think the other type votes for?
- In open economy treatment
  - Rich: do you migrate?
  - Poor: will the rich person migrate?
- Strategy method; matching to countries ex post

# Hypotheses: Tax choice

- Hypothesis 1 (Equilibrium prediction: voting)
  - Without mobility: Poor vote for  $t = t_H$ , Rich for  $t = t_L$ .
  - With mobility: Poor vote for  $t = t_M$  if  $t^* \in \{t_L, t_M\}$ , and for  $t = t_H$  if  $t^* = t_H$ ; Rich vote for :  $t = t_L$ .
- Hypothesis 2 (Comparative Statics: voting)
  - Rich players vote for lower taxes than poor players.
  - Under mobility, when  $t^* \in \{t_L, t_M\}$ , poor players vote for lower tax than either without mobility or with mobility and  $t^* = t_H$ .

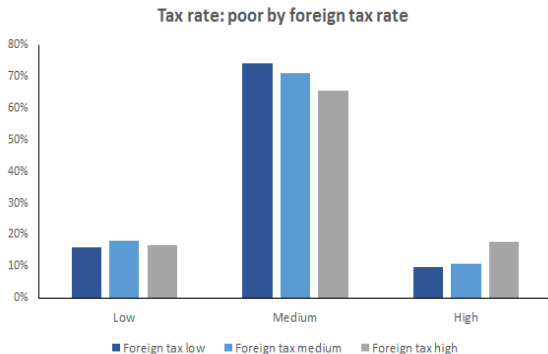
# Result: Tax Choices

- Hyp. 1 Tax choices in all conditions have a strong tendency towards medium tax rate and hence deviate from equilibrium prediction
- Hyp. 2 Comparative statics predictions w.r.t. differences between rich and poor players are supported in the mobility treatment, but only weakly in the no mobility treatment
- When differences significant, effects are relatively small



## Results: Tax Choices

- Poor react to foreign tax level, but only relatively weakly
- Tax choice by poor in mobile with high foreign tax as in immobile



- Rich do not lower tax choice when foreign tax declines

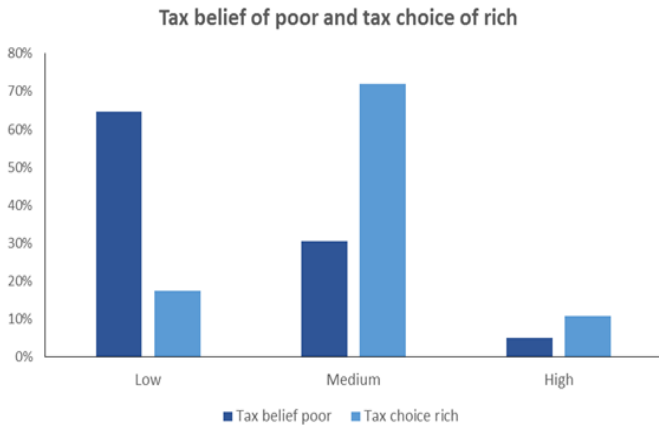
## Results: Tax Choices

- Are subjects “irrational” or misunderstand the experiment?
- Possibly, because in online experiment
  - subjects cannot ask clarifying questions
  - quite heterogeneous subject pool
- But probably not, because
  - beliefs about decisions of other side close to rational selfish prediction
  - comparative statics are confirmed for player types (weakly) and treatment and foreign tax rate
  - excluding the fastest or slowest participants does not have much impact on results
  - deviation from equilibrium prediction not explained by education level

# Hypotheses: Beliefs

- Hypothesis 3 (Equilibrium predictions: beliefs)
  - Without mobility, poor players expect rich players to vote for  $t_L$ , and rich players expect poor players to vote for  $t_H$ .
  - With mobility, poor players expect rich players to vote for  $t_L$  and rich players expect poor players to vote for  $t_M$  if  $t^* \in \{t_L, t_M\}$  (and to vote for  $t_H$  if  $t^* = t_H$ ).
- Hypothesis 4 (Comparative Statics predictions: beliefs)
  - Poor players expect rich players to vote for lower taxes than the tax levels rich players expect poor players to vote for.
  - Rich players expect poor players to vote for lower taxes with mobility if  $t^* \in \{t_L, t_M\}$  than without mobility or if  $t^* = t_H$ .

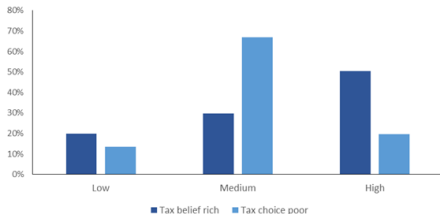
# Results: Tax Beliefs Poor



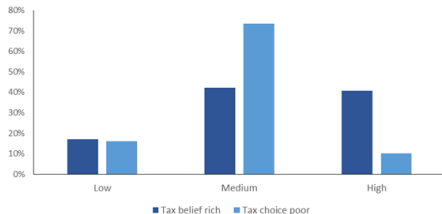


# Results: Tax Beliefs Rich

Tax belief of rich and tax choice of poor:  
immobile & foreign tax high



Tax belief of rich and tax choice of poor:  
foreign tax medium or low



- Summary: Beliefs about participants in the other role are much closer to equilibrium predictions than actual behaviour.

# Explaining Choices

- Subjects may have social preferences, but underestimate that others may have them too
- Altruism cannot explain well results; plausible: social norm to share some of one's own income
- Other explanation: ideology

# Explaining Choices

- Hypothesis 5 (Political attitudes and voting). Supporters of left-of-center parties vote for higher taxes than supporters of right or center parties, both if they are rich and if they are poor.
- Result
  - in both roles left-leaning participants choose higher taxes than right-leaning participants in mobility treatment
  - preference for redistribution (“government should employ policies to lower income inequality”) even better predictor
  - holds even when controlling for beliefs of poor about migration

# Tax choices and ideology

Table: Tax choices and ideology

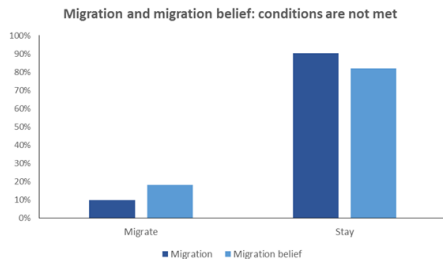
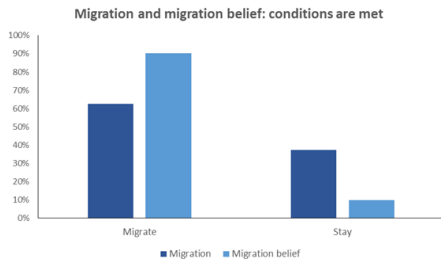
	(1) Low	(2) Low	(3) Low	(4) Medium	(5) Medium	(6) Medium	(7) High	(8) High
Panel A <i>Redistribution preference</i> reference category: against redistribution								
indifferent	-0.032** (0.016)	-0.035** (0.016)	-0.029 (0.022)	0.005* (0.003)	0.005* (0.003)	0.003 (0.003)	0.027** (0.013)	0.030** (0.014)
pro redistribution	-0.062*** (0.014)	-0.068*** (0.014)	-0.070*** (0.018)	0.009** (0.004)	0.009** (0.004)	0.007 (0.006)	0.053*** (0.013)	0.058*** (0.012)
N	2,776	2,711	1,312	2,776	2,711	1,312	2,776	2,711
Panel B <i>Ideology</i> reference category: right wing								
left wing	-0.042*** (0.012)	-0.035*** (0.013)	-0.029* (0.017)	0.007** (0.003)	0.005* (0.003)	0.002 (0.003)	0.036*** (0.010)	0.030*** (0.011)
N	2,160	2,115	1,033	2,160	2,115	1,033	2,160	2,115
Controls	no	yes	yes	no	yes	yes	no	yes
Migration beliefs	no	no	yes	no	no	yes	no	no

## Hypotheses: Migration

- Hypothesis 6 (Equilibrium predictions: migration)  
In the mobility treatment, rich players migrate if and only if the domestic taxes are high and foreign taxes are low or medium.

# Results: Migration

Modal mobility choices are in line with equilibrium prediction. The far more common deviation not to migrate when this pays is in line with social preferences. Beliefs on migration choices are again more in line with selfish choices.



# Ideology and Migration

- Hypothesis 7 (Political attitudes and migration)  
Left-leaning participants and those more in favor of government redistribution have a lower propensity to migrate when it pays than other participants.
- Results:
  - Left-leaning participants are less likely to migrate than right-leaning participants.
  - Beliefs about others' migration choices are not systematically affected by ideology
  - Differences in tax choices are thus not driven by differences in beliefs about their impact on migration

# Migration and Ideology

Table: Migration and ideology

	full sample		"migration rational"	
	(1)	(2)	(3)	(4)
	Migration choice	Migration choice	Migration choice	Migration choice
Panel A <i>Redistribution preference</i> reference category: against redistribution				
indifferent	-0.020 (0.022)	-0.039* (0.022)	-0.063 (0.064)	-0.056 (0.063)
pro redistribution	-0.049** (0.019)	-0.065*** (0.019)	-0.137** (0.055)	-0.128** (0.055)
N	2,013	1,974	536	528
Panel B <i>Ideology</i> reference category: right wing				
left wing	-0.028 (0.018)	-0.025 (0.018)	-0.137*** (0.046)	-0.124*** (0.048)
N	1,551	1,524	405	401
Controls	no	yes	no	yes



# Laboratory Experiment: Design

- Conventional lab experiment at U Mannheim prior to online exp.
- Same treatments and parameters
  - Income positions are earned in real-effort task
  - Game repeated for 30 periods
- Full strategic interaction:
  - two symmetric countries with active participants matched
  - tax choice in both countries endogenous
  - in mobility treatment rich from both countries can migrate after tax choices are made known
- Predictions
  - closed economy: as in online experiment, rich prefer  $t_L$ , poor  $t_H$
  - open economy: rich prefer  $t_L$ , for poor  $t_M$  is weakly dominant
  - migrate if home tax high, foreign tax low or medium
  - no migration in SPNE

# Laboratory Experiment: Results

- Distribution of tax votes by treatment, phase and type

Treatment	Phase	Poor			Rich		
		L	M	H	L	M	H
ImmobMob	1	2.4%	5.6%	92%	88.5%	11.1%	0.4%
	2	7%	73%	20%	97.8%	2.2%	0%
MobMob	1	5.4%	57.2%	37.4%	99.6%	0.4%	0%
	2	5.2%	69.3%	25.6%	97.4%	2.6%	0%

- Large majority of tax votes in line with equilibrium prediction
- Without mobility some M votes by rich
- Even with mobility some H votes by poor
- Phase 2 behavior nearly identical across treatments
- Ideology cannot explain choices well, but number of observations and variance in political preferences small

# Laboratory and Online Experiments: Differences

- In laboratory experiment
  - role of rich and poor earned
  - repeated periods within each treatment (15+15)
    - but first-round behavior does not differ much from other rounds
  - subject pool mostly students
  - not as much variation in political preference
    - because of smaller sample size, unreliable results for small parties
  - all participants paid

# Conclusions

- In online experiment
  - subjects deviate substantially from rationality assumption in tax choice, but not as much for migration
  - comparative statics effects broadly confirmed
  - ideology matters for tax choices, education and income apparently not
- In laboratory experiment play is close to SPNE, party preference mostly not significant
- Implications:
  - ideology matters for political choices
  - investigating influence of ideology in lab is difficult