Habit Formation and the Misallocation of Labor
Evidence from Forced Migrations

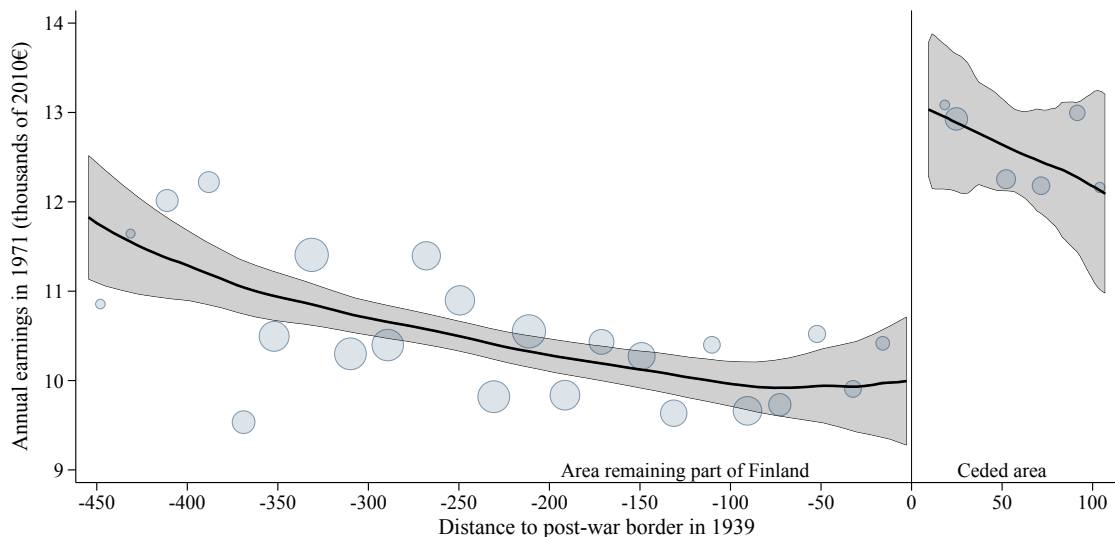Matti Sarvimäki   Roope Uusitalo   Markus Jäntti

JEEA Teaching Slides
June 2022

(.tex-version and figures available here)

- Poor countries have large, unproductive agricultural sectors
  - large productivity gaps in agriculture vs. non-agriculture, particularly in the poorest countries (Gollin, Lagakos, Waugh 2014)
  - consistent with labor being misallocated → potential for large benefits from reallocating labor to the modern sector
- Critical questions
  - is it true that farmers could increase their income by moving?
  - if yes, why don't (more) people move?

- Research design
  - 11% of the population evacuated and resettled from areas Finland ceded to the Soviet Union in 1940 and 1944
  - displaced and non-displaced persons similar in pre-war observables
- Data
  - 10% sample of the 1950 Census linked to the 1970 Census and 1971 tax records
  - focus on cohorts born between 1907–1924 (N=85,836)
- Main results
  - displacement substantially increased farmers' income
  - driven by increased transitions to non-agriculture
- Broader take-away
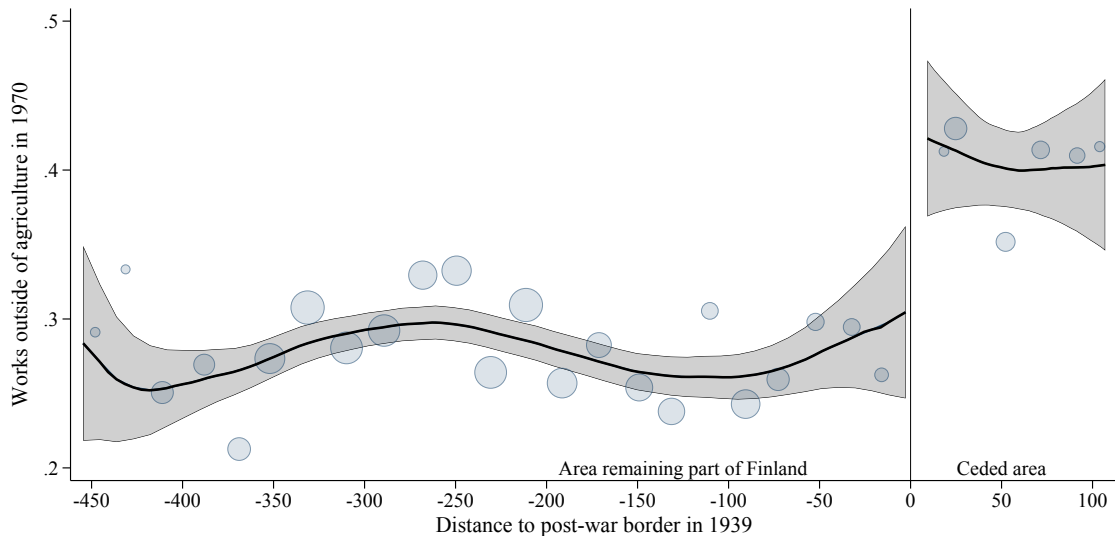 - attachment to a place may be an important impediment for structural change

... due to increased transitions from agriculture to non-agriculture

Share working outside of agriculture in 1970. Sample: men working in agriculture in 1939.

Earlier literature

- Effects of forced migration
  - **Quasi-experimental**: Bauer et al. (2013), Chyn (2018), Deryugina et al. (2018), Becker et al. (2020), Arellano-Bover (2021), Nakamura et al. (2021)
  - **Finland's post-WWII displacement**: Waris et al. (1952), Saarela and Finnäs (2009), Haukka et al. (2017), Sarvimäki (2011), Lynch et al. (2019)
- Misallocation between agriculture vs. non-agriculture
  - Rosenstein-Rodan (1943), Lewis (1955) ... more recently e.g. Gollin et al. (2002), Caselli (2005), Adamopoulos and Restuccia (2014), and Fernando (2019), Lagakos and Waugh (2013), Gollin et al. (2014), Adamopoulos and Restuccia (2014)
  - **Reviews**: Hopenhayn (2014), Restuccia and Rogerson (2017), and Lagakos (2020)
- Barriers to migration
  - Harris and Todaro (1970), Rosen (1979), Roback, (1982), Caselli and Coleman (2001), Lucas (2004), Munshi and Wilson (2011), Lagakos and Waugh (2013), Young (2013), Bryan et al. (2014)
- Habit formation
  - Pollak (1970), Becker and Murphy (1988), Atkin (2013, 2016)

- Finland's post-WWII resettlement unique in combining three features
  1. policy to reconstruct the pre-war situation
     → voluntary transitions after resettlement
  2. high-quality contemporary survey-based research + return migration
     → research designs for several alternative mechanisms
  3. longitudinal data following a large, representative
     sample of individuals over several decades
- These features allow us to:
  - plausibly identify of the long-term impacts of forced migration
  - present evidence that attachment to a place is a quantitatively important
    mechanism holding back transitions from agriculture to non-agriculture
- To organize discussion and formalize our arguments, we also present a
  Roy model extended with habit formation for residential location

The Resettlement

Finland in 1938
- GDP pc: 4,000 ($2011)
- >50% working in agriculture

Finland in WWII
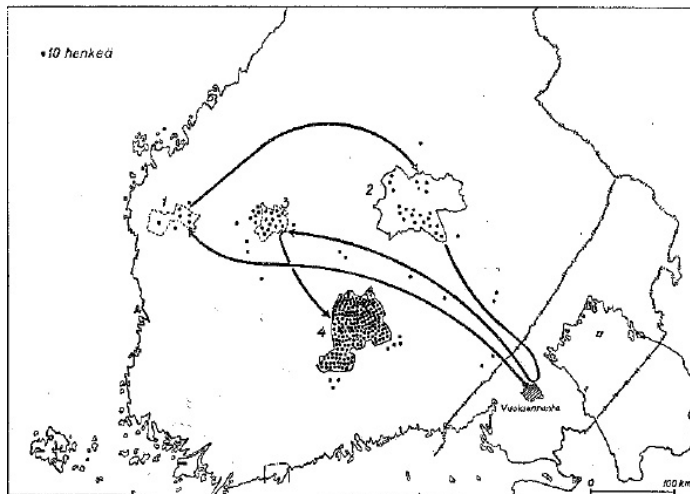- 1939–40: Winter War
- 1940: first resettlement
- 1941: Continuantion War, return migration
- 1944: second resettlement

Finland after WWII
- rapid growth and urbanization
- GDP per capita 14,000 ($2011) in 1970

(1): Evacuation area 1939–40, (2): Resettlement area 1940–, (3): Evacuation area 1944–45, (4): Resettlement area 1945ä. Dots present 1949 location of people living in Vuoksenranta in 1939

- A tenth of the population had to be evacuated in a few weeks
  - each ceded municipality allocated an evacuation area
  - local population oblidged to provide shelter
- Every displaced person was hosted by a local family
  for the winters of 1940–41 and 1944–45
  - in the spring/summer received farms from other locations that
    were, on average, 150km away from the evacuation areas

- Aimed to reconstruct the pre-war situation for farmers
- Provided land and assistance for setting up new farms
  - location determined by source area
  - soil and weather conditions similar to source areas
  - fields exproriated from local landowners, cleared from forest
- Villages resettled together to preserve social connections
- Farmers free to sell their land and to migrate afterwards
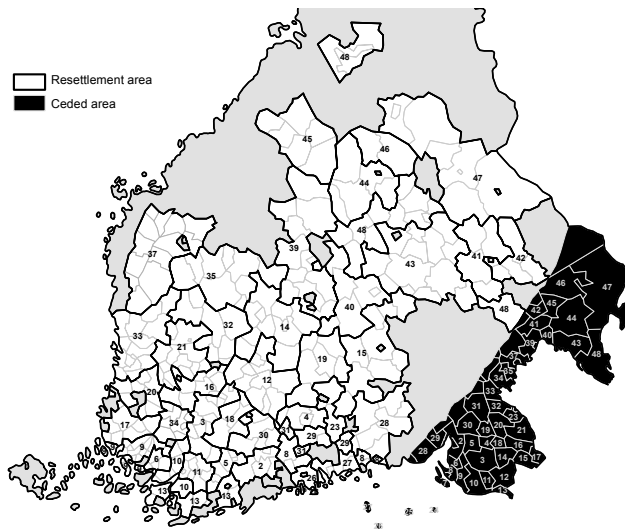
FIGURE 2. Ceded areas and the 1945 Resettlement Plan. This map represents the ceded area and the resettlement areas. The numbers refer to the ceded municipalities in the ceded area and their corresponding 1945 resettlement areas in the remaining parts of Finland.

Impact of Forced Migration

- Statistics Finland's 10% microsample of the 1950 Census
  - includes retrospective questions for 1939
  - augmented with municipality-level data on the evacuation and resettlement areas' income and production structure
- Linked to the 1970 Census and 1971 tax records
  - tax rules and 1971 Household Budget Survey suggest income measures comparable across sectors
- Estimation sample: cohorts born between 1907–1924
  - 15–32 years old in 1939; 47–64 in 1971

- Three complementary approaches
  - simple OLS (+ Altonji-Elder-Taber-Oster bounds)
  - spatial RD (interpretted as an upper bound)
  - within-resettlement area comparisons (lower bound)
- Strengths of the research design
  - *everyone* living in the ceded area left
  - 1721 border used as a reference point
    - originally USSR was planning to use 1743 border about 75km further west
  - displaced and non-displaced farmers similar in pre-war observable characteristics

TABLE 1. Pre-War Characteristics

| | Men | | | | | | Women | | | | | |
| | Agricultural | | Other rural | | Urban | | Agricultural | | Other rural | | Urban | |
	Non-disp. (1)	Dis-placed (2)	Non-disp. (3)	Dis-placed (4)	Non-disp. (5)	Dis-placed (6)	Non-disp. (7)	Dis-placed (8)	Non-disp. (9)	Dis-placed (10)	Non-disp. (11)	Non-disp. (12)
A: Demographics												
Age	22.8	22.8	22.9	22.8	24.0	23.4	24.2	24.7	22.7	22.5	24.0	24.1
Swedish-speaker	0.07	0.00	0.08	0.00	0.16	0.01	0.07	0.00	0.07	0.00	0.13	0.01
Migrated prior to 1939	0.17	0.15	0.38	0.36	0.61	0.55	0.28	0.24	0.39	0.35	0.70	0.62
Orthodox	0.00	0.12	0.00	0.11	0.01	0.04	0.00	0.13	0.00	0.12	0.01	0.04
B: Socioeconomic status												
Entrepeneur	0.30	0.42	0.08	0.06	0.05	0.05	0.04	0.03	0.02	0.02	0.02	0.03
White-collar	0.02	0.02	0.10	0.13	0.20	0.25	0.00	0.00	0.10	0.10	0.23	0.23
Blue-collar	0.36	0.16	0.56	0.53	0.59	0.52	0.23	0.13	0.16	0.13	0.31	0.25
Out of labor force	0.32	0.41	0.26	0.28	0.16	0.19	0.73	0.84	0.72	0.75	0.45	0.50
C: Sector of employment												
Manufacturing	0.00	0.00	0.28	0.20	0.33	0.25	0.00	0.00	0.08	0.06	0.18	0.14
Construction	0.00	0.00	0.14	0.14	0.11	0.11	0.00	0.00	0.00	0.00	0.00	0.00
Services	0.00	0.00	0.24	0.32	0.33	0.38	0.00	0.00	0.18	0.18	0.33	0.33
D: Characteristics of the municipality of residence												
Average taxable income	1.41	1.38	1.95	1.65	6.75	5.61	1.45	1.38	1.81	1.58	6.80	5.62
Agricultural LFS	0.83	0.81	0.74	0.76	0.14	0.15	0.83	0.80	0.76	0.78	0.13	0.11
Latitude	69.4	67.7	68.9	67.7	67.9	67.5	69.3	67.7	69.0	67.8	67.9	67.5
Observations	12,940	1,377	11,142	1,258	8,079	889	7,366	831	19,633	2,259	11,584	1,191

TABLE 2. Impact of Forced Migration on Annual Income in 1971

	Control Mean	Baseline		Oster's Bound	Spatial RD		Resettlement Area FEs	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A: Men by 1939 status								
Agri-cultural	10.5	2.08	2.05	2.04	3.12	3.06	1.26	1.67
		(0.37)	(0.36)	(0.37)	(0.86)	(0.73)	(0.33)	(0.47)
Controlling for:								
Pre-war char.		no	yes	.	no	yes	no	yes
Resettlement area		no	no	.	no	no	yes	yes

TABLE 2. Impact of Forced Migration on Annual Income in 1971

	Control Mean	Baseline		Oster's Bound	Spatial RD		Resettlement Area FEs	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A: Men by 1939 status								
Agri-cultural	10.5	2.08 (0.37)	2.05 (0.36)	2.04 (0.37)	3.12 (0.86)	3.06 (0.73)	1.26 (0.33)	1.67 (0.47)
Other rural	16.2	1.14 (0.59)	1.83 (0.70)	2.18 (0.57)	1.00 (2.54)	0.38 (2.80)	0.81 (0.78)	2.06 (1.15)
Urban	23.7	-2.48 (1.95)	-4.65 (1.42)	-5.40 (0.89)	.	.	.	.
B: Women by 1939 status								
Agri-cultural	1.9	0.57 (0.16)	0.66 (0.19)	0.71 (0.23)	0.48 (0.50)	0.38 (0.45)	0.45 (0.15)	0.64 (0.25)
Other rural	4.8	1.10 (0.19)	1.46 (0.22)	1.65 (0.24)	1.51 (0.69)	2.11 (0.58)	0.84 (0.20)	1.53 (0.28)
Urban	8.8	-0.65 (0.73)	-1.30 (0.64)	-1.53 (0.35)	.	.	.	.
Controlling for:								
Pre-war char.		no	yes	.	no	yes	no	yes
Resettlement area		no	no	.	no	no	yes	yes

Note: Robust clustered standard errors in parentheses. Information on annual income in 1971 is

TABLE 3. Impact of forced migration on industry, employment, urbanization and education in 1970

	Works outside of agriculture											
	Control Mean	Estimates										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
				A: Men by 1939 status								
Agri-cultural	28.2	15.0 (2.1)	17.0 (2.2)									
Other rural	63.4	2.5 (2.0)	1.7 (2.4)									
Urban	76.1	-4.8 (1.0)	.									
				B: Women by 1939 status								
Agri-cultural	14.7	5.1 (1.9)	5.2 (2.4)									
Other rural	34.0	9.5 (1.4)	8.2 (1.8)									
Urban	54.7	-5.1 (1.5)	.									
Controlling for:												
Pre-war char.		yes	yes		yes	yes		yes	yes		yes	yes
Resettlement area		no	yes		no	yes		no	yes		no	yes

TABLE 3. Impact of forced migration on industry, employment, urbanization and education in 1970

| | Works outside of agriculture | | | Employed | | | Lives in a city | | | Holds a secondary degree | | |
| | Control Mean | Esti-mates | | Control Mean | Esti-mates | | Control Mean | Esti-mates | | Control Mean | Esti-mates | |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
					A: Men by 1939 status							
Agri-cultural	28.2	15.0 (2.1)	17.0 (2.2)	72.2	-1.4 (1.5)	-4.1 (2.1)	11.5	13.3 (1.5)	15.1 (2.2)	8.9	3.2 (1.0)	2.1 (1.2)
Other rural	63.4	2.5 (2.0)	1.7 (2.4)	75.9	0.0 (1.6)	-2.7 (2.0)	27.7	16.9 (2.1)	20.2 (2.6)	17.5	5.9 (1.4)	7.9 (1.4)
Urban	76.1	-4.8 (1.0)	.	78.5	-4.7 (1.0)	.	84.2	-16.0 (1.9)	.	31.9	0.7 (1.9)	.
					B: Women by 1939 status							
Agri-cultural	14.7	5.1 (1.9)	5.2 (2.4)	40.8	-1.8 (2.6)	-2.9 (3.1)	10.9	10.6 (2.3)	11.1 (3.0)	9.4	0.5 (1.7)	-1.0 (2.0)
Other rural	34.0	9.5 (1.4)	8.2 (1.8)	44.7	4.2 (1.3)	3.9 (1.6)	23.7	18.9 (2.2)	23.7 (2.3)	13.9	2.8 (1.1)	4.3 (1.1)
Urban	54.7	-5.1 (1.5)	.	55.8	-4.4 (1.3)	.	83.3	-14.9 (2.8)	.	22.1	-0.2 (1.5)	.
Controlling for:												
Pre-war char.		yes	yes		yes	yes		yes	yes		yes	yes
Resettlement area		no	yes		no	yes		no	yes		no	yes

- Thus far: Impacts for income and sector, urbanization move together
- Next: income conditional on *post-war* industry and location
    - conditioning outcomes → no causal interpretation
    - still, an informative descriptive statistic: displaced vs. non-displaced who were similar before the war and worked in the same place after

TABLE 6. Differences in Annual Income in 1971 between Displaced and Non-Displaced Persons Conditional on Post-War Sector, Education and Location

	Men				Women			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Agricultural	2.05 (0.36)	0.93 (0.32)	0.67 (0.31)	0.34 (0.32)	0.66 (0.19)	0.25 (0.13)	0.29 (0.12)	0.01 (0.21)
Other rural population	1.83 (0.70)	1.53 (0.63)	0.73 (0.52)	-0.46 (0.52)	1.46 (0.22)	0.50 (0.16)	0.46 (0.14)	0.10 (0.18)
Urban population	-4.65 (1.42)	-3.87 (1.39)	-2.90 (1.21)	-2.43 (0.54)	-1.30 (0.64)	-0.73 (0.50)	-0.51 (0.40)	-0.35 (0.20)
Controlling for:								
Works outside of agriculture in 1970	no	yes	yes	yes	no	yes	yes	yes
Education in 1970	no	no	yes	yes	no	no	yes	yes
2-digit industry and municipality in 1970	no	no	no	yes	no	no	no	yes

Returns to leaving agriculture

- Next: displacement as an instrument for leaving agriculture
  - identifying assumption: being displaced affects income *only* through higher propensity to leave agriculture
  - much stronger than what required for main results
- If anything, IV estimates probably downward biased
  - direct effect of trauma, loss of status, wealth
  - persistently negative impact on urban population
- Compliers (discussed later)
  - intermediate returns to migration and/or
  - strong preferences for location capital

TABLE 7. Returns to Leaving Agriculture

	Average income in	Returns to leaving agriculture			
		OLS		2SLS	
Status in 1939	agriculture				
	(1)	(2)	(3)	(4)	(5)
Men	9.9	7.6	7.4	13.7	9.8
		(0.2)	(0.2)	(2.3)	(2.5)
Women	0.7	8.1	8.1	12.9	12.4
		(0.2)	(0.2)	(3.3)	(3.8)
Controlling for:					
Pre-war char.		yes	yes	yes	yes
Resettlement area		no	yes	no	yes

Notes. Column 1 shows the annual earnings in 1971 in thousands of 2010 euros for those working in agriculture. Columns 2–3 report OLS estimates for an indicator variable taking the value one if the person works outside of agriculture in 1970 and zero otherwise. Columns 4–5 report 2SLS estimates where we use displacement status as an instrument for working outside of agriculture in 1970. Standard errors (in parentheses) are clustered at the 1939 residence municipality level. See the notes to Table 2 for details of the pre-war characteristics.

Interpretation

- Our findings suggest that farmers could substantially increase their earnings by moving to the modern sector
- *The* question: why did most farmers remain in their farms?

1. **Selection / city-specific human capital**
   Roy (1951), Lagakos and Waugh (2012), Caselli and Coleman (2001), Lucas (2004)

2. **Local prices/amenities**
   Rosen (1979), Roback (1982)

3. **Risky urban labor markets**
   Harris and Todaro (1970), Bryan et al (2014)

4. **Networks**
   Banerjee and Newman (1998), Munshi (2003), Munshi and Rosenzweig (2016)

5. **Habit formation**
   (this paper)

- 1–3 cannot explain our results because disp/non-disp. farmers identical along these dimensions (not a falsification, but suggests these models abstract away from important mechanisms)

An Illustrative Roy Model

- Aim: the simplest possible Roy model to organize thoughts and rationalize our empirical results
  - more elaborate models starting from similar building blocks:
    Borjas (1987), Chiquiar and Hanson (2005), Lagakos and Waugh (2013), Young (2013), Bryan and Morten (2019), Lagakos et al. (2018) and Nakamura et al. (2021)
- Value for our analysis
  - structure for discussion
  - characterization of the compliers
    (those leaving agriculture because of being forced to migrate)
  - additional predictions

- Two sectors, many fully specialized locations
  - only agriculture, a, in rural locations
  - only non-agriculture, n, in urban locations
- Individuals, i, are heterogeneous in
  - $z_a(i)$: efficiency units in agriculture
  - $z_n(i)$: efficiency units in non-agriculture
  - $A(i)$: farm quality (if in agriculture)
  - $C(i)$: cost of switching sectors
- Income for person i
  - in agriculture: $A(i)z_a(i)$
  - in non-agriculture: $z_n(i)$

Transitions from agriculture to non-agriculture

- A farmer i will switch to non-agriculture if

$$\underbrace{z_n(i) - A(i)z_a(i)}_{\text{Returns to leaving agriculture}} \quad > \quad \underbrace{C(i)}_{\text{Switching cost}}$$

- Forced migration increases transitions to non-agriculture if it
  - increases returns to leaving agriculture
    - ▶ productivity in non-agriculture: $z_n \uparrow$
      or
    - ▶ farm quality: $A(i) \downarrow$
      or
    - ▶ productivity in agriculture: $z_a \downarrow$
  - decreases switching costs, $C(i)$

- Unlikely: increased returns to leaving agriculture
  - farm quality ▶
  - human capital ▶
- Unlikely: reduction in switching costs due to
  - expansion of dispersed networks ▶
  - destruction of local networks ▶
  - culture, discrimination ▶
- Likely: attachment to a place

The explanations for why it was time to settle down varied widely, [but our] overall conclusion is that the displaced Karelians started to feel part of their new communities. The only reservation that came up again and again was: "but if only one could move back to Karelia...!". The lost area, and everything related to it, gave rise to overwhelming emotions. Just saying the word, Karelia, seemed to put everything that belonged to the past, and that was now lost, into a bright, admiring light. In comparison to that everything else looked gray, dull, inferior.

An extract from Waris et al. (1952) conclusions based on survey responses from 1,982 displaced and 1,150 non-displaced persons and in-debth interviews.

- Aim: the simplest possible model to rationalize our empirical results in a manner that is also consistent with Waris et al. (1952)
  - everything as in standard Roy model *except* that we explicitly define the source of switching costs (attachment to a place or "habit formation")
- Borrow from Becker and Murphy (1988)
  - location capital affects contemporaneous utility
  - accumulated by consuming more of a location (living there)
- Rationalizing our main results
  - location capital accumulated already in childhood → preference for location capital and/or low returns to switching keep people in agriculture
  - displacement destroys location capital → switching costs disappear → choice of sector solely determined by comparative advantage
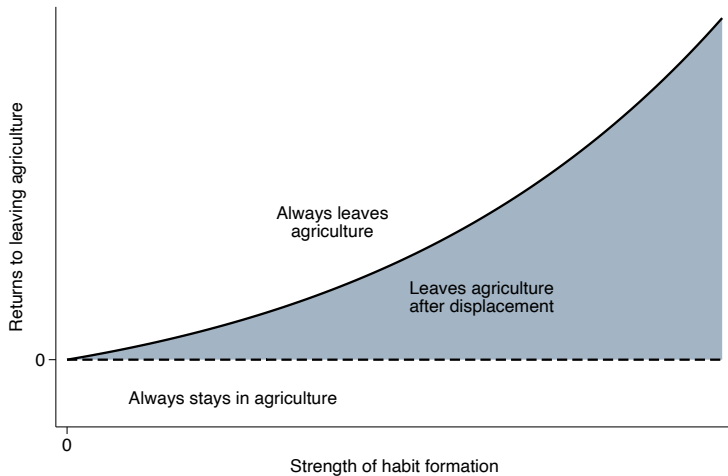
FIGURE 3. Sectoral choice in an illustrative Roy model with habit formation. This figure illustrates the basic insights of a Roy model with habit formation for a residential location for individuals who have grown up on a farm. The shaded area shows the combinations of comparative advantages (vertical axis) and taste for location capital (horizontal axis) for individuals who stay in agriculture only if they can stay in their home farms. See the text and Online Appendix D for details.

- Location capital depreciates slowly → displaced persons willing to forgo income if they could return to their previous homes
  - in line with stated preferences documented by Waris et al. (1952) (e.g. the quote above)
- Revealed preferences: Finland reconquested the ceded areas in 1941
  - 97% of farmers returned despite large-scale destruction of the ceded area and a genuine opportunity to stay in their new farms
  - displaced and resettled again in 1944, but 84% of those interviewed by Waris et al (1952) did not regret their return
    - *"Maybe it was an economic loss, but that is not the most important thing"*

- Welfare loss for the first-generation
  - loss of location capital outweights income gains
- Welfare gains for later generations
  - reap the benefits of better labor market opportunities without having to pay the price of leaving home
- Intergenerational conflict
  - children do not get to choose where they accumulate their initial location capital

- The persistence of a large and unproductive agricultural sector is a striking feature of most poor countries
  - suggests that labor is greatly misallocated across sectors
  - also puzzling: why don't more farmers move?
- We examine population displacements in 1940s Finland
  - find that forced migration increased the likelihood of leaving agriculture and long-term income among the rural population
  - sketch a Roy model extended with habit formation for residential location (attachment to a place) to rationalize these results
- Broader implications
  - attachment to a place may keep people in declining areas or industries
  - habit formation creates an intergenerational conflict: people do not choose where to accumulate their initial location capital
  - ... and may become increasingly important: economic development likely eases other forms of switching costs, but not this kind of habit formation

Appendix

Value added per worker in non-agriculture / value added per worker in agriculture

	Raw	Adj.	Adjusted APG by GDP per capita			
			Rich	Q2	Q3	Poor
Median	3.1	1.9	1.4	2	2.1	2.3
# Countries	72	72	18	16	18	20

Gollin, Lagakos and Waugh (2014): In a typical country, value added per worker is 3.1 larger outside of agriculture than in agriculture. After adjusting on years of education and hours of work value added in non-agriculture is still 1.9 larger than in agriculture. The gaps are larger, the poorer the country.

- "Common sense" explanation: displaced farmers got lousy farms
  - reduction in size if the original farm
  - reduction in land quality
- Mitigating factors
  - changes in the variance rather than mean of the farm size distribution
    - ▶ new farms had 6–15 hectares of arable land
    - ▶ 1/10 of the original farms >15ha → reduction in farm size
    - ▶ 1/3 of the original farms <6ha → increase in farm size
  - average land quality of the resettlement area quite close to the ceded area (yields of common crops 2% smaller in the resettlement vs ceded areas)
  - strong institutional constraints against displaced farmers given worse land within the resettlement areas
- Nevertheless, setting up a new farm required substantial time investment and may thus have pushed farmers to non-agriculture
- BUT: hard to rationalize the effect on income with this mechanism (next)

- The effect of worse farms on income in the Roy model
  - indirect: 15–17% of farmers pushed to non-agriculture
    $\rightarrow$ increases income *if*
    $$z_n(i) > A_0(i)z_a$$
    where $A_0(i)$ is the quality of the lost farm
  - direct: decreases income for those 1/2 who stayed in agriculture
- Empirically, displaced and non-displaced farmers had similar income conditional on the post-war location, sector and education (Table 6)

- Forced migration may affect human capital
  - e.g. could shift preferences towards investing in portable assets (Becker et al. 2020) → increase in z_n and z_a → increase in everyone's income
  - pushes farmers to non-agriculture if z_n increases more than z_a
- However, the causal chain could also run in the opposite direction
  - leaving agriculture for other reasons + higher returns to education in non-agriculture → incentives to acquire more education
- Our findings consistent with the latter hypothesis
  - education of rural population increases, no effect on urban population
  - effects on education appear after effects on switching (1970 vs 1950)

- Displacement may have created valuable social networks
  - e.g. displaced persons hosted by local families during the evacuation periods
    → geographically dispersed networks that could facilitate job search
- Research design: evacuation plans
  - population of each ceded municipality moved into designated evacuation areas for the winters of 1939–40 and 1944-45 (resettled elsewhere later)
  - characteristics of the evacuation areas plausibly exogeneous
- Result: displaced persons evacuated into more economically viable areas did not seem to earn more than those evacuated into other places (next slide)

TABLE 8. Evacuation Area Quality and Long-Term Income

		Men			Women		
	All	All	Agri-cultural	Other rural	All	Agri-cultural	Other rural
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
A: Average income of "locals" in 1971							
1940 evacuation area	-0.010	-0.116	0.163	-0.380	0.076	-0.088	0.079
	(0.066)	(0.116)	(0.157)	(0.299)	(0.049)	(0.048)	(0.089)
1944 evacuation area	-0.012	-0.011	-0.172	0.171	-0.030	-0.102	0.028
	(0.067)	(0.133)	(0.091)	(0.248)	(0.059)	(0.052)	(0.063)
B: Taxable income per capita in 1939 (standardized)							
1940 evacuation area	0.027	-0.059	0.205	-0.624	0.151	0.038	-0.239
	(0.208)	(0.290)	(0.290)	(0.676)	(0.177)	(0.150)	(0.217)
1944 evacuation area	0.142	0.380	-0.497	1.214	-0.084	-0.031	-0.041
	(0.163)	(0.285)	(0.265)	(0.460)	(0.106)	(0.127)	(0.131)
Observations	7,506	3,382	1,337	1,156	4,124	831	2,122

Notes. Estimates for β from a regression $y_i = \alpha + EA_i\beta + X_{io}\delta + \varepsilon_{ijt}$, where y_{ij} is annual income in 1971, EA_i is the average 1971 income of individuals living in the evacuation area already in 1939 (panel A) or standardized taxable income per capita in 1939 (panel B) and X_{i0} is a vector of observable pre-war characteristics (see the notes to Table 2). Each column reports estimates from a separate regression. Standard errors (in parentheses) are clustered at the 1939 residence municipality level. The number of observations deviates slightly from those reported in Table 1 because we have not been able to find information on the evacuation area of a few municipalities. We do not report estimates separately for the urban population due to the small number of ceded urban municipalities.

- Forced migration may have destroyed valuable local networks
  - e.g. forced migrants lose access to informal credit and insurance → value of staying in agriculture declines → more switching to non-agriculture
    (Banerjee and Newman, 1998; Karlan et al., 2009; Munshi and Rosenzweig, 2016)
- Research design: Resettlement area's size
  - variation in the amount of distributable land → variation in the post-war distance between members pre-war local networks
  - hypothesis: networks harder to maintain if members located far apart
- Result: no evidence on resettlement area size affecting later outcomes (next slide)

TABLE 9. Resettlement Area Characteristics and Long-Term Outcomes

	Men				Women			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A: Annual income in 1971								
Size relative to origin area	0.08 (0.30)				-0.09 (0.09)			
Distance to origin area	.				.			
Exproriated private land	.				.			
B: Works outside of agriculture in 1970								
Size relative to origin area	-0.26 (1.06)				-0.55 (1.16)			
Distance to origin area	.				.			
Exproriated private land	.				.			
Observations		1,376				831		

Notes. Estimates for β from a regression $y_{ij} = \alpha + \beta RA_j + X_{io}\delta + \varepsilon_{ijt}$, where y_{ij} is either annual income in 1971 in thousands of 2010€, including zeros (panel A) or an indicator for working outside of agriculture in 1970 (panel B), RA_j is a measure of resettlement area characteristics and X_{i0} is a vector of observable pre-war characteristics. All regressions are run using data including only displaced farmers. Standard errors (in

- Displaced persons may been discriminated or otherwise felt out of place in the resettlement areas
  - local customs, dialects and other cultural differences
  - expropriation of private land
  - 12% of displaced population Orthodox ($< 1\%$ among non-displaced)
- Research design 1: Resettlement area characteristics
  - proxy for cultural distance: geographical distance to origin area
  - proxy for hostility: share of the redistributed land from private landowners (instead of government-owned land)
- Research design 2: Treatment effect heterogeneity
  - were Orthodox displaced persons more likely to leave agriculture?
- Results: no evidence on resettlement area characteristics or Orthodox vs. Lutheran denomination affecting outcomes (next two slides)

TABLE 9. Resettlement Area Characteristics and Long-Term Outcomes

	Men				Women			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A: Annual income in 1971								
Size relative	0.08		.	0.14	-0.09	.	.	-0.08
to origin area	(0.30)			(0.30)	(0.09)			(0.10)
Distance to	.	0.06	.	-0.12	.	0.05	.	0.02
origin area		(0.33)		(0.38)		(0.12)		(0.14)
Expropriated	.		2.60	3.34	.		0.38	0.10
private land			(1.94)	(2.18)			(0.73)	(0.84)
B: Works outside of agriculture in 1970								
Size relative	-0.26		.	-0.20	-0.55		.	-1.29
to origin area	(1.06)			(1.14)	(1.16)			(1.12)
Distance to	.	-0.10	.	-0.55	.	-1.13	.	0.01
origin area		(1.36)		(1.47)		(1.27)		(1.24)
Expropriated	.		4.37	5.34	.		-18.6	-22.2
private land			(8.80)	(9.75)			(7.3)	(6.9)
Observations		1,376				831		

Notes. Estimates for β from a regression $y_{ij} = \alpha + \beta RA_j + X_{io}\delta + \varepsilon_{ijt}$, where y_{ij} is either annual income in 1971 in thousands of 2010€, including zeros (panel A) or an indicator for working outside of agriculture in 1970 (panel B), RA_j is a measure of resettlement area characteristics and X_{i0} is a vector of observable pre-war characteristics. All regressions are run using data including only displaced farmers. Standard errors (in

Table A13: Impact of Forced Migration by Religion

| | Income in 1971 | | | Non-agriculture, 1970 | | | Secondary degree, 1970 | | |
| | Agri-cultural | Other rural | Urban | Agri-cultural | Other rural | Urban | Agri-cultural | Other rural | Urban |
	(1)	(2)	(3)	(6)	(7)	(8)	(9)	(10)	(11)
A: Men									
Displaced	2.06	1.66	-4.66	0.15	0.02	-0.05	0.03	0.05	0.01
	(0.37)	(0.69)	(1.48)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)
Member of the	-1.84	-4.38	-5.26	-0.06	-0.21	-0.02	-0.04	-0.12	-0.09
Orthodox church	(1.06)	(1.54)	(2.30)	(0.06)	(0.06)	(0.03)	(0.02)	(0.04)	(0.03)
Displaced ×	-0.27	4.75	0.31	0.01	0.20	0.02	0.02	0.17	0.03
Orthodox	(1.14)	(2.30)	(2.72)	(0.06)	(0.08)	(0.04)	(0.03)	(0.05)	(0.04)
B: Women									
Displaced	0.69	1.54	-1.28	0.06	0.10	-0.05	0.01	0.03	0.00
	(0.19)	(0.22)	(0.64)	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)
Member of the	-0.08	1.51	0.19	0.13	0.06	0.07	0.13	-0.03	-0.01
Orthodox church	(0.96)	(1.45)	(0.49)	(0.08)	(0.05)	(0.02)	(0.09)	(0.03)	(0.03)
Displaced ×	-0.98	-2.08	-0.81	-0.22	-0.08	-0.07	-0.17	-0.01	0.02
Orthodox	(1.01)	(1.48)	(1.60)	(0.09)	(0.06)	(0.05)	(0.09)	(0.04)	(0.05)