

Should I Stay or Should I go? Dutch Evidence on Tax Induced (Return) Migration

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Question:

Do people migrate if taxes increase?

Old Theoretical Debate: Taxation = Migration?

- ▶ Samuelson's problem: "no decentralized pricing system can serve to determine optimally ... levels of collective consumption" (1954)
- ▶ Tiebout's solution: "If consumer-voters are fully mobile, ... local governments whose revenue-expenditure patterns are set, are adopted by the consumer-voter." (1956)
- ▶ Mirlees's optimal taxation take: "High tax rates encourage emigration. The resulting loss of tax revenue is widely believed to be an important reason for keeping taxes down." (1982)

Scant Empirical Evidence: Taxation = Migration?

- ▶ Until recently still little evidence because of:
 1. Lack of **suitable data** on both taxation and migration
 2. Lack of credible **tax variation** for **identifying causal effects**

- ▶ Today know more about **within country mobility**
 - **Top earners:** Agrawal and Foremny (2019, Spain), Martinez (2017, CHE), Moretti and Wilson (2017, US)
 - **Broader population:** Akcigit et al. (2018, US), Feldstein and Wrobel (1998, US), Liebig, Puhani, and Sousa-Poza (2007, CHE), Schmidheiny (2006, CHE), Schmidheiny and Slotwinski (2018, CHE)

- ▶ Much less is known about **international mobility...**

Motivation

- ▶ Kleven, Landais and Saez (AER, 2013)
 - ▶ Migration across 14 European countries
 - ▶ Top football players
- ▶ Kleven, Landais, Saez and Schultz (QJE, 2014)
 - ▶ Migration to Denmark
 - ▶ Top 1% of earners
- ▶ Akcigit, Baslandze and Stantcheva (AER, 2018)
 - ▶ Migration across 8 OECD countries
 - ▶ Top 1% of inventors
- ▶ Muñoz (WP, 2020)
 - ▶ Migration across 21 European countries
 - ▶ Top 10% of earners

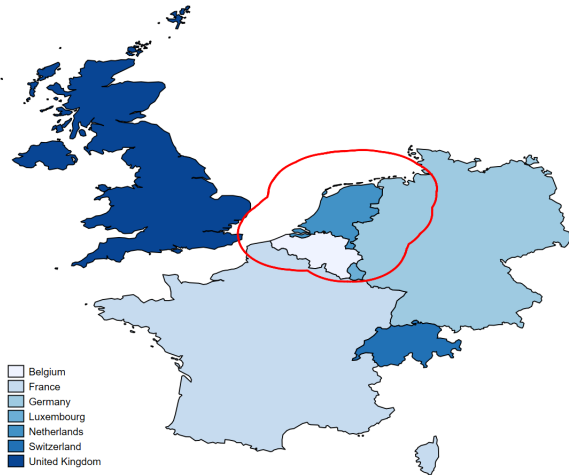
Mostly **huge elasticity** responses for **top earners** internationally
but so far **no evidence** on migration of **other individuals**

This Paper

Exploit change in **preferential tax rate** for skilled migrants in NL
→ **30% Rule** → Do they **out migrate** if lose benefit?

- ▶ Tackle the two empirical challenges by:
 1. Using comprehensive administrative data
 2. Using tax break duration **orthogonal** to other factors that affected **past** individual location decision
- ▶ **2012 change** affected recipients **retroactively** based on:
 1. Duration of stay by 2012: +/- **5 year**
 2. Distance before NL arrival: +/- **150 km**
- ▶ **Diff-in-Diff** based on **time in country** + **distance NL border**
→ causal estimates of policy on out-migration decisions!

The 2012 Law Change: 150 km distance



The red line depicts the 150 km distance threshold from the closest point of the Dutch border.

This paper

- ▶ Some other **advantages** of our **Dutch setting**:
 - ▶ Individuals treated unexpectedly → Duration cut applied 'retroactively' → No sorting possible of migrants attracted by scheme!
 - ▶ End of tax break implies huge net wage drop [▶ Wage Dynamics](#)
 - ▶ Large sample of migrants (57k) from many levels of earnings distribution affected [▶ Wage Distribution](#)
- ▶ One **issue** we have to deal with in our context:
 - ▶ Great micro-data but not on exact location pre-migration → Use arrivals from Belgium-Luxembourg as treated

Motivation/Introduction

Institutional background

Data and Descriptive Statistics

Empirical Strategy

Results

- Baseline Results

- Income Level Heterogeneity

- Family Roots in Country

Conclusions and New Results

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Conclusions and New Results

The 30% Rule

- ▶ **Since 2001** preferential tax break in place in NL: **30% Rule**

30% of gross income not taxed for **10 years** to:

1. Attract workers from abroad with specific skills
2. Make Dutch settling attractive and competitive for companies
3. Decrease the administrative pressure on firm search
4. Create incentives for employees to stay in the Netherlands

- ▶ **Two changes** to the scheme **introduced in 2012**:

1. Tax Break Duration
2. Eligibility Criteria

The 2012 Law Change

1. Tax break duration:

- ▶ From 2001-2011 → **10 years of duration (5+5 years)**
- ▶ From 2012 onwards → 8 years of duration

2. Eligibility Criteria:

2.1 Before 2012

- ▶ Recruitment from abroad without distance threshold
- ▶ Specific expertise test and scarcity requirement
- ▶ Interim assessment of expertise and scarcity after 5 years

2.2 After 2012

- ▶ Recruitment from abroad → **150 km from Dutch border**
- ▶ Specific expertise and scarcity → minimum taxable income 35k
- ▶ Continuous check of minimum taxable income (18% do not meet criteria but 34% work in exempt sector: Education/Research)

The 2012 Law Change: Transitional Rule

- ▶ Individuals that arrived after 2012 were subject to the new eligibility criteria and entitle to 8 years maximum.
- ▶ A **transitional rule** implemented to deal with individuals that arrived before 2012 depending on **arrival time** in NL.
 - ▶ Arrivals **2001-2006** → 5 years interim test before 2012
→ **10 years** independent on new criteria
 - ▶ Arrivals **2007-2011** → 5 years interim test after 2012
→ **10 or 5 years** dependent on new criteria
- ▶ Compare **out-migration behaviour** of beneficiaries who arrived **pre Vs post 2007** from **treated Vs control countries**

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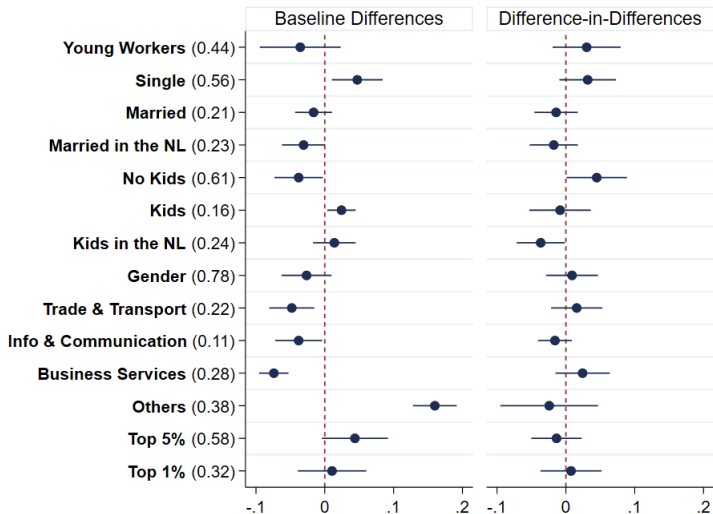
- Family Roots in Country

Conclusions and New Results

Data

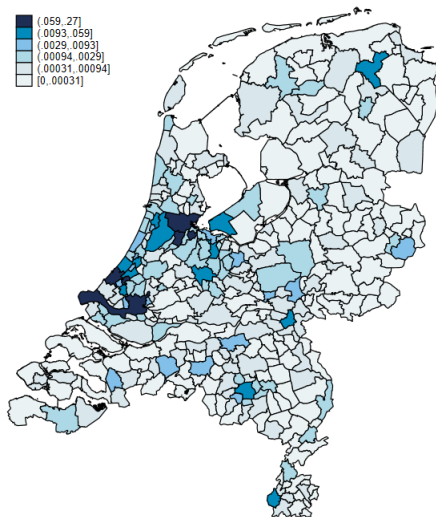
- ▶ Data from the Dutch tax office on **all beneficiaries** of the 30%-ruling from the period of **2002 to 2011**
- ▶ **Matched with admin data for 2002-2019** → Migration dates; previous country of residence; and destination country
- ▶ **Issue:** We do not observe previous municipality of residence
 - ▶ Arrivals from **countries entirely covered** by the 150 km criterion: i.e. **Bel and Lux** (drop FR DE)

Descriptive: Treated Vs Control Characteristics



Descriptive: Where do they GO?

Residence location
2001 - 2011



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Diff-in-Diff Approach - Exclude Partially treated countries:

- ▶ Individuals provide country of previous residence
- ▶ **Two outcomes** of interest, Y_i
 1. Length of stay in NL (Months)
 2. Dummy indication of staying more than 5 years in NL

$$Y_{it} = \alpha + \beta_1 PPR_i \times Arrival_t + \beta_2 PPR_i + \beta_3 Arrival_t + \epsilon_{it} \quad (1)$$

- ▶ PPR equals 1 if previous place of residence of individual i , lies within 150 km away from the Dutch border and 0 otherwise
- ▶ $Arrival$ equals 1 if immigration took place in time t between 2007-2011 and 0 between 2002-2006
- ▶ Year and country of arrival fixed effects

Empirical Strategy

- ▶ **Retroactively** change on tax rate that is **orthogonal** to other factors that affected **previous** individual location decision
- ▶ Duration reduced from **10 to 5 years** ▶ Exit Rate
- ▶ **Quasi-experimental variation** in tax rate affected all **individuals** that **immigrate** to the Netherlands **between 2007 to 2011** from places **within 150 km** of Dutch border

▶ Pre and Post Treatment Dynamics

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Baseline Results

Table: Baseline Results: Time in the Netherlands

Dependent Variable	Time in Country (1)	Time in Country (2)	Time in Country (3)	Time in Country (4)	Time in Country (5)	Time in Country (6)
Panel A: in Months						
PPR*Arrival	-6.13*** (0.95)	-5.67*** (0.91)	-5.67*** (0.90)	-5.64*** (0.93)	-5.61*** (0.94)	-5.60*** (0.96)
Constant	58.19*** (0.20)	55.20*** (0.63)	60.88*** (1.33)	62.57*** (1.30)	62.80*** (1.33)	63.06*** (1.33)
Panel B: More than 5 years						
PPR*Arrival	-0.07*** (0.02)	-0.07*** (0.01)	-0.07*** (0.01)	-0.07*** (0.01)	-0.07*** (0.01)	-0.07*** (0.01)
Constant	0.43*** (0.00)	0.39*** (0.01)	0.46*** (0.02)	0.48*** (0.02)	0.49*** (0.02)	0.49*** (0.02)
Observations	47,227	47,227	47,227	47,227	47,227	47,227
Sector	NO	YES	YES	YES	YES	YES
Age	NO	NO	YES	YES	YES	YES
Gender	NO	NO	NO	YES	YES	YES
Married	NO	NO	NO	NO	YES	YES
Child	NO	NO	NO	NO	NO	YES
Panel A: Mean Dep. Var.	65.67	65.67	65.67	65.67	65.67	65.67
Impact at Mean	-0.09	-0.09	-0.09	-0.09	-0.09	-0.09
Panel B: Mean Dep. Var.	0.51	0.51	0.51	0.51	0.51	0.51
Impact at Mean	-0.14	-0.14	-0.14	-0.14	-0.14	-0.14
Country of Origin FE	YES	YES	YES	YES	YES	YES
Start Year FE	YES	YES	YES	YES	YES	YES

-5.60***
(0.96)

-0.07***
(0.01)

Notes: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. All regressions include country of origin and start year fixed effects. Panel A considers the first outcome of interest, time in country, while panel B considers the second outcome of interest, the probability of staying in the Netherlands for more than 5 years.

Baseline Results

BE-LU Approach - Interpretation and Robustness

- ▶ Treated group stay on average 5.5 months less (baseline of 5.5 years) which translates into **9% less time in the country**
- ▶ **Probability** to spend more than **5 years in NL**, i.e. stay beyond the loss of the tax break, **decreases by 14%**
- ▶ Findings **robust** and not driven by **wealth** or **commuting**

▶ Robustness Checks

▶ Working from abroad?

▶ Wealth Tax?

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Income Level Heterogeneity

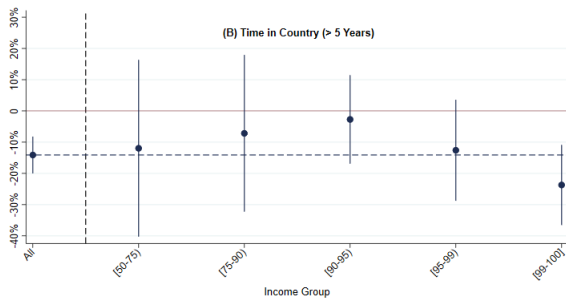
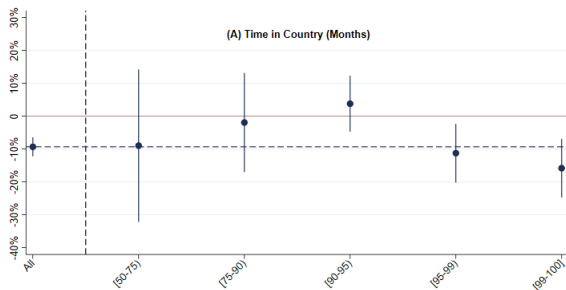
Family Roots in Country

Conclusions and New Results

Income Level Heterogeneity

- ▶ Empirical evidence on international tax-induced migration only from very top of the earning distribution
- ▶ We have a relatively much broader segment of migrants
- ▶ Construct Income percentiles based on the Dutch earning distribution (in 2012 €).
 - ▶ Groups of Income → [50%-75%]; [75%-90%]; [90%-95%]; [95%-99%]; [99%-100%]
- ▶ Big question is: Do individuals in **top 1% react differently** than rest of migrant population?

Income Level Heterogeneity



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Income Level Heterogeneity

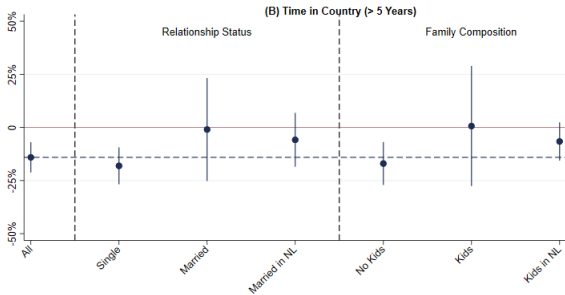
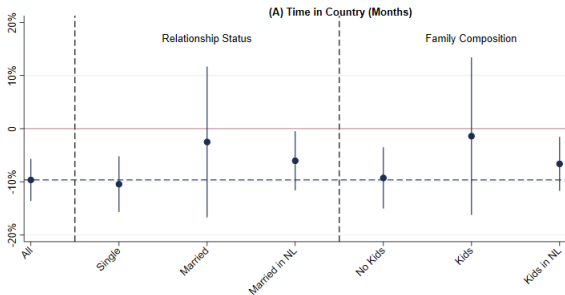
Family Roots in Country

Conclusions and New Results

Family Roots in Country

- ▶ Consider two simple ways to measure if individuals cost of moving higher because of migrant having 'family roots' in the Netherlands
 1. **Marital Status:** Single, married or married in the Netherlands
 2. **Presence of Child:** No kids, kids and kids in the Netherlands
- ▶ Differences in baseline mean → Stronger behavioral responses of individuals with **weak roots** than with **firm roots**

Roots in the Netherlands



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Conclusions and New Results

- ▶ Find **strong out-migration** to loss of preferential tax break, even **after** spending **substantial time** in host country.
- ▶ Of high policy relevance is that all **impact driven** by **top of the income** distribution. **Others Stay!** (elast: 1.3) ▶ Elasticity
- ▶ **Family roots matter** but **far less** than **income**
- ▶ **NEW:** compare response of **'local' Vs 'mobile'** migrants :
 - ▶ Almost **45%** of treated **not Bel-Lux nationals**
 - ▶ Find that 'locals' and 'mobile' from **Top 1%** leave Vs. Only 'mobile' from **Top 5%** leave

Thank you!

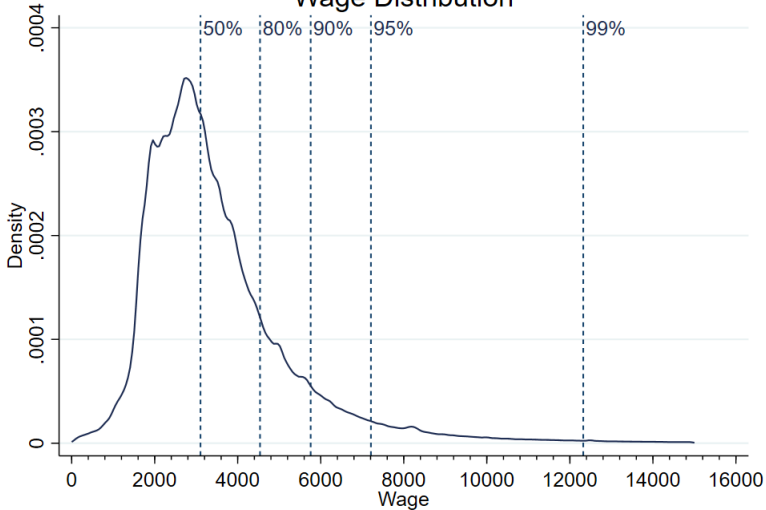
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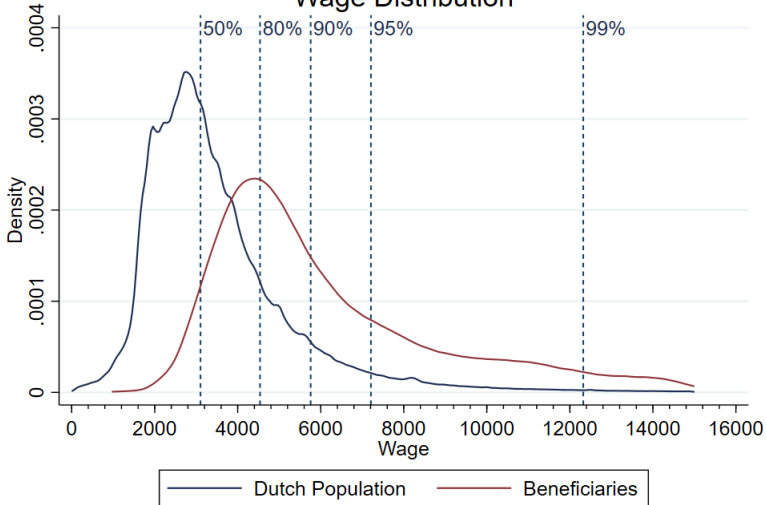


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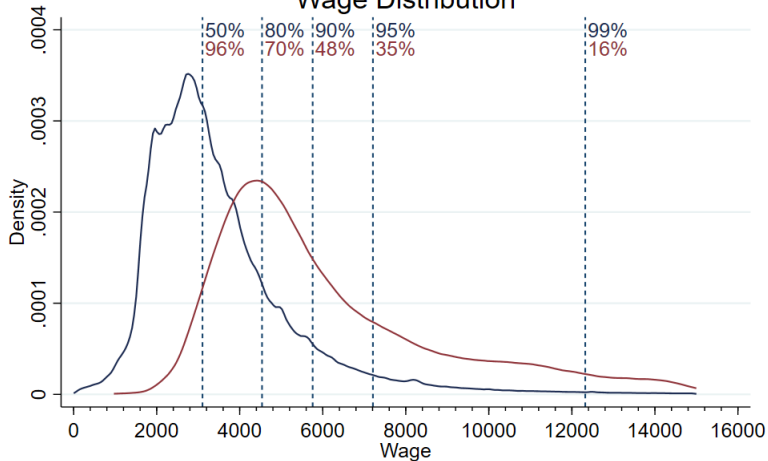
Wage Distribution



Wage Distribution

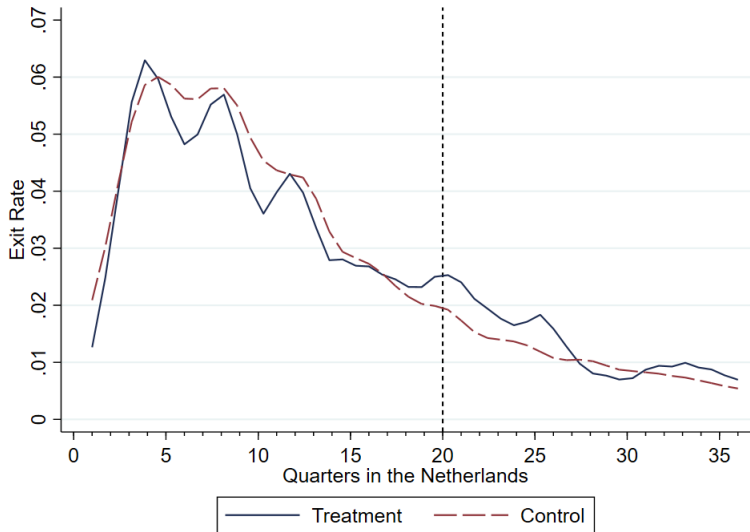


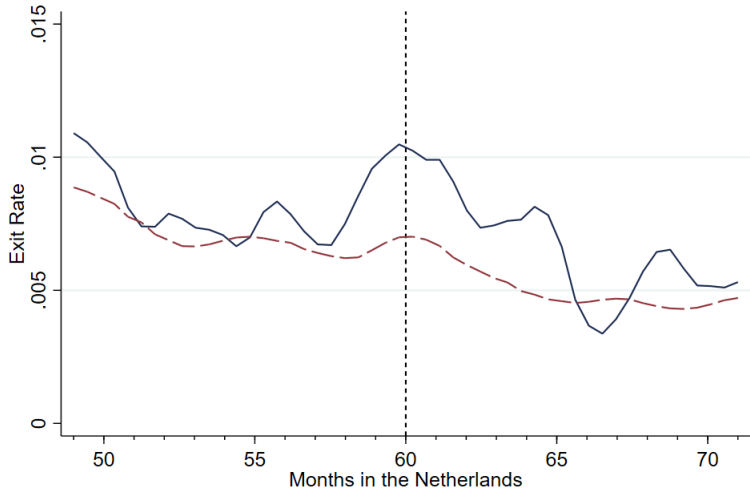
Wage Distribution



— Dutch Population — Beneficiaries

▶ back

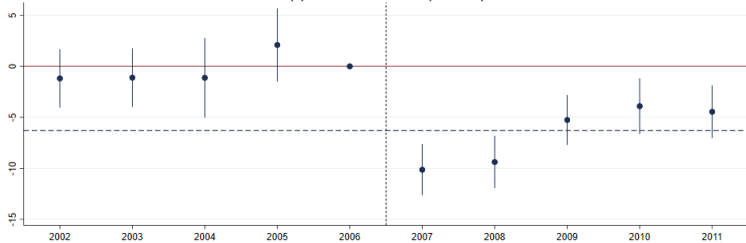




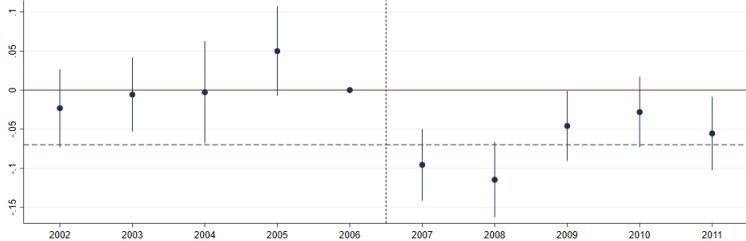
— Treatment - - - Control

▶ back

(A) Time in the Netherlands (in Months)



(B) More than 5 years in the Netherlands



▶ back

Appendix - Robustness Baseline

1. Different control groups:
 - 1.1 All beneficiaries
 - 1.2 Only individuals that previously lived in the UK
 - 1.3 Only individuals that previously lived in the Nordic countries
 - 1.4 Individuals that previously lived in the UK and Nordic countries
2. Placebo in Country
3. Excluding some individuals that would be treated for other reasons
 - 3.1 Wage threshold
 - 3.2 Wage threshold in combination with not being Researcher worker
4. Arrival time and Request of the Benefit
 - 4.1 Stay at least 1 year in the NL
 - 4.2 Immigrated and Requested the benefit in the same calendar year
 - 4.3 A combination of both

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Working from abroad?

- ▶ **Commuting issue:** Individuals do not always need to physically live in the NL
 - ▶ 20% treated individuals lived abroad for a period Vs. 10% control individuals
- ▶ **No change in commuting behavior!**

Table : Working from abroad

Dependent Variable	Employment time abroad (Months)	Work from Abroad	Employment time abroad (Months)	Work from Abroad
	(1)	(2)	(3)	(4)
	No DE and FR		Whole Sample	
PPR*Arrival	-0.07 (1.10)	0.03 (0.02)	-0.07 (1.11)	0.02 (0.02)
Constant	-1.28*** (0.41)	0.04*** (0.01)	-1.57*** (0.42)	0.03*** (0.01)
Observations	49,644	49,644	57,640	57,640
Country of Origin FE	YES	YES	YES	YES
Start Year FE	YES	YES	YES	YES

Notes: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

- ▶ **Robustness:** Time in the Job instead of Time in the country
→ **Very similar results**

Wealth Tax?

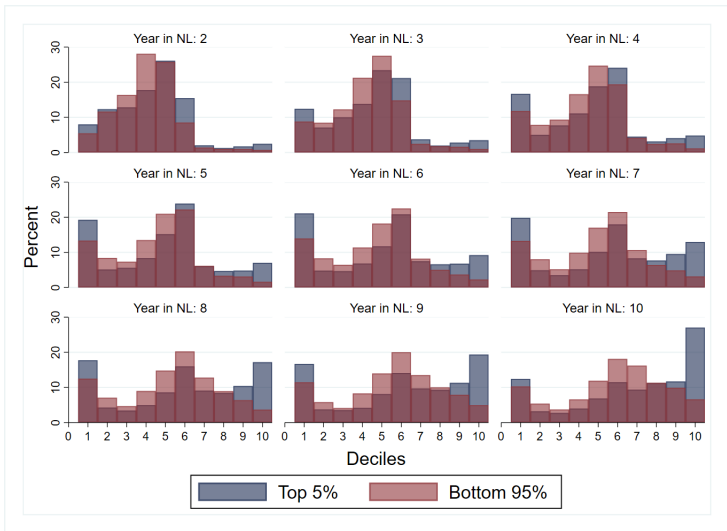
- ▶ 'Partial non-residency status' → Personal income is taxed as a resident tax payer **but** income from assets, savings and investments are not taxed
- ▶ **Top 5%** react because of baseline differences in Wealth levels?
 - ▶ Dynamics of Wealth accumulation
- ▶ Data from 2006-2019 - Many individuals from control year without this information

Wealth Tax?

Table : Time in Country: Wealth Heterogeneity

Dependent Variable	Time in	Time in	Time in	Time in	Time in
	Country	Country	Country	Country	Country
	(1)	(2)	(3)	(4)	(5)
	No DE and FR Sample			[0-95] Vs. [95-100]	
Panel A: in Months					
PPR*Arrival	-6.02*** (1.87)	-6.03*** (1.87)	-5.38*** (1.92)	-0.59 (12.48)	-11.80** (5.07)
Wealth Base Year		-0.02 (0.06)			
Wealth Decile Base Year			1.28*** (0.12)		
PPR*Arrival*Wealth Decile				-0.46 (1.54)	1.01 (0.72)
Constant	61.90*** (0.23)	62.02*** (0.49)	54.87*** (0.72)	58.42*** (0.89)	48.86*** (0.90)
Panel B: More than 5 years					
PPR*Arrival	-0.08*** (0.03)	-0.09*** (0.03)	-0.08*** (0.03)	-0.02 (0.15)	-0.14** (0.07)
Wealth Base Year		-0.00* (0.00)			
Wealth Decile Base Year			0.01*** (0.00)		
PPR*Arrival*Wealth Decile				-0.01 (0.02)	0.01 (0.01)
Constant	0.46*** (0.00)	0.47*** (0.01)	0.39*** (0.01)	0.44*** (0.01)	0.31*** (0.01)
Observations	30,078	30,078	30,078	16,196	13,852
Country of Origin FE	YES	YES	YES	YES	YES
Start Year FE	YES	YES	YES	YES	YES

Notes: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 All regressions include country of origin and start year fixed effects.



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Table: Elasticity

Dependent Variable	Ln(Leavers) (1)	Ln(Leavers) (2)	Ln(Leavers) (3)	Ln(Leavers) (4)	Ln(Leavers) (5)
	All	50-95	50-99	Top 5	Top1
$\ln(1 - \tau)$	-0.91* (0.48)	-0.80 (1.09)	-0.91 (0.70)	-1.23** (0.42)	-1.35** (0.56)
Observations	34	34	34	34	34
Treat Country FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES

Notes: Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. All regressions include country of origin and start year fixed effects. Highly mobile individuals are defined as the individuals that do not share the nationality of the previous country of residence.

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