Property Rights, Land Liquidity and Internal Migration: The Case of the Stolypin Agrarian Reform in the Russian Empire

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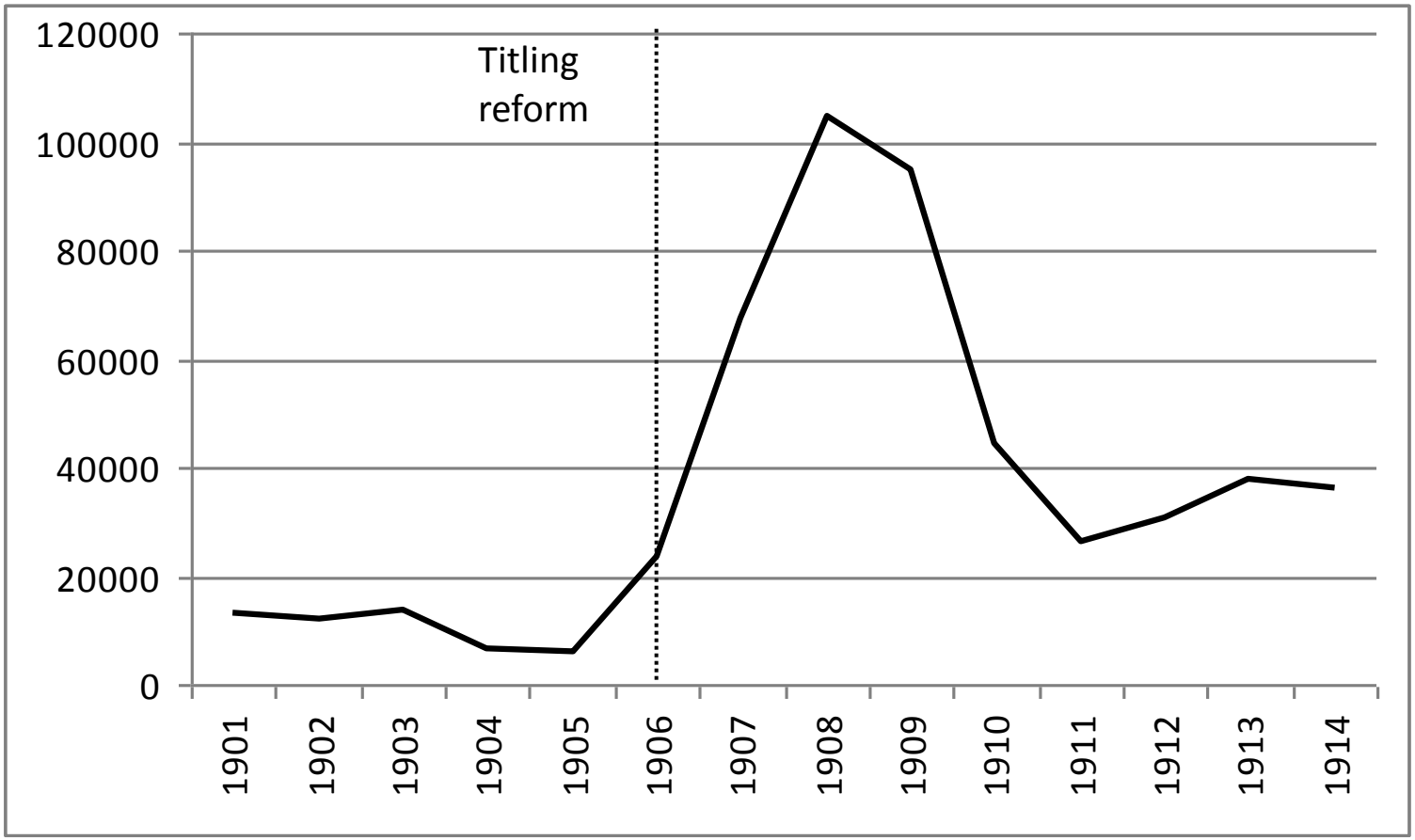
Europe-Asia Migration dynamics in Russian empire, 1901-1914 (number of households)



Research Question

- Did the Stolypin titling reform (1906) increase internal Europe-Asia migration in the Russian empire?

- How do property rights affect migration?

  - Productivity effect: Migration becomes less attractive.
  - Tenure security effect: Migration becomes less risky.
  - Liquidity effect: Migration becomes easier to finance.

- Stolypin reform as quasi-natural experiment showing that improvements in property rights, and the resulting increase in land liquidity, have had the underappreciated effect of encouraging migration
  - explain at least 18.1% of the post-reform Europe-Asia migration

Liquidity of Land

- What do we mean by liquidity?
  - The rights to sell, to use as a collateral or to lease
- How can land liquidity affect migration?
  - Travel and Set-up costs.
  - Opportunity costs.
- Why would land liquidity be the binding constraint?
  - Underdeveloped credit market.
  - Restrictions on land markets.

Survey of Migrating Households from Kharkov Province

What did HH do with land allotment? (in %)

Year	*Left to the commune*	*Sold*	*Leased*
1904	71.8	3.9	23.4
1905	62.8	3.5	33.7
1906	63.4	3.9	32.7
1907	26.5	22.9	50.6
1908	8	41.7	50.3
1909	4.8	68.9	26.3
1910	1.3	83.1	15.6

Source: Tukavkin V.G. (2001). Velikorusskoe krest'yanstvo I Stolypinskaya agrarnaya reforma.

Motivation

- Little known empirically about the importance of land liquidity and more generally of financing to migrants. (Andrienko and Guriev 2004, Halliday 2006)
  - Financing constraints are highly endogenous to the migration decision.

- Effects of different mechanisms to ease financing constraints:
  - Land titling vs governmental subsidies: policy implication (2010 World bank report on Russia).

- Russian peasant commune and the Stolypin reform
  - Connection between dual aspects of the Stolypin reform (titling&migration) underappreciated in the historical literature. (Dubrovsky 1963, Zyryanov 1992, Williams 2006)

Previous Literature

- Land Titling Reforms:
  - Tenure security. (Field 2007, Rupelle et. al. 2009, Mullen et. al. 2011)

- Migration:
  - Old: Focus on returns. (Lewis 1954)
  - Empirical findings:
    - Hatton and Williamson (1994) estimate return of 150%.
    - Abramitzky et al (2010) estimate 60-120%.
  - New: Focus on markets, but mainly labor market. (Lucas 1997; Greenwood 1997)

Historical Background

- Serf Emancipation (1861): Peasants must stay on the land.
  - Institutlization of the commune (obschina):
    - Repartition (peredel'naya).
    - Hereditary (podvor'naya).
    - No commune provinces.
  - Europe-Asia internal migration positive but low levels.

- Early XX C. Europe-Asia internal migration in Russian empire:
  - Construction of trans-Siberia railroad (1898).
  - Compares to the settlement of the US West (in averages): 221,000 migrating individuals annually over 14 year period.
  - Returns to migration, 335%
  - BUT, high costs to migrate and very LIMITED access to credit

Historical Background: Peasant Finance

- Banks:
  - In practice, not for peasants.
- Credit Cooperatives:
  - Loans only for working capital in agriculture.
- Loan/Savings Partnerships:
  - In practice, not common for peasants.
- Peasant Land Bank:
  - Loans only for land purchase
  - Obligatory loans if possess land collateral (approx. 80-90% of “market” price):
    - Before the Stolypin reform: only private land.
    - After the Stolypin reform: also commune land with exit.

Historical Background: Stolypin Agrarian Reform

- Stolypin reforms: a new agrarian policy to get political support in the Russian village without land redistribution reform.

- Before the reform peasants did not own their land plots and faced many restrictions on the use of their allotments:
  - Periodic redistribution in repartition communes.
  - Strong restrictions on land transfers in repartition commune.
  - Land transfers in hereditary communes only required that the buyer be a peasant and was ready to pay taxes from the transferred land

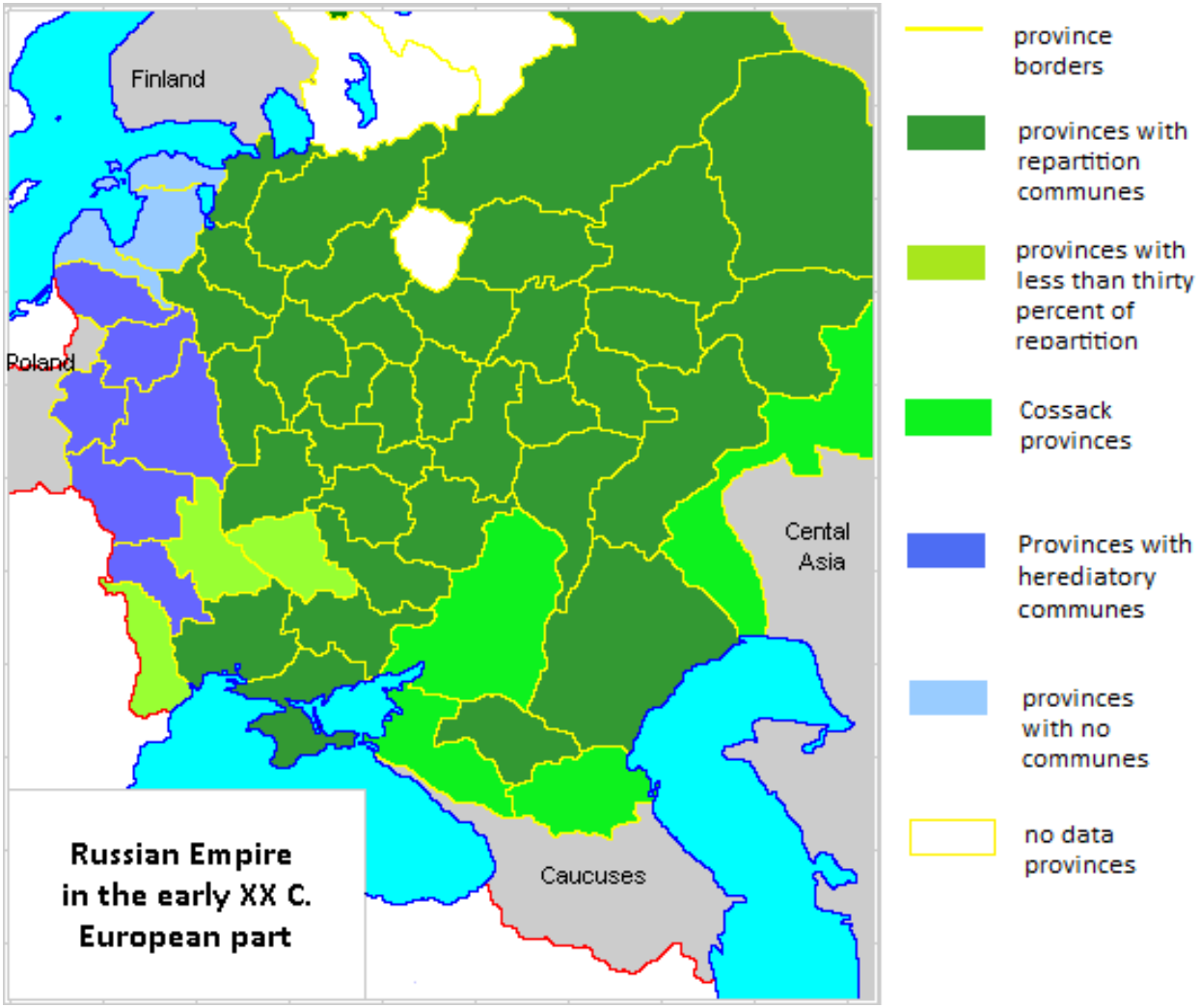
- Titling reform (*The Order of Nov 9, 1906*): an opportunity for peasants to exit the repartition commune, privatize (to convert one's land title from communal to individual one) and sell their plots -> greater land liquidity.
  - Only affected repartition communes.

Empirical Strategy I

- The Stolypin reform as a quasi-natural experiment:
  - "Treatment" Group: those with > 5% repartition communes (41 provinces).
  - "Control" Group: provinces with <5% or no repartition communes (9 provinces).
- Obviously, non-random assignment, use regression adjusted DD approach.

- Productivity story biases effect downwards.

Treatment and control groups on the map



Data Sources

- Panel data set consisting of 50 provinces in European part of the Empire over 7 time periods. (1901-1906, 1907, 1908-1909, 1910-1911, 1912, 1913, 1914).
  - Plus additional pre-reform period, 1896 – 1900 (with lack of info on rural wages)

- Official data from annual statistical volumes and other governmental sources.
  - Registration of migrants at the two key railway stations: no way to bypass because of the only Trans-Siberia line.
  - Access to services (baths, laundry etc.) as an incentive to register.

Difference–in-Difference

$$Migration_{it} = \alpha + \beta * Repartition_i + d * Post_t + \gamma * Repartition * Post_{it} + (Controls_{it}) + (Region_i) + \varepsilon_{it}$$

i – province

t – period 1: 1901-1906 period 2: 1907
period 3: 1908-1909 period 4: 1910-1911
period 5: 1912 period 6: 1913
period 7: 1914

***Migration*$_{it}$** – yearly average number of families per 000 of citizens migrated from province *i* in period *t.*

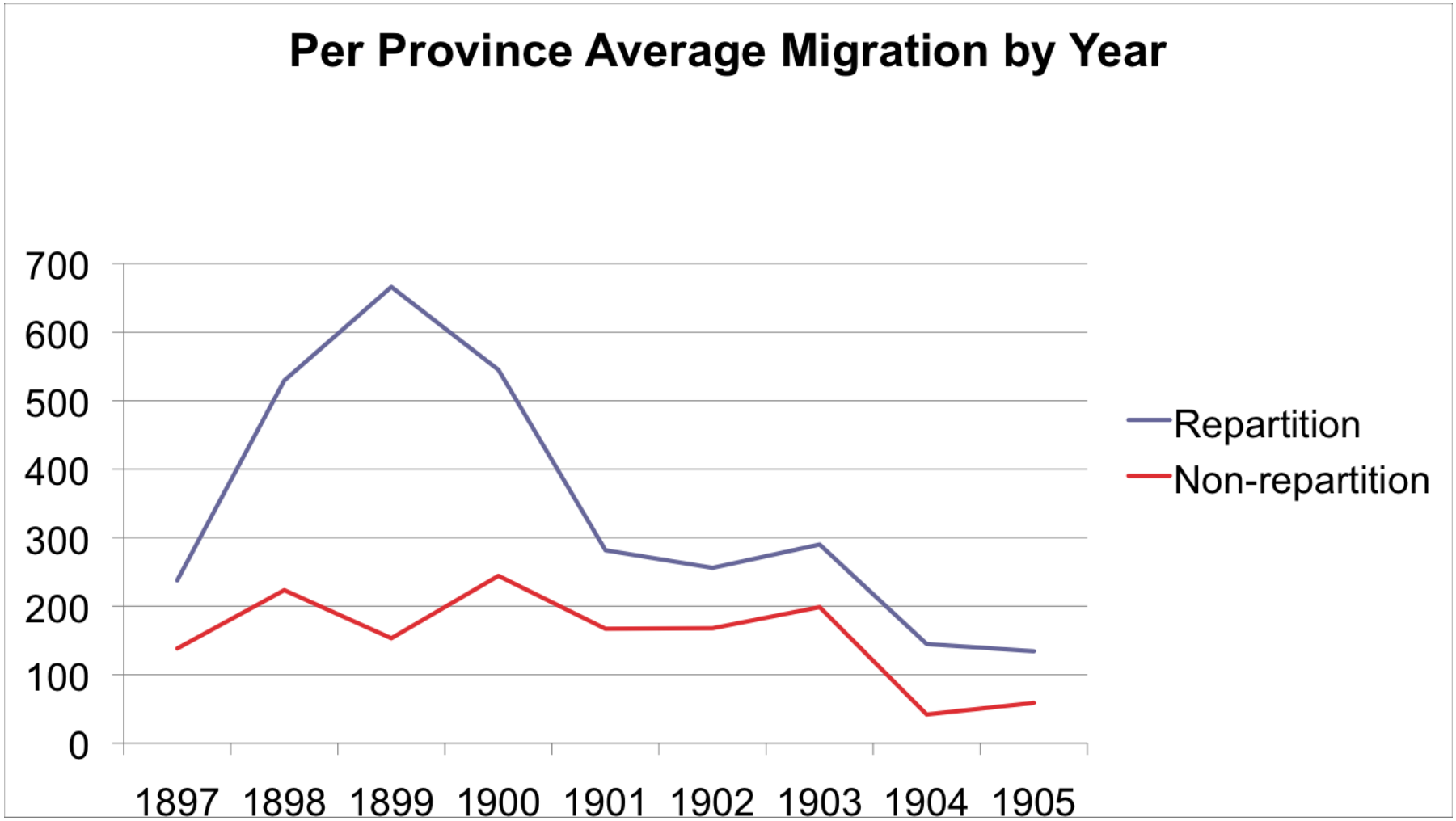
***Repartition*$_i$** - a dummy indicating provinces affected by the reform.

***Reform*$_t$** – a dummy indicating before or after end of 1906.

***Region*$_i$** – geographical region.

Controls: density of rural population, livestock per capita, yield, regional urban share and wage, rural wage, railway tariff.

Migration Patterns before the Reform



What also happened in 1906?

Migration policy changes:

- Credits and subsidies expansion.
- No more formal restrictions on applying for permission to migrate and to get subsidy: the March 10, 1906 Order.

Know not only total number of migrants but also numbers of subsidized and non-subsidized migrants

- Run results separately for unsubsidized migrants.

1905 Revolution

- Peasant uprisings and land conflicts.
- Run results controlling for peasant conflict.

Diff–in-Diff Estimates of the Reform

Dependent variable: Yearly average migration per 000 citizens			
Repartition province*Post	0.20***	0.20***	0.17***
	[0.050]	[0.058]	[0.056]
Post	0.11***	0.16**	0.05
	[0.032]	[0.078]	[0.078]
Repartition	0.04*	0.14	0.27**
	[0.023]	[0.095]	[0.110]
Rural population density		0.01***	0.00
		[0.002]	[0.003]
Livestock		0.00*	-0.00
		[0.000]	[0.000]
Yield		-0.24	-0.39**
		[0.174]	[0.185]
Urban share of population		-0.05	-0.03
		[0.405]	[0.154]
Rural wage		-0.01*	-0.02***
		[0.005]	[0.005]
Urban wage		-0.02**	-0.01
		[0.009]	[0.008]
Railway tariff		0.00	-0.00
		[0.001]	[0.001]
Regional effects	No	No	Yes
Constant	0.06***	0.02	0.94***
	[0.016]	[0.264]	[0.274]
Observations	349	340	340
R-squared	0.082	0.235	0.396

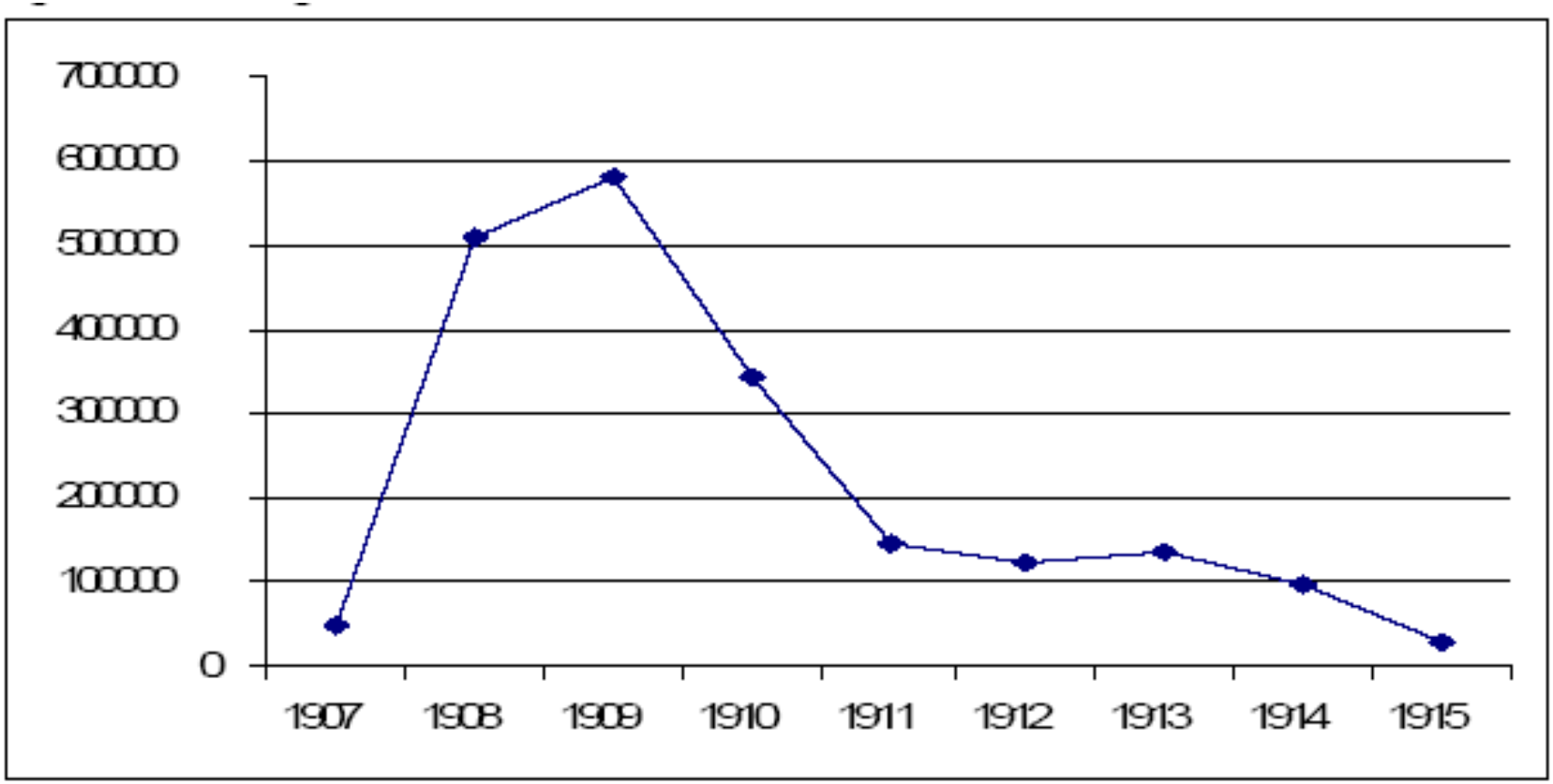
Subsidized and Unsubsidized Migration

Dependent Variable:	Yearly average Unsubsidized Migration per 000	Yearly average Subsidized Migration per 000
Repartition*Post	0.10***	0.07
	[0.021]	[0.041]
Repartition Province	0.02	0.25***
	[0.038]	[0.088]
Post	0.00	0.05
	[0.037]	[0.050]
Controls	YES	YES
Regional Dummies	YES	YES
Constant	0.49***	0.51**
	[0.156]	[0.206]
Observations	340	340
R-squared	0.271	0.432

Empirical Strategy II

- Direct test of mechanism:
  - Focus on variation within the repartition provinces.
    - Effect of exits onto migration.
  - IV Approach: predict exit to correct for endogeneity concerns.
- Include land sales as a variable of interest:
  - Expected causal pathway for HHs that migrate as a result of reform relaxing liquidity constraints.
- Investigate the effect of exits on temporary migration.
  - Direct test of the alternative tenure security hypothesis.

Title conversion under *Nov 9, 1906 Order*



Source: Dubrovskii (1963)

Identification through decision to exit the commune

$$Migration_{it} = \alpha + \beta * Number\ of\ exits_{it} + \tau_t + (Controls_{it}) + (Region_i) + \varepsilon_{it}$$

- ***Number of exits*** – yearly average title conversions of peasants' allotments under the law of November 9, 1906.
- τ_t – time period dummy.

Effect of Exits on Migration

Dependent Variable: Yearly Average Migration per 000 citizens			
Number of exits per 000	0.04*** [0.008]	0.04*** [0.008]	0.03*** [0.008]
Repartition Province		0.24** [0.102]	
Controls	YES	YES	YES
Year Dummies	YES	YES	YES
Regional Dummies	NO	NO	NO
Province Dummies	NO	NO	YES
Constant	-0.07 [0.202]	-0.53* [0.310]	2.28*** [0.516]
Observations	319	319	319
R-squared	0.420	0.438	0.474

The Issue of Endogeneity

Possible sources of endogeneity:

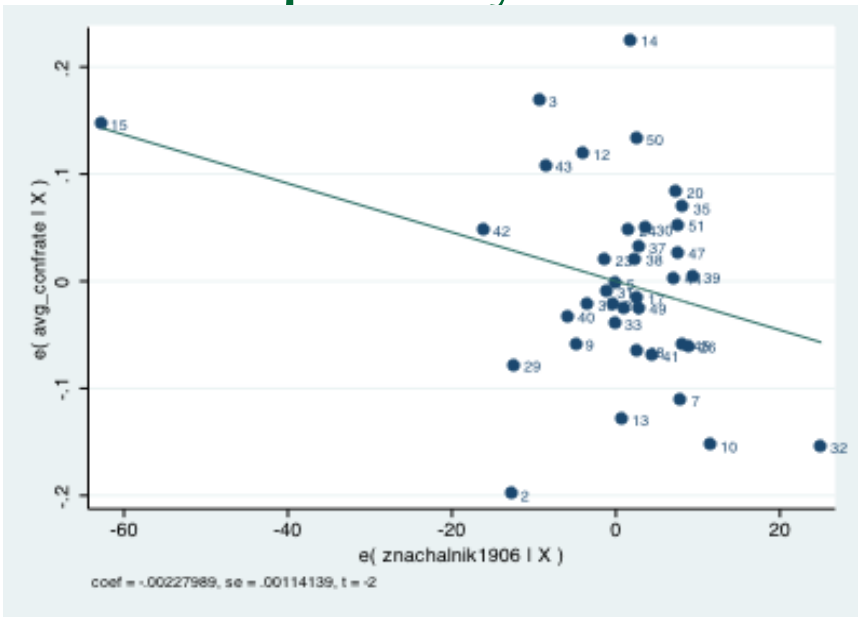
1. Reverse causality.
2. Correlation between commune strength and desire to migrate.
3. Other omitted variables.

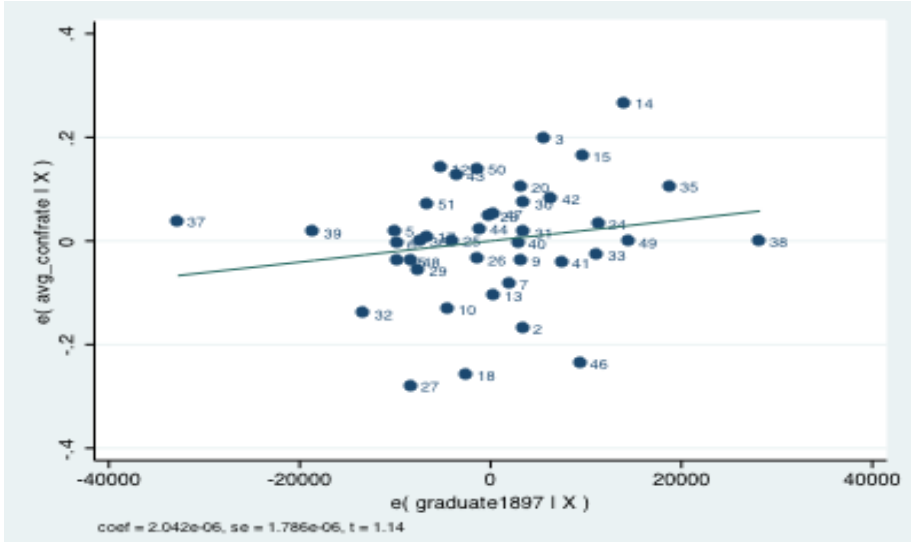
IV: *confirmation_rate* – number of exits with the proportion of applications over title conversion that were confirmed by the local courts:

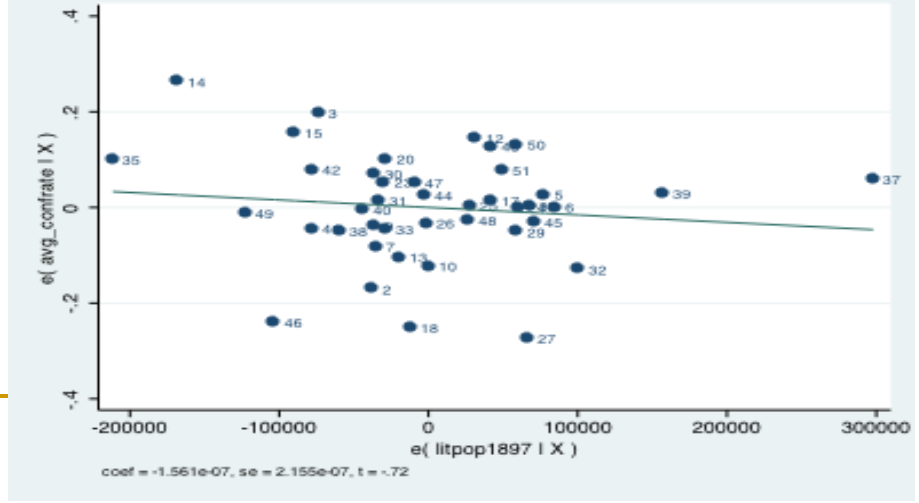
- Shortage of staff for local courts.
- Local courts not involved in migration policy.
- Imperial government constantly put pressure on court officials to make the exit procedure faster but without great success.

  ➔ *measure of bureaucratic red tape.*

IV validity: confirmation rate, number and quality of zemskii nachalnicks







IV Estimates of the Effect of Exit on Migration

Dependent variable: Yearly average migration per 000 citizens		
	First Stage	2SLS
Number of exits per 000		0.03** [0.013]
confirmation_rate	20.01***	
	[3.160]	
Controls	YES	YES
Fixed Effects	YES	YES
F-stat	37.01 ***	
Observations	319	318
R-squared	0.670	

Effect of Sales on Migration

Dependent Variable: Yearly Average Migration per 000 citizens		
	Fixed Effects	IV Fixed Effects
Number of exits per 000	0.03***	0.03**
	[0.008]	[0.012]
Number of sales of plots in repartition communes per 000	0.04* [0.020]	0.03* [0.019]
Controls	YES	YES
Year Dummies	YES	YES
Regional Dummies	YES	YES
Province Dummies	NO	NO
Observations	318	317
R-squared	0.489	0.481

An Effect of Tenure Security?

- Alternative interpretation: More secure tenure made migration less costly.
  - Urban-Urban temporary migration in Peru. (Field 2007)
  - Rural-Urban temporary migration in China. (de la Rupelle et al 2010)
  - Historical anecdotes of worries about temporary migration taking advantage of generous subsidies.
- Three-fold strategy:
  1. Long-term migrants: exclude temporary migrants.
  2. Temporary migrants (both subsidized and unsubsidized).
  3. Short-term migrants: return migrants minus temporary migrants (now using lagged exits).

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Tenure Security and Migration

Dependent Variable:	Long-term Migrants Per 1,000	Temporary Migrants per 1,000		Short-term Migrants per 1,000
		Subsidized	Unsubsidized	
Exits per 1,000	0.03*** [0.007]	0.00*** [0.000]	0.00 [0.000]	
Lagged Exits (t-1)				0.00*** [0.001]
Lagged Exits (t-2)				0.00 [0.001]
Controls Fixed Effects	YES YES	YES YES	YES YES	YES YES
Observations	310	311	311	267
R-squared	0.455	0.391	0.177	0.395

Sensitivity to Treatment/Control Assignment

- Expansion of the control group:
  - Raise cut-off to 30% repartition communes. (3 provinces + 4 Cossack provinces)

- Contraction of the control group:
  - Remove Baltic provinces. (5 provinces)

Robustness checks: more controls

- Results are stable with other controls:
  - 1897 Share of Orthodox
  - 1897 Share of Old Believers
  - Private land Gini in 1905
  - Share of private land in 1905
  - Share of commune land in 1905
  - Peasant share of private land in 1905
  - Pre-1897 migrants
  - Violent unrests during 1901-04

Expansion and Contraction of the Control Group

Dependent Variable: Yearly average Migration per 000	Expansion		Contraction	
	All	Unsubsidized	All	Unsubsidized
Repartition*Post	0.12*	0.09***	0.13	0.10***
	[0.067]	[0.027]	[0.083]	[0.026]
Repartition Province	0.19*	0.09*	0.30**	0.02
	[0.114]	[0.050]	[0.124]	[0.043]
Post	0.09	0.02	0.07	-0.00
	[0.082]	[0.036]	[0.110]	[0.048]
Controls	YES	YES	YES	YES
Regional Dummies	YES	YES	YES	YES
Observations	340	340	307	307
R-squared	0.407	0.296	0.388	0.248

Zemstvo Placebo Treatment

- Alternative interpretation: local self-governments (*zemstvo*) promoted migration.
  - Correlation between zemstvo and repartition provinces 0.74.
- Promotional efforts should have been mainly targeted to authorized migrants.

- South Union: Group of zemstvo who actively promoted migration.

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Placebo Regression: Zemstvo

Dependent variable: Yearly average migration per 1,000		
	All Migrants per 1,000	Subsidized Migrants per 1,000
Zemstvo*Post	-0.01 [0.139]	-0.10 [0.120]
Post	0.19 [0.140]	0.16 [0.116]
Zemstvo province	-0.30** [0.136]	-0.25** [0.098]
Controls Regional Dummies	YES YES	YES YES
Observations	340	340
R-squared	0.391	0.449

Transatlantic Placebo Treatment

- Alternative interpretation: transatlantic out-migration reduced the pool of migrants to Siberia.
  - Around 1.6 million individuals migrated from the Russian Empire across the Atlantic during this time period.
- Origins of transatlantic migrants was geographically concentrated in 13 provinces.
  - Correlation between non-transatlantic and repartition provinces is .32.
- Transatlantic migration mainly drew from populations other than Russian peasants.
  - Jewish (40%, 98% of Jewish migrants were city dwellers); Polish (27%); and Finnish (8%) (Obolenskii 1928).

Placebo Regression: Transatlantic Migration

Dependent variable: Yearly average migration per 1,000	
	All Migrants per 1,000
NonTransatlantic*Post	0.06 [0.082]
Post	0.14 [0.106]
NonTransatlantic dummy	-0.03 [0.116]
Controls Regional Dummies	YES YES
Observations	340
R-squared	0.385

Stolypin reform rural-urban migration and Gershenkron hypothesis

Dependent variable: Yearly average migration per 1,000		
	All Migrants per 1,000	Subsidized Migrants per 1,000
Repartition province*Post		0.16***
		[0.056]
Repartition province		0.29**
		[0.112]
Urban share*Post	-0.52**	-0.49**
	[0.204]	[0.199]
Urban share	0.45**	0.41**
	[0.172]	[0.187]
Post	0.24**	0.12
	[0.091]	[0.086]
Controls	YES	YES
Regional Dummies	YES	YES
Observations	340	340
R-squared	0.391	0.449

Conclusions

- Empirical evidence that property rights and land titles do matter for migration!
  - Greater land liquidity can explain as much as 15% of all migration during this period.
- Implications of the Stolypin reform for development and economic growth:
  - Land liquidity matters when credit markets are underdeveloped.
  - GDP implication: migration contributed up to 1% annual economic growth.
- Historical interpretation of the Stolypin reform:
  - Dual aspects of the policies of the Stolypin reform worked in synergy.

Implications for modern Russia: Unemployment growth from 2000 to 2007 and level of private ownership of residences in 2000.