Home Away From Home?
Foreign Demand and London House Prices

ESSIM 2015 - Tarragona, Spain

Tarun Ramadorai
Oxford, CEPR

Cristian Badarinza
Oxford

May 2015

London and the Lucas Puzzle

- Residential real estate in a time of globalization.
  - Cross-border ownership of this “non-tradable” asset.
  - “Global” cities on the frontlines.
- Shrill commentary: “oligarchs seeking safe haven,” “immigrants usurping housing stock.”
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- Consistent with PolyEc theories of Lucas puzzle.
  - Private capital flees risk in poor countries, seeks rich-country “safe” assets.
- London: natural candidate for investigation
  - Liberal regime, visible issue, high-quality data.
  - But identification is a challenge.

Media Attention

- "The New York real-estate market is now the premier destination for wealthy foreigners with rubles, yuan, and dollars to hide." *New York Magazine (2014)*
- "The rising flow of foreign capital [...] has turned Vancouver into a truly global real estate market. [...] There is a search for better data on foreign buyers, which is only haphazardly tracked." *The Globe and Mail (2014)*
- "In recent years, Asian buyers have made an impact on cities around the world, with Hong Kong, Singapore, Mumbai, and London among the top locations for residential investment." *Financial Times (2014)*
- “Worsening financial and political turmoil in Southern Europe caused a surge of interest in London property.” *Reuters (2012)*
- “There is a real lack of data to underpin a systematic study of the market impact of overseas investment in London." *Andrew Heywood (2012), International Union for Housing Finance*

This paper

- New approach to identify impacts of foreign demand on house prices in “global cities”.
- Identifying assumption: foreign capital exhibits **home bias abroad** within London.
  - Additional power of the cross-section.
  - More general methodological contribution.

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- New approach to identify impacts of foreign demand on house prices in “global cities”.
- Identifying assumption: foreign capital exhibits **home bias abroad** within London.
  - Additional power of the cross-section.
  - More general methodological contribution.
- Evidence that London housing is a safe-haven for foreign capital flows pushed by domestic risk.
  - Arbitrage frictions in real estate assist identification, illiquidity helps interpretation as flight-to-safety effect.
- Interesting insights into sources of these effects.

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- Suppose also that their "preferred habitat" is parts of London with a higher concentration of Greek-origin residents.
  - Also use other identifying variables: language share, high-income locations, etc.

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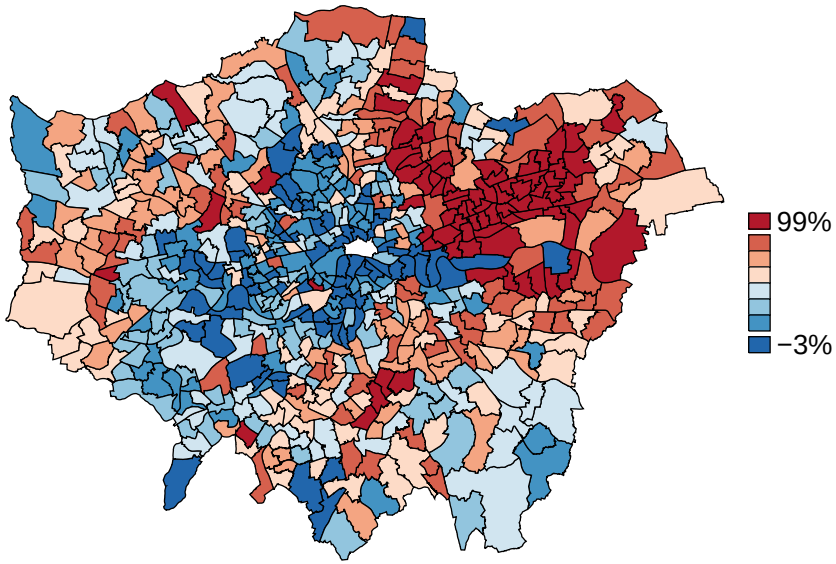
- In late 2009 and early 2010, Greek economic and political risk rises.
- Suppose Greek residents purchase London real-estate as a safe-haven investment.
- Suppose also that their "preferred habitat" is parts of London with a higher concentration of Greek-origin residents.
  - Also use other identifying variables: language share, high-income locations, etc.
- Then increases in Greek risk will predict London sub-region price increases that line-up with Greek-origin share.
  - Important to control for variation in local economic conditions and characteristics of properties.

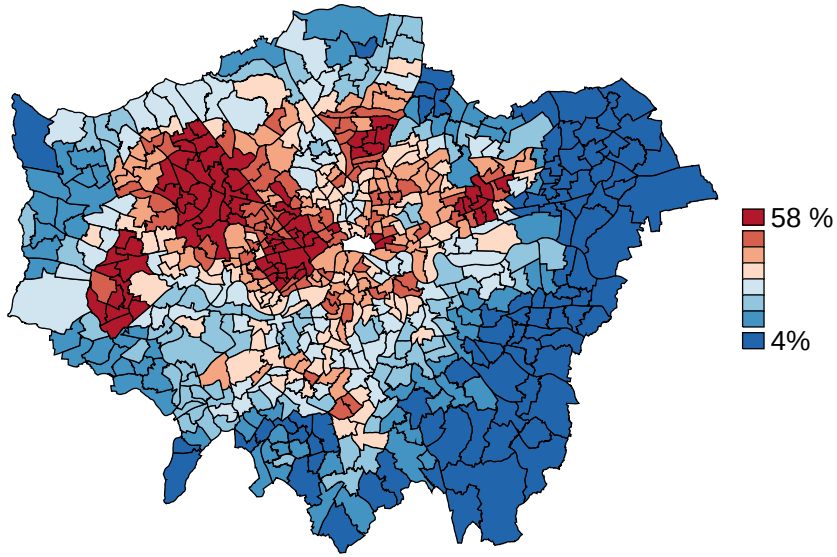
Period of low global risk

Correlation coefficient: -12%

House price appreciation
between 2001 and 2006



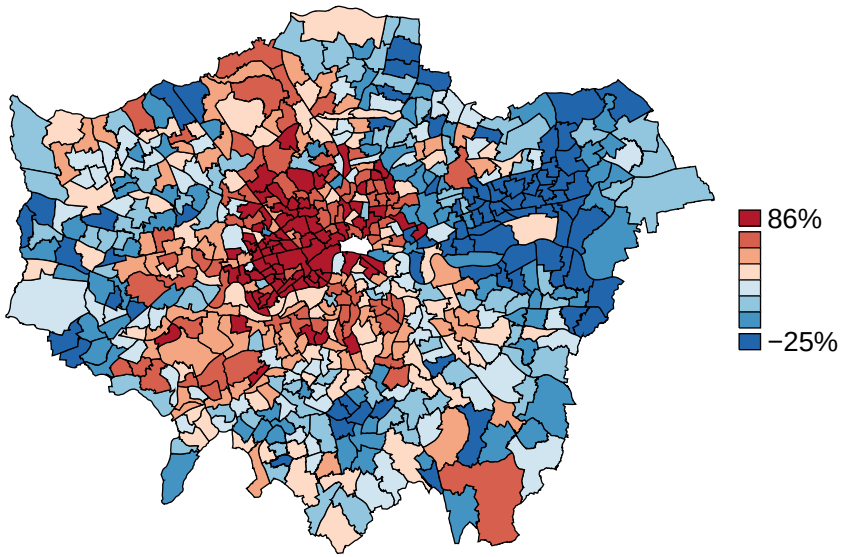
Share of foreign-born people
in the 2001 census



Period of high global risk

Correlation coefficient: +38%

House price appreciation
between 2007 and 2012



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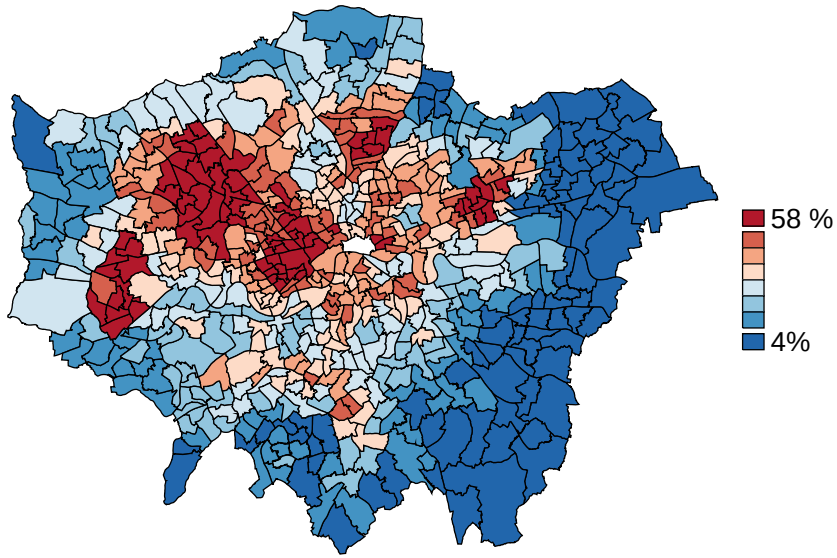

Related Literature

- **Political economy explanations for the Lucas puzzle**

  Alesina and Tabellini (1988), Lucas (1990), Tornell and Velasco (1992), Carroll and Jeanne (2009), Gourio et al. (2014), Ahnert and Perotti (2015).

- **Home bias and loyalty based portfolio choice**

  Lewis (1999), Coval and Moskowitz (2001), Cohen (2009).

- **Real estate markets, capital and immigration flows**

  Aizenman and Jinjarak (2009), Campbell et al. (2011), Jinjarak and Sheffrin (2011), Saiz and Wachter (2011), Sa (2013).

- **International capital flows and contagion**

  Forbes and Warnock (2011), Kaminsky et al. (2004), Jotikasthira et al. (2012), Schnabl (2012).

- **"Flight-to-quality" and safe-haven assets**

  Longstaff (2004), Beber et al. (2009), Campbell et al. (2010), Baur and McDermott (2010), and Ranaldo and Söderlind (2010).

Roadmap

1. Methodology and data
2. Results
3. Time series dynamics
4. Sources of safe-haven effects
5. Conclusions

Methodology - I

$$\begin{aligned}\ln P_{i,t} &= \delta_t + \phi_w + \beta \boldsymbol{X}_{i,t} + \sum_{k \in K} \gamma_0^k f_w^k z_{t-1}^k + \gamma_1 y_w \bar{z}_{t-1} \\ &\quad + \rho_1 \ln \overline{P}_{w,t-1} + \rho_2 \ln \overline{P}_{w,t-2} + u_{i,t}. \end{aligned} \tag{1}$$

- $P_{i,t}$: price of property i, in electoral ward w, in month t,

  $X_{i,t}$: hedonic characteristics

Methodology - I

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- $P_{i,t}$: price of property i, in electoral ward w, in month t,

  $X_{i,t}$: hedonic characteristics,

  $\overline{P}_{w,t-1}$: average prices in ward w in period $t-1$,

  f_w^k : fraction of people in ward w who originate from country k,

  $\{z_{t-1}^k\}_{k \in K}$: risk in country/world-region k in period $t-1$,

- y_w : ward-level indicator of desirability, e.g., net average income,

  $\overline{z}_{t-1}$: average level of risk across all countries/regions $k \in K$.

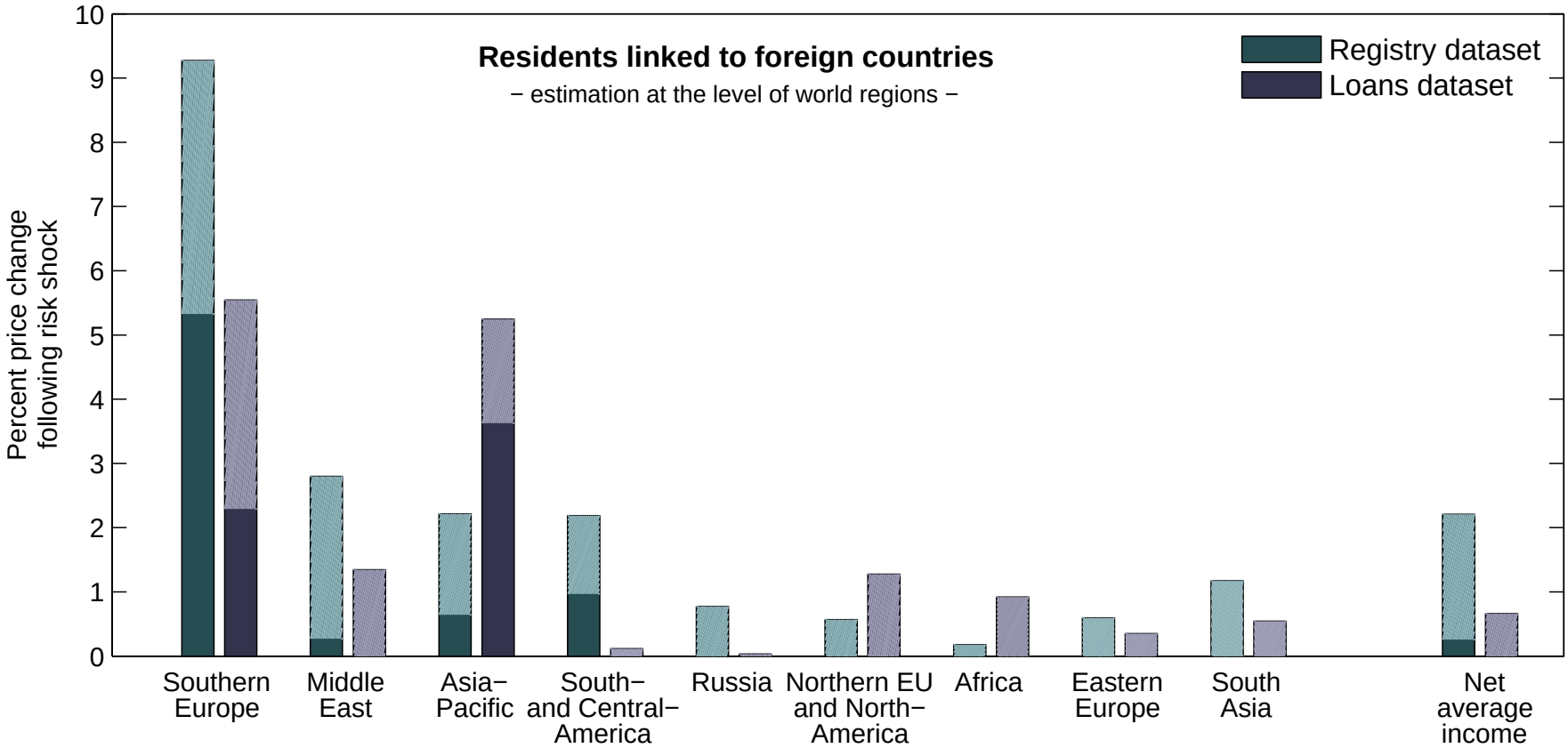
- Implementation: top quintiles of variables.

Methodology - II

- Ward-level and time period fixed effects.
- Cross-ward price spreads are persistent:
  - Past average prices $\ln \overline{P}_{w,t-1}$, $\ln \overline{P}_{w,t-2}$ on the right-hand side of equation (1).
- Spatial and temporal correlation across electoral wards:
  - Double-clustered standard errors at borough and time level.
- Slow-moving components of **foreign risk:**
  - Multiple regression for nine world regions.
- Robustness:
  - Interact mortgage interest rate with UK-born share.
  - Time-varying coefficients on aggregate share of foreigners.
  - Borough $\times$ year fixed effects.

World region joint estimation results

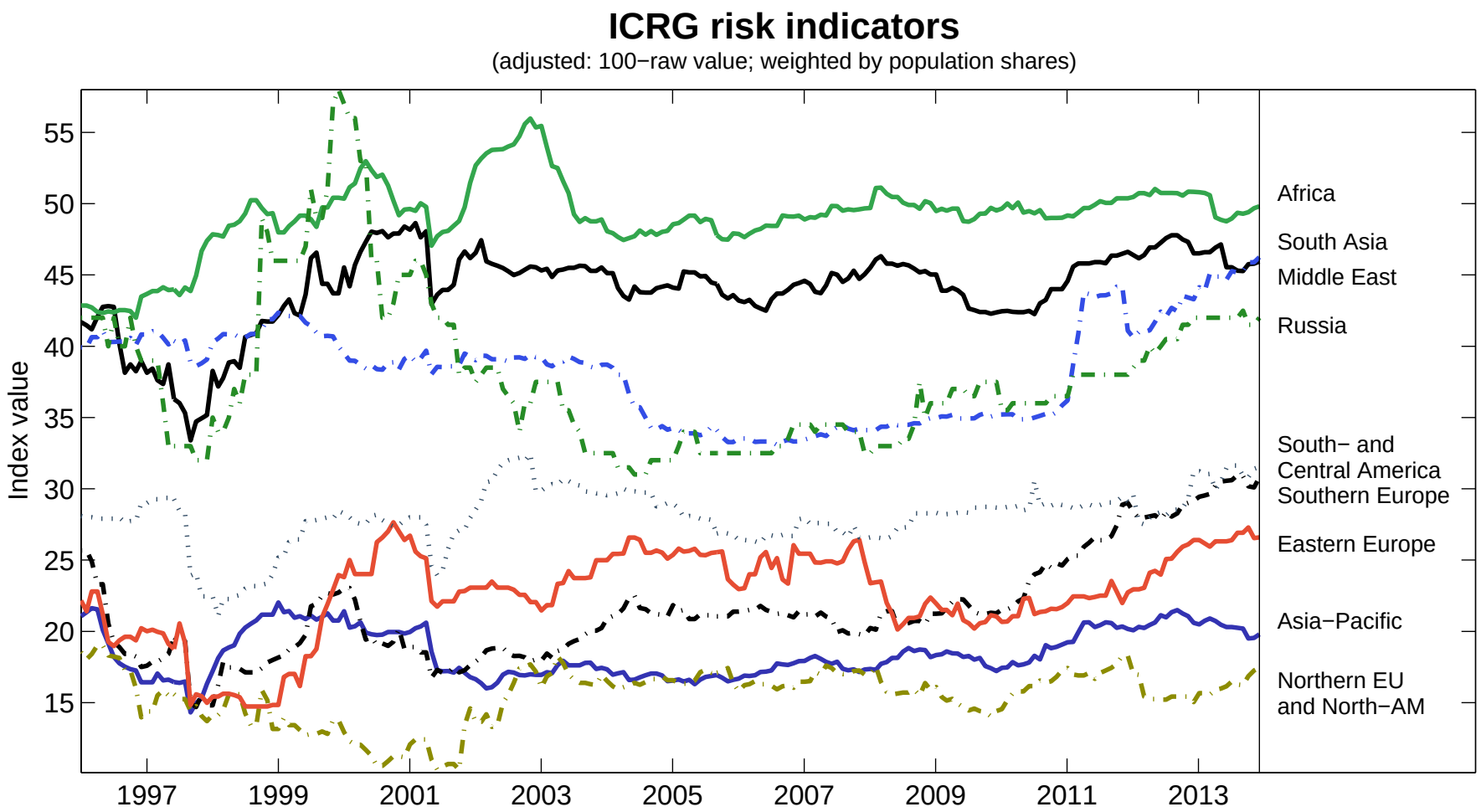
Hedonic regression framework



Data

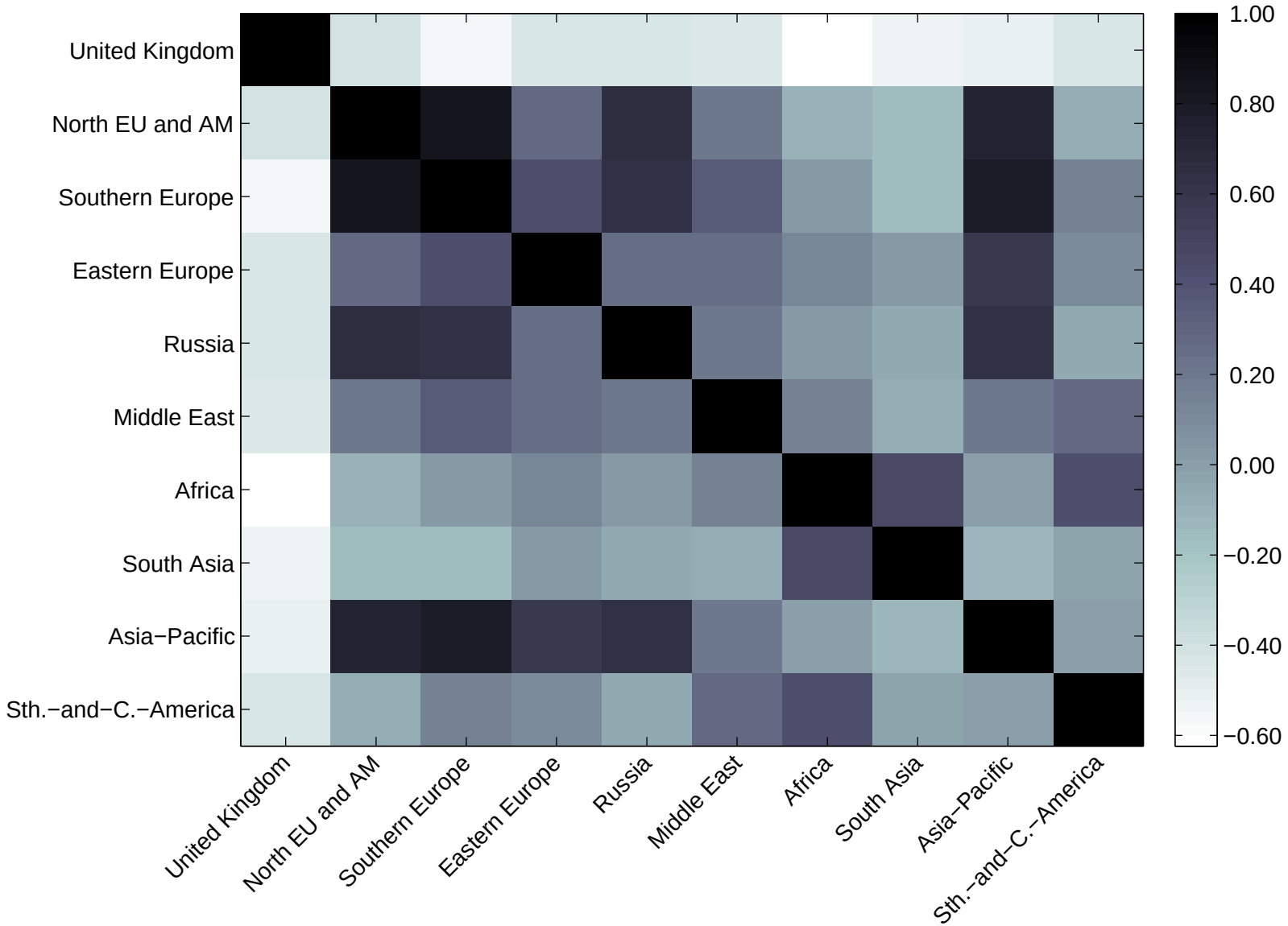
- Land Registry
  - All residential property transactions in London: 2,425,603 observations, between 1995 and 2013.
- Nationwide Building Society
  - All residential mortgages with London property as collateral: 154,137 observations, between 1996 and 2012.
- Office for National Statistics
  - Neighbourhood Statistics and ward-level census data, including economic and environmental characteristics.
  - 624 wards, sampled in 2001 and 2011.
- External developments
  - International Country Risk Guide (ICRG) composite index.
  - Bond yield spreads: 10-year sovereign bond yields relative to the UK.
  - Economic policy uncertainty index of Baker, Bloom and Davis (2013).

Time variation in risk



Cross-section of preferred habitats

Shares of foreign-born people



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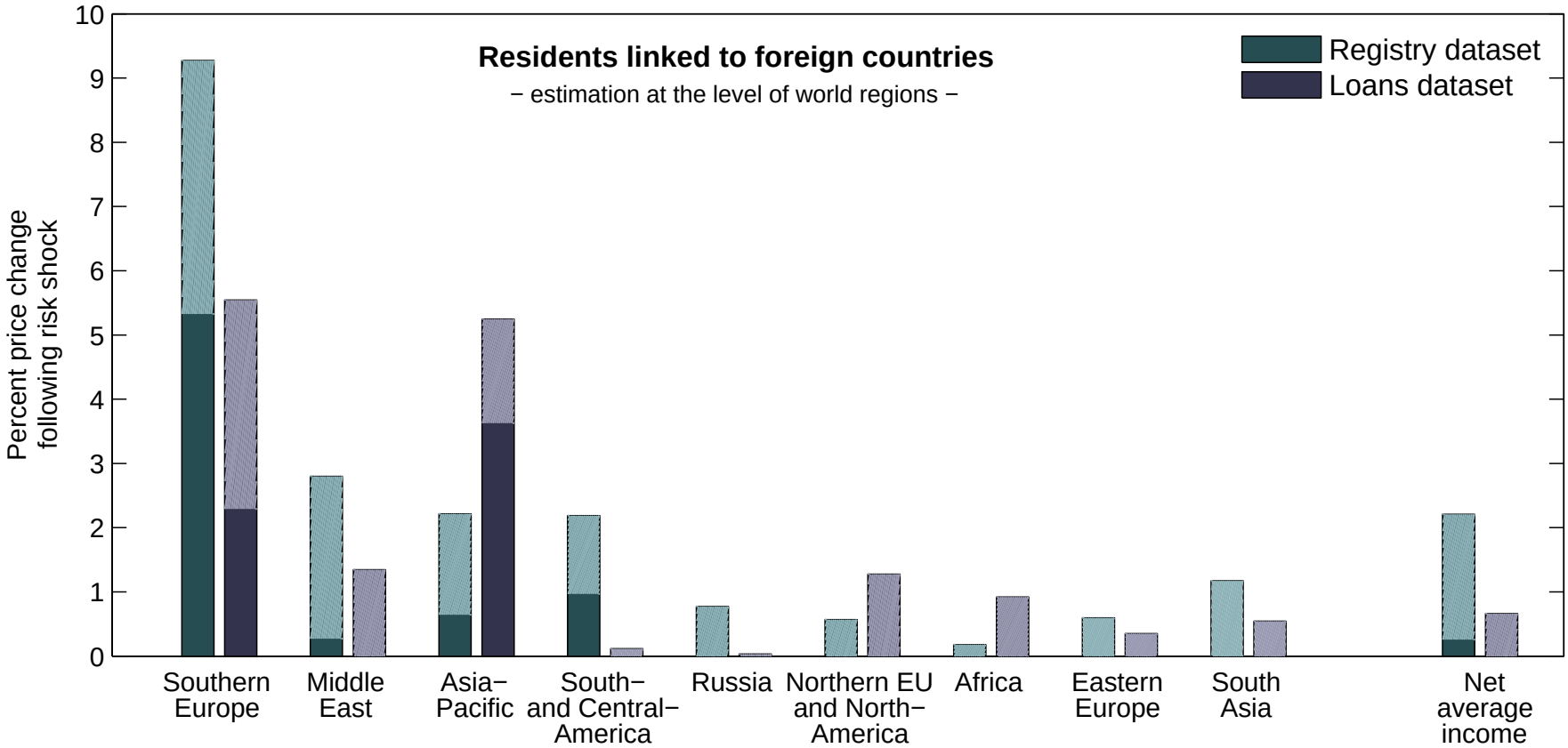

Estimation results

Summary

- Strong positive effects on relative house prices in wards with high shares of people originating from a particular country following periods of elevated risk in that country.
- Separate channel operates through ward-level net average income.
- Results broadly consistent when risk measured by 10-year bond yield spread, Economic Policy Uncertainty index of Baker, Bloom and Davis (2013).
- Next:
  - Instrument transaction volumes using foreign risk.
  - Understand persistence of effects.

Housing Transaction Volumes

- Interaction terms help explain:
  - Ward-year variation in housing transaction volumes. (Table 5, Panel A)
  - Comovement between prices and transaction volumes.
- Isolate the safe-haven component of housing demand:

$$\begin{aligned}
\ln V_{w,t} &= \tau_t + \varphi_w + \sum_{k \in K} \chi_0^k f_w^k z_{t-1}^k + \chi_1 y_w \bar{z}_{t-1} + \upsilon_{w,t}, \\
\ln P_{i,t} &= \delta_t + \phi_w + \beta X_{i,t} + \theta \widehat{\ln V_{w,t}} \\
&\quad + \ln \overline{P}_{w,t-1} + \ln \overline{P}_{w,t-2} + u_{i,t}.
\end{aligned}$$

Safe-haven demand ($\widehat{\theta}$)	0.262^{***}

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Methodology: Understanding Dynamics

- Construct monthly (cleaned of hedonics) **price spreads** $\{s_{k,t}\}$ between top and bottom 20% of wards sorted on foreign-origin share from country k :

$$s_t^k \equiv \ln \overline{P}_{w \in \{high_k\},t} - \ln \overline{P}_{w \in \{low_k\},t}$$

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- Specification:

$$s_t^k = \mu^k + \delta_t + \rho_1 s_{t-1}^k + \rho_2 s_{t-2}^k + \zeta z_{t-1}^k + u_t^k$$

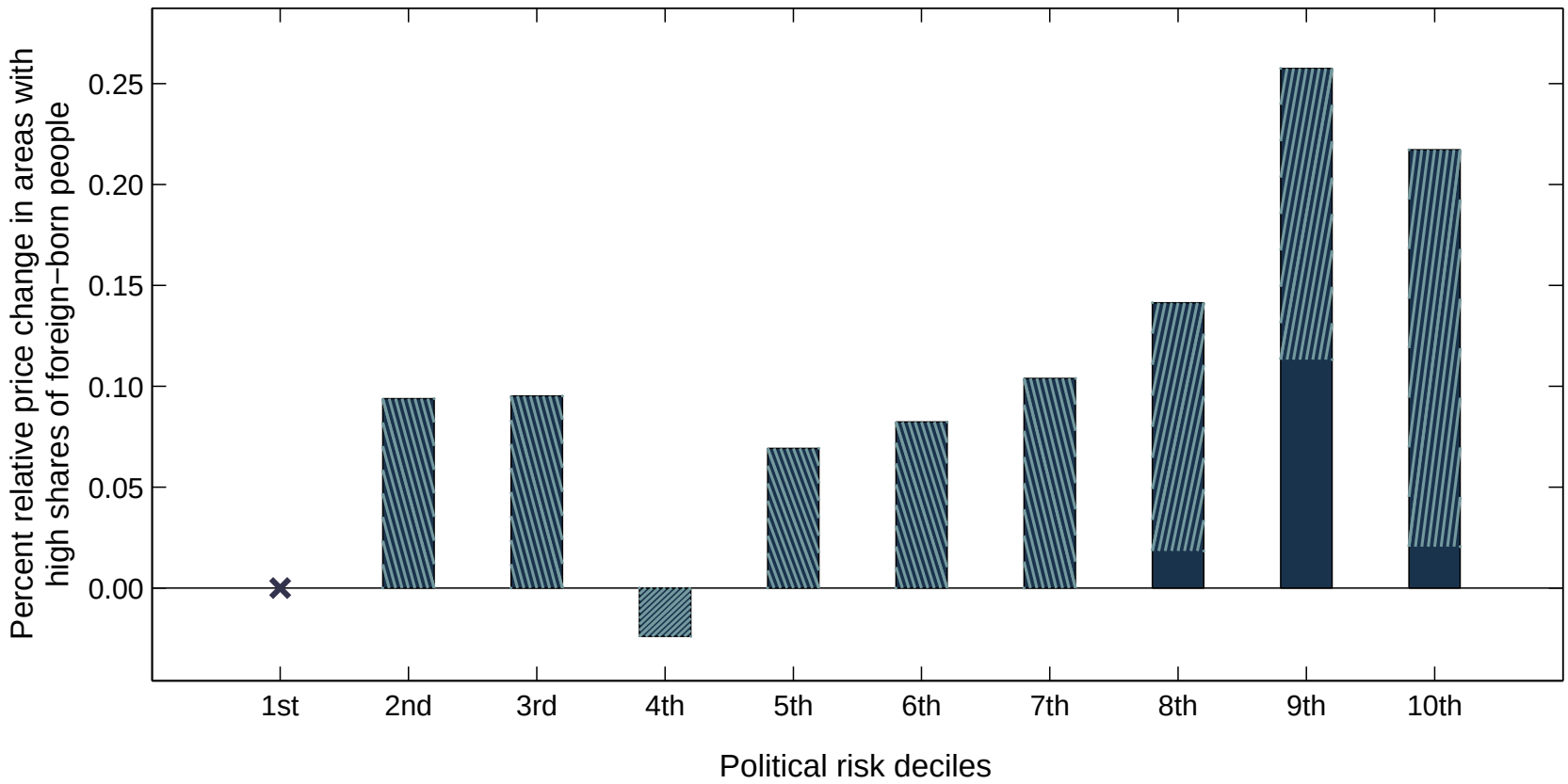
- Separate countries with *a priori* low levels of political risk (Northern Europe and North America).

▸ Average levels of political risk

Understanding Spread Dynamics

Effects across risk deciles, Registry dataset

$$s_t^k = \mu^k + \rho_1 s_{t-1}^k + \rho_2 s_{t-2}^k + \sum_{d=1}^{10} \zeta_d decile_d(z_{t-1}^k) + u_t^k$$



Understanding Spread Dynamics

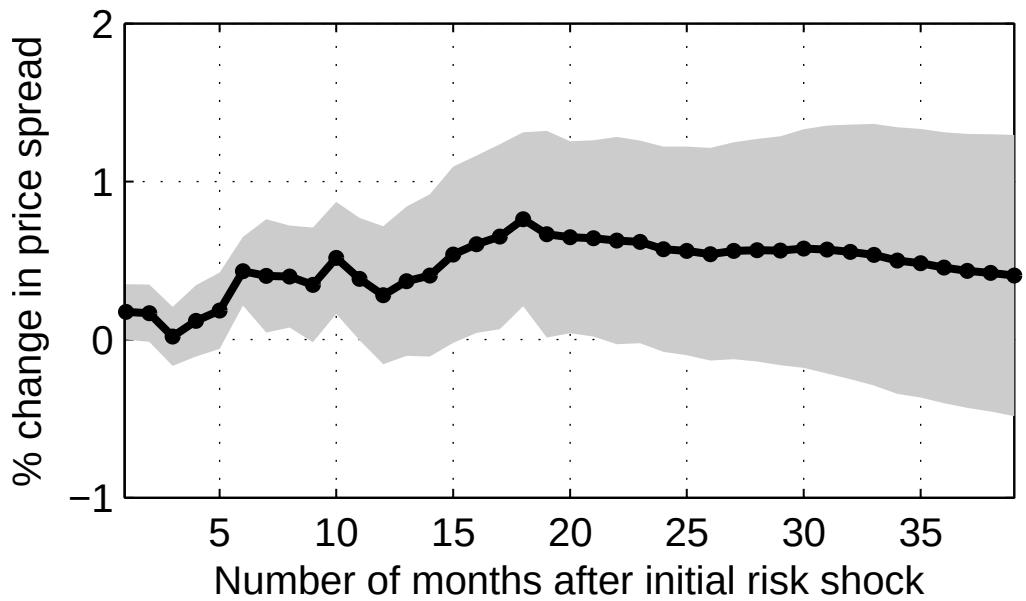
Cross-country panel framework

	ICRG index		Yield spread vs. the UK	Policy uncertainty	ICRG index
	(1)	(2)			Low-risk countries
Registry dataset	0.17***	**0.11****	0.25**	0.42**	-0.05
	(0.06)	(0.04)	(0.11)	(0.20)	(0.09)
Loans dataset	0.27	0.02	0.70**	1.35***	-0.57***
	(0.23)	(0.13)	(0.33)	(0.50)	(0.20)
Country fixed effects	Yes	Yes	Yes	Yes	Yes
Time fixed effects	No	Yes	No	No	Yes

House price spreads

Temporary, but long-lived effects

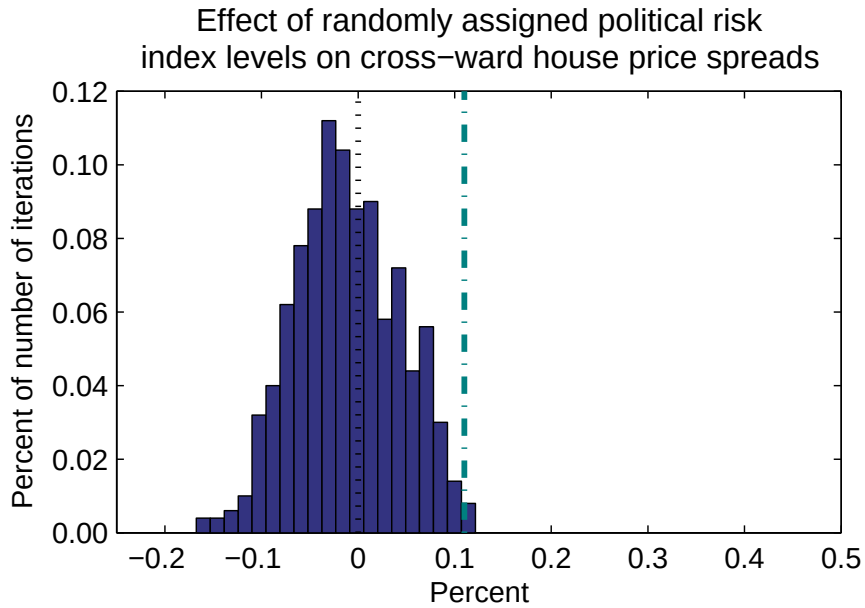
$$
\begin{aligned}
s_t^k &= \mu^k + \sum_{q=1}^{Q} \rho_q s_{t-q}^k + \sum_{q=1}^{Q} \zeta_q z_{t-q}^k + u_t^k, \\
z_t^k &= \theta^k + \sum_{q=1}^{Q} \pi_q z_{t-q}^k + \varepsilon_t^k.
\end{aligned}
$$



Understanding Spread Dynamics

Placebo tests I

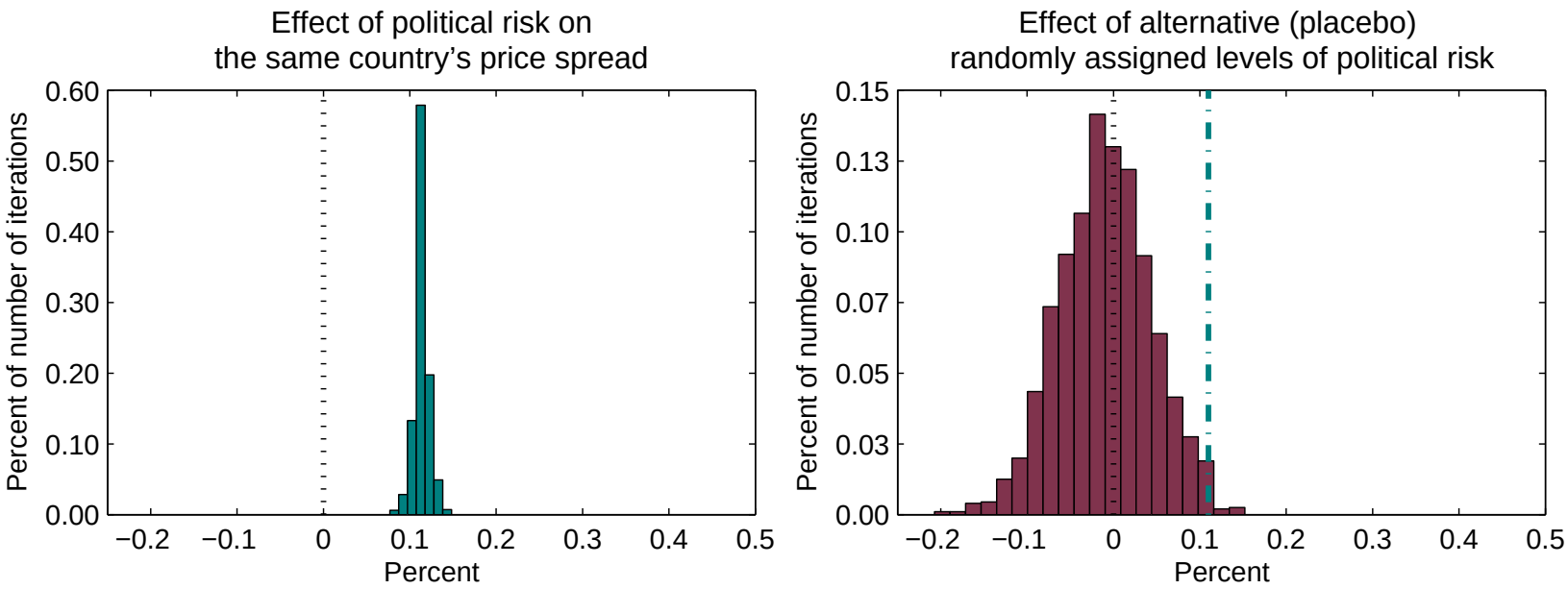
$$s_t^k = \mu^k + \delta_t + \rho_1 s_{t-1}^k + \rho_2 s_{t-2}^k + \beta z_{t-1}^{\tilde{k}} + u_t^k, \text{ for } \tilde{k} \neq k$$



Understanding Spread Dynamics

Placebo tests II

$$s_t^k = \mu^k + \delta_t + \rho_1 s_{t-1}^k + \rho_2 s_{t-2}^k + \zeta z_{t-1}^k + \beta z_{t-1}^{\tilde{k}} + u_t^k, \text{ for } \tilde{k} \neq k$$



▸ Specification without time fixed effects

Roadmap

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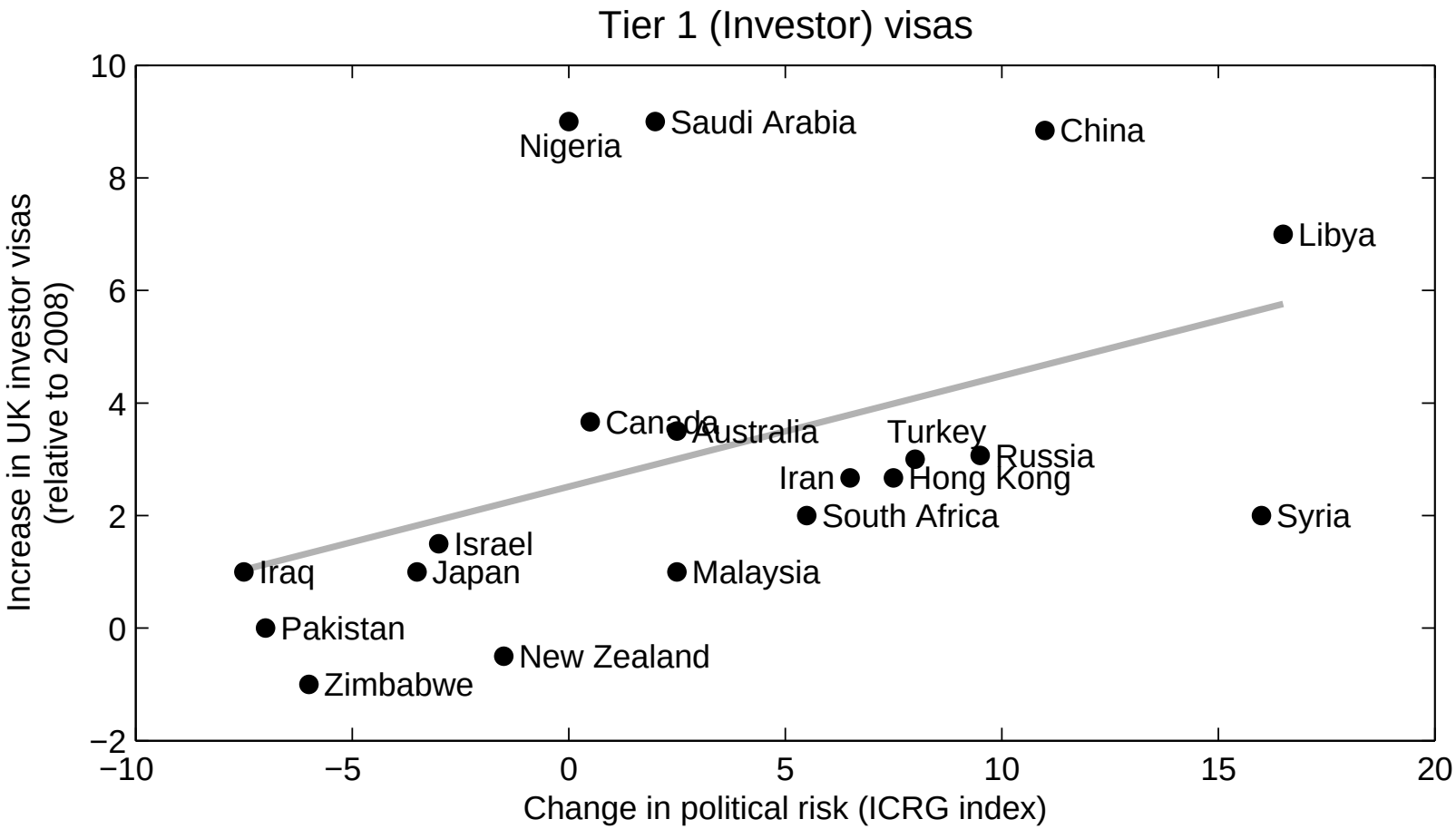
Sources of safe-haven effects

- Political economy explanations of the Lucas puzzle:
  - Wealthy individuals in poor countries most likely to suffer expropriation.
  - Is this the only channel?
- Does political risk also predict migration from source to destination?
  - Investor visas: consistent with the ultra-wealthy moving capital across.
  - National insurance registration: consistent with foreigners entering the UK labour market, different channel.
- Check whether foreign demand effects non-linear in the price of the property.

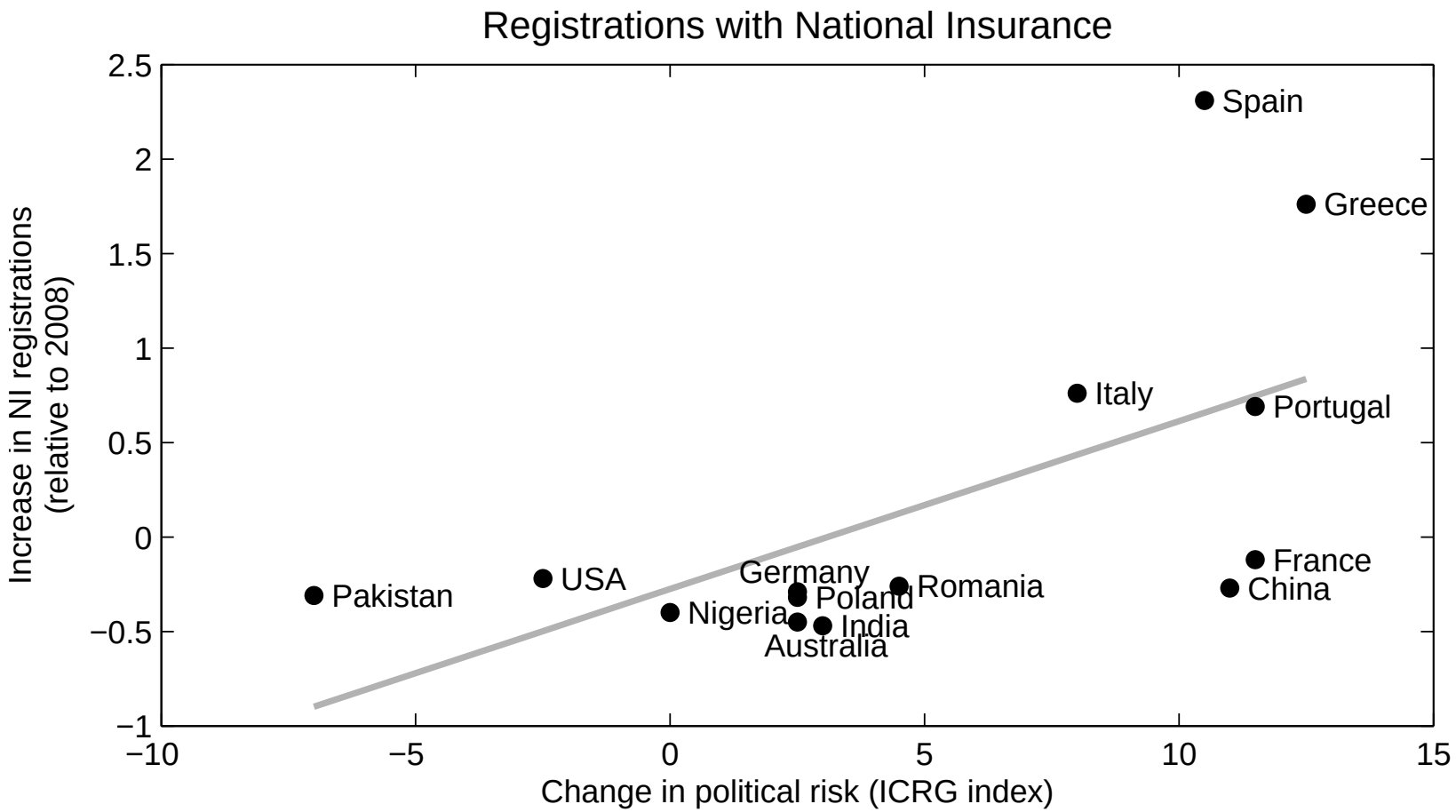
Political risk and capital inflows

A Cross-Country View: 2008 to 2013



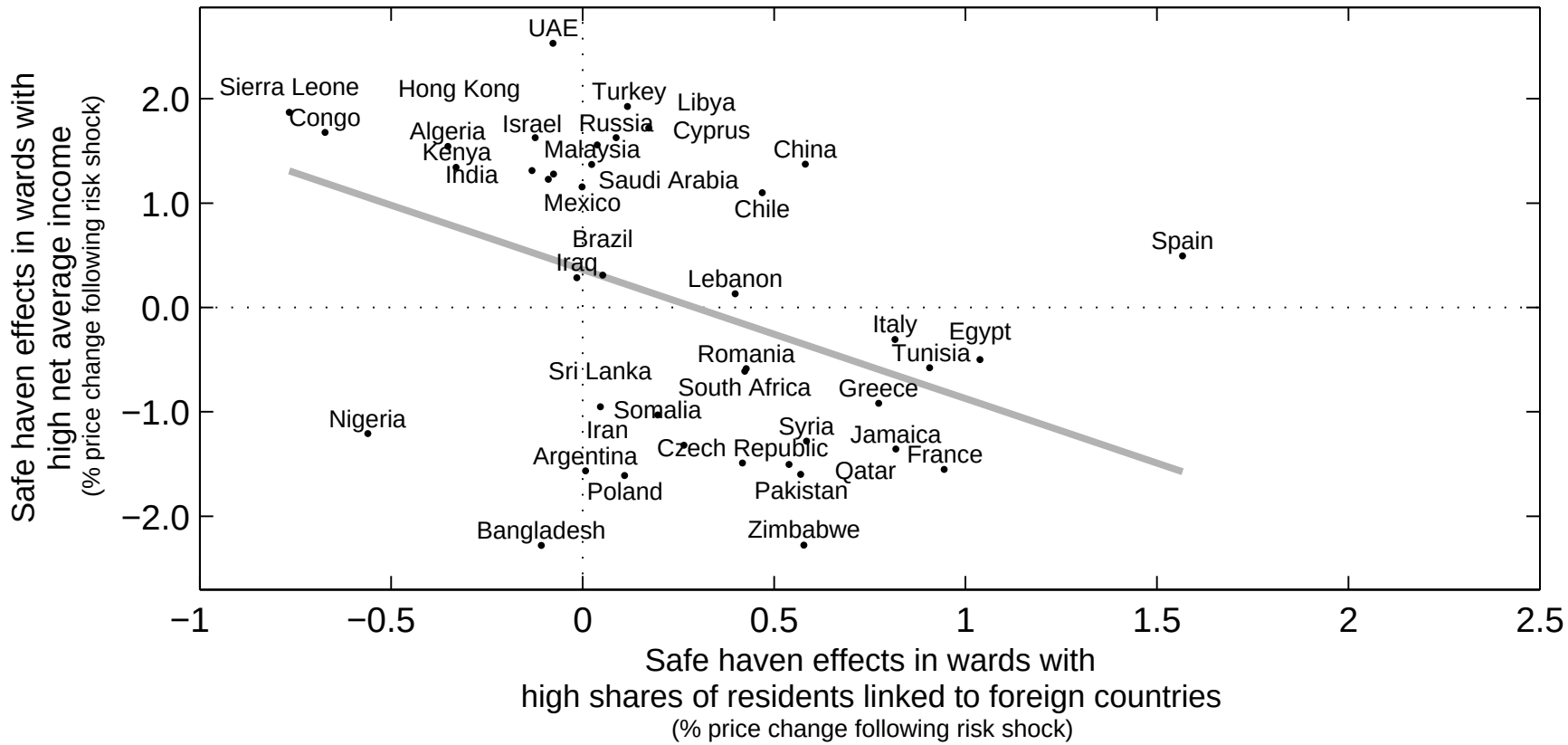
Political risk and population migration

A Cross-Country View: 2008 to 2013



Country-by-country estimation results

Loans dataset



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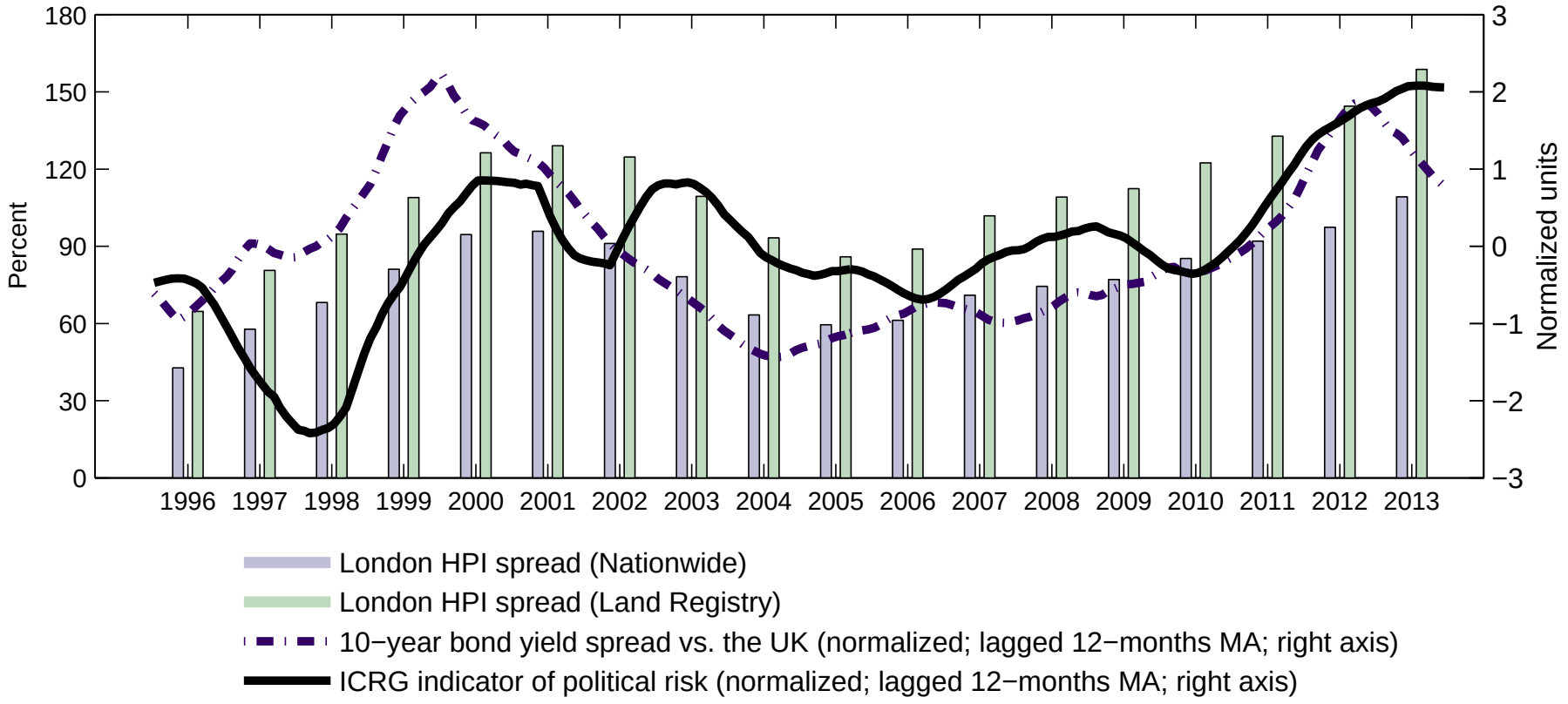
Conclusions

- Evidence in support of political economy explanations for the Lucas puzzle, using recent developments in the London housing market.
- Novel empirical method to identify the impacts of demand on asset prices.
  - Potentially useful whenever demand demonstrates cross-sectional (within asset class) as well as time-series variation.
- Detect strong, but ultimately temporary impacts of foreign risk on the London housing market.
- Insights into cross-country heterogeneity and sources of foreign demand: safe-haven effects and immigration.

London house price spread

Time series variation lines up with the dynamics of global uncertainty



List of countries

Grouping at the level of world regions

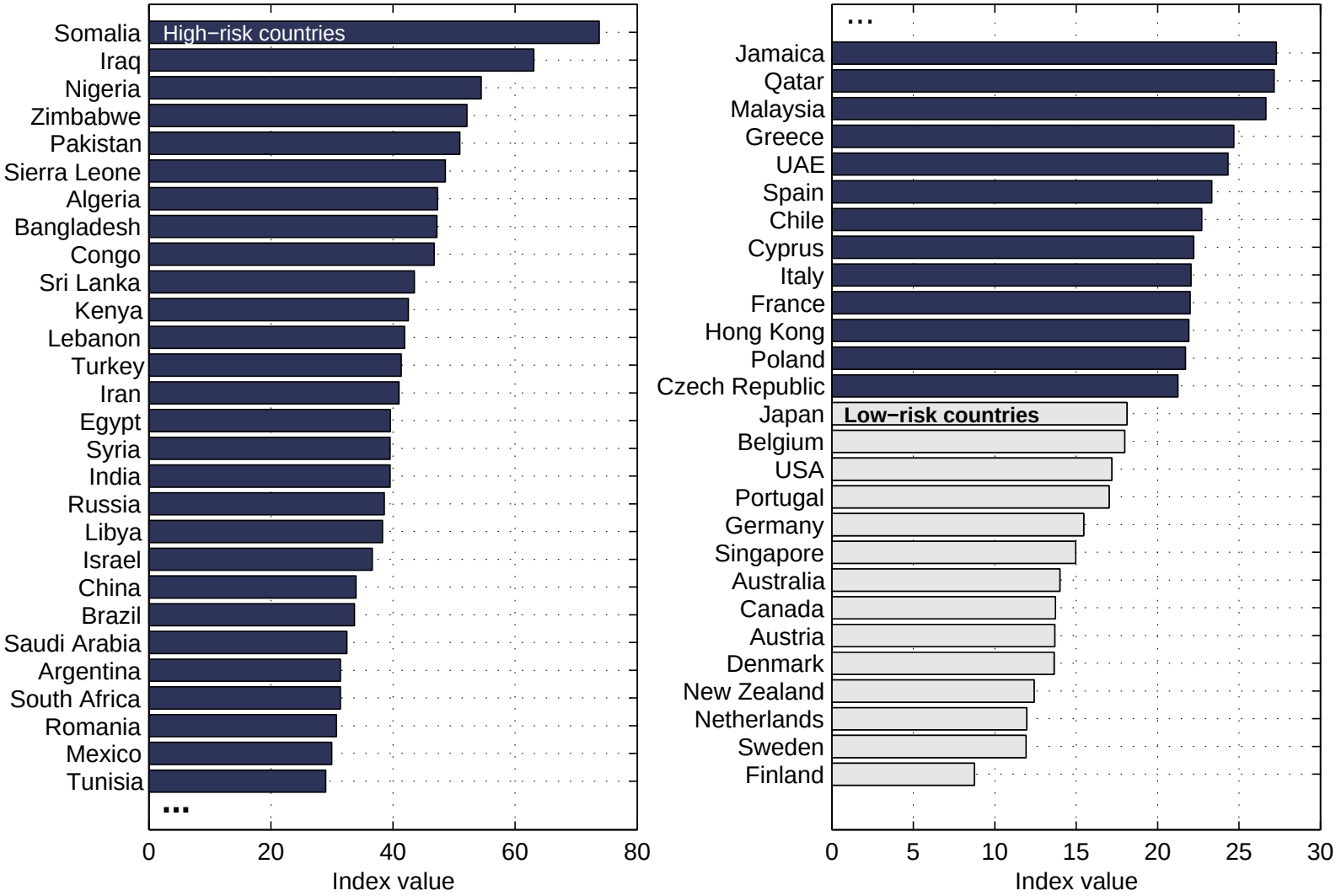
Northern Europe and North America		
Austria	Belgium	Denmark
Finland	Netherlands	Germany
Sweden	USA	Canada
Southern Europe		
Italy	Spain	Portugal
France	Greece	
Eastern Europe		
Poland	Romania	Czech Rep.
Russia		
Asia-Pacific		
China	Hong Kong	New Zealand
Malaysia	Singapore	Australia
Japan		
South Asia		
India	Bangladesh	Pakistan
Sri Lanka		

Africa		
Nigeria	Sierra Leone	Congo
Kenya	South Africa	Somalia
Zimbabwe		
Middle East		
Cyprus	Turkey	Iran
Iraq	Tunisia	Libya
Algeria	Egypt	Qatar
S. Arabia	UAE	Lebanon
Syria	Israel	
South- and Central America		
Jamaica	Brazil	Argentina
Chile	Mexico	

▸ Methodology

List of countries

Average ICRG index of political risk



▸ Spreads analysis

Understanding Spread Dynamics

Placebo tests

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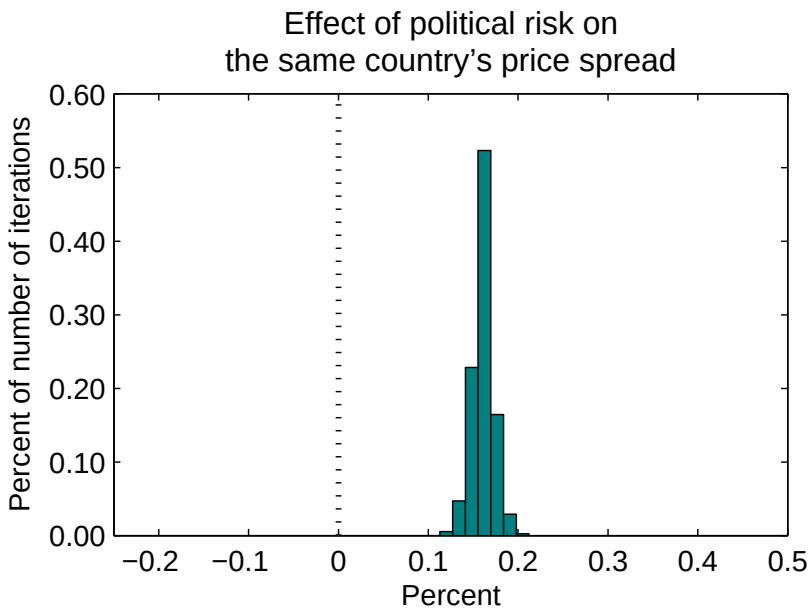
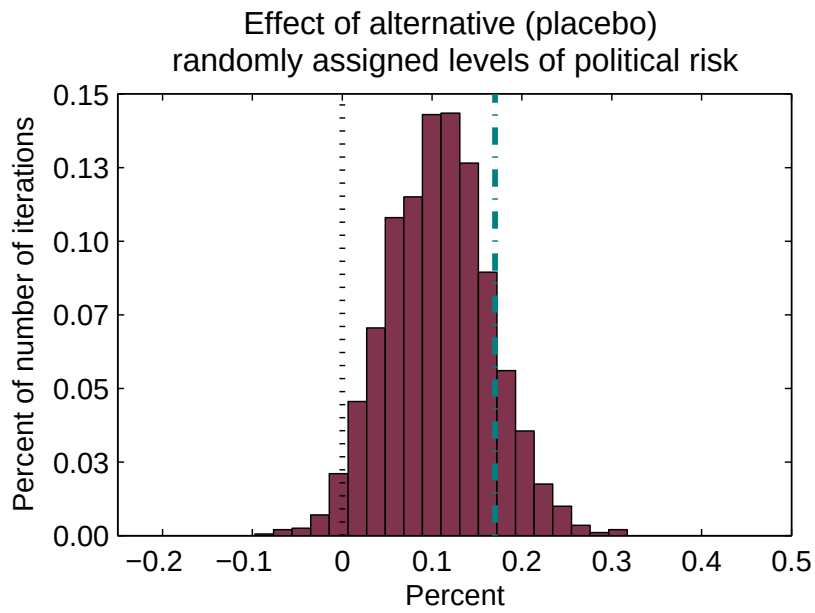
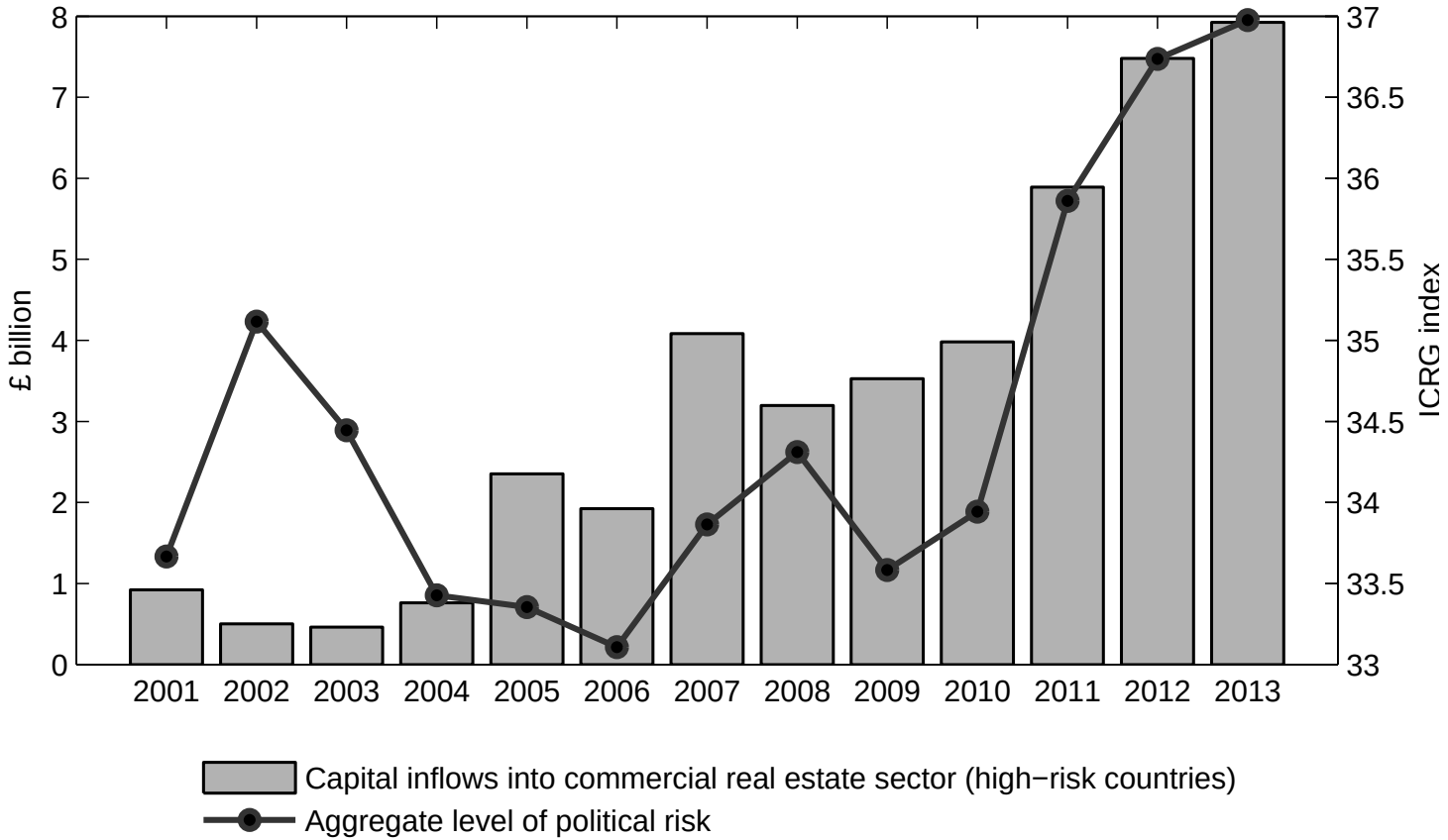




▸ Specification with time fixed effects

Capital inflows into the London market

Foreign purchases of commercial real estate



Capital outflows and domestic political risk

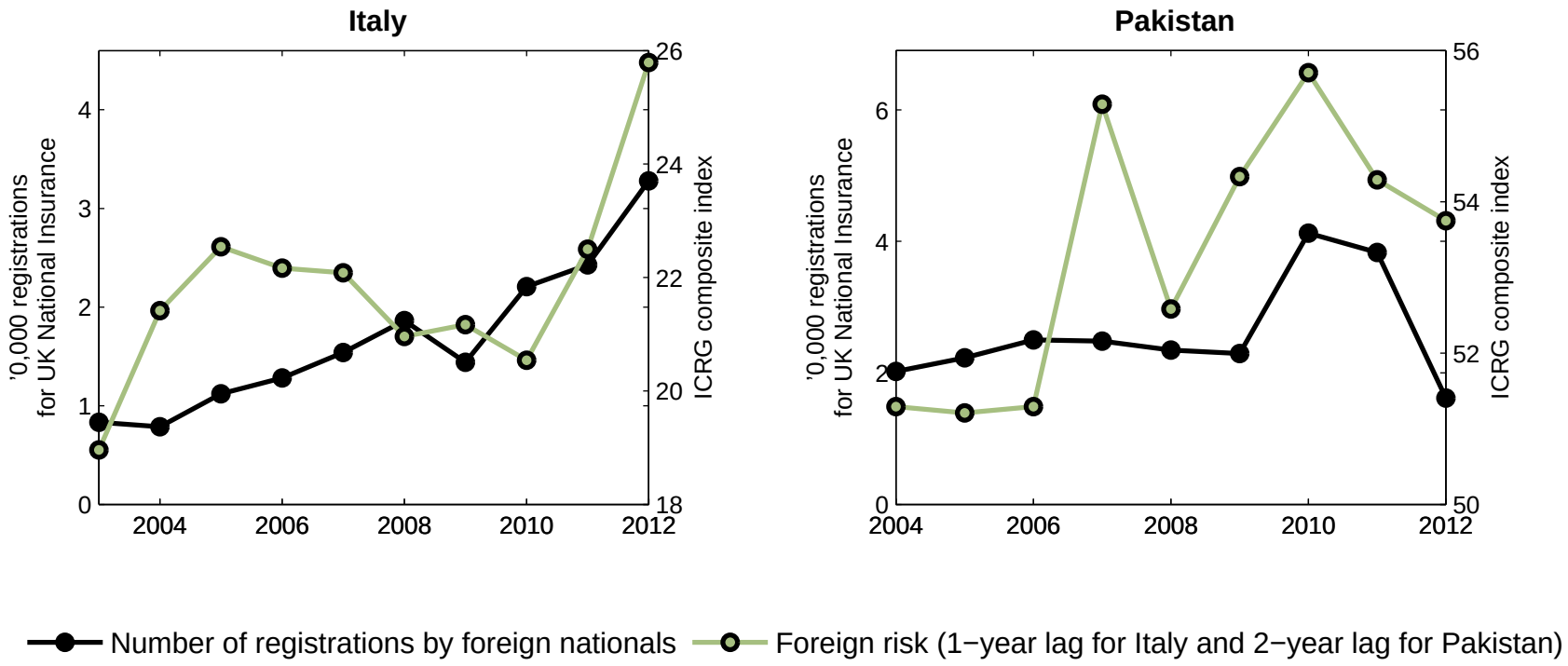
Results from cross-country panel data

$$Outflows_t^k = \mu^k + \delta_t + \rho Outflows_{t-1}^k + \tau^k t + \beta_0 z_t^k + \beta_1 z_{t-1}^k + \boldsymbol{\gamma} \boldsymbol{X}_t^k + \varepsilon_t^k.$$

	Capital outflows relative to GDP (in percent)	
	High-risk countries	Low-risk countries
β_0	**0.43****	0.09
	(0.21)	(0.21)
β_1	-0.44	-0.19
	(0.28)	(0.20)

Registrations for National Insurance

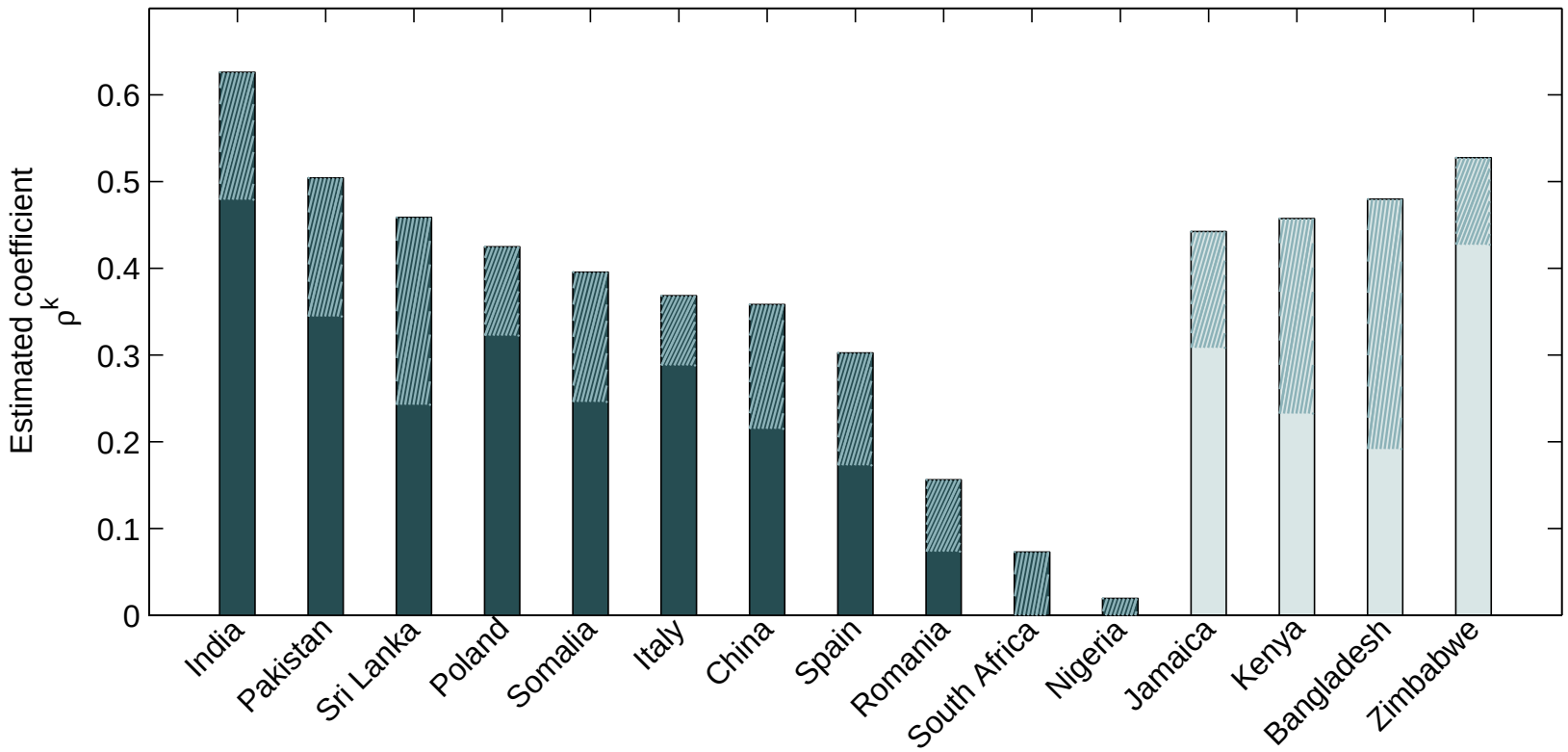
Correlation with political risk in the country of origin



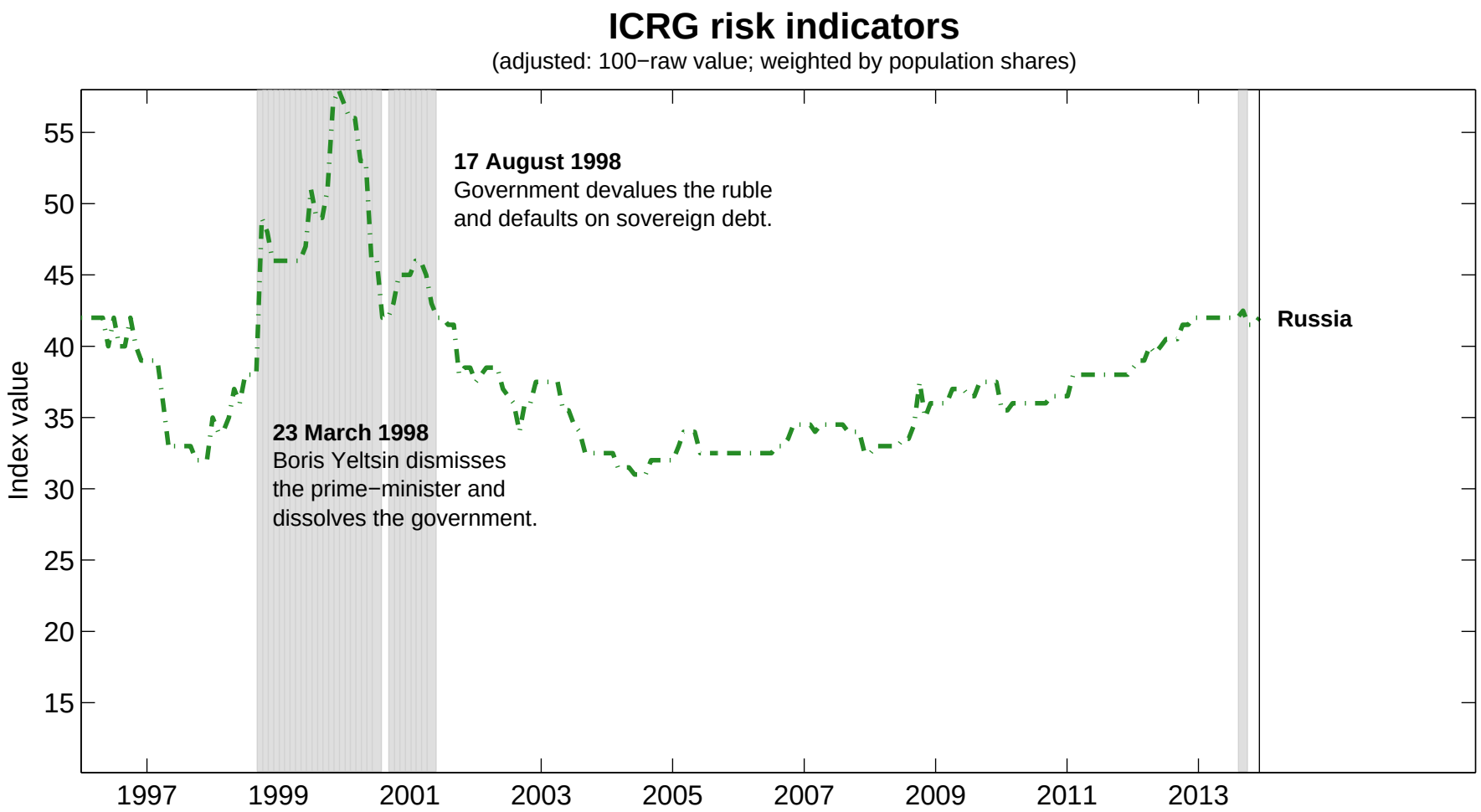
Shares of foreign-born people

Change between 2001 and 2011

$$\Delta f^k_{w,2011} = \alpha + \rho^k f^k_{w,2001} + \beta \Delta f^{UK}_{w,2011} + e_{w,2011}.$$



Time variation in risk



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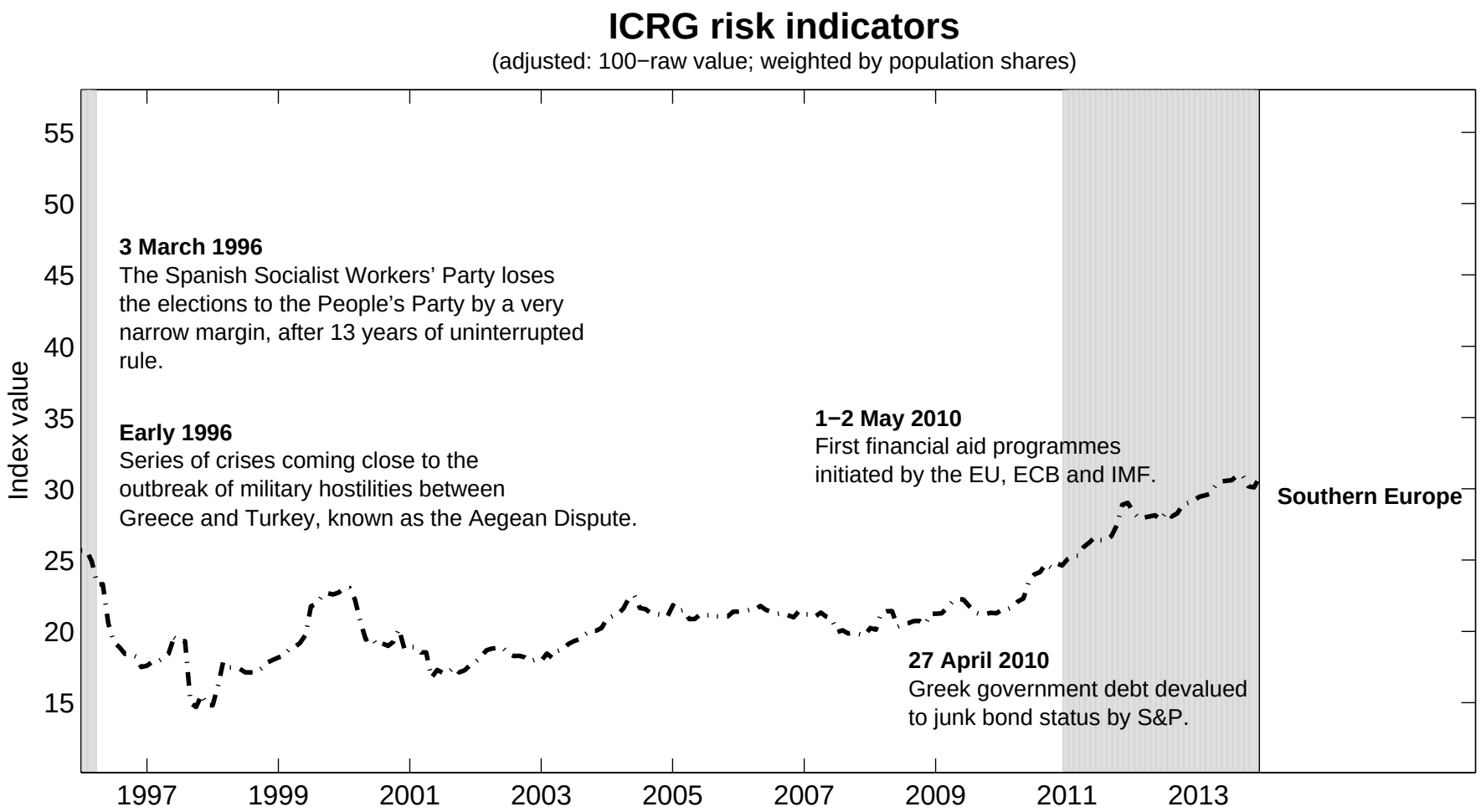

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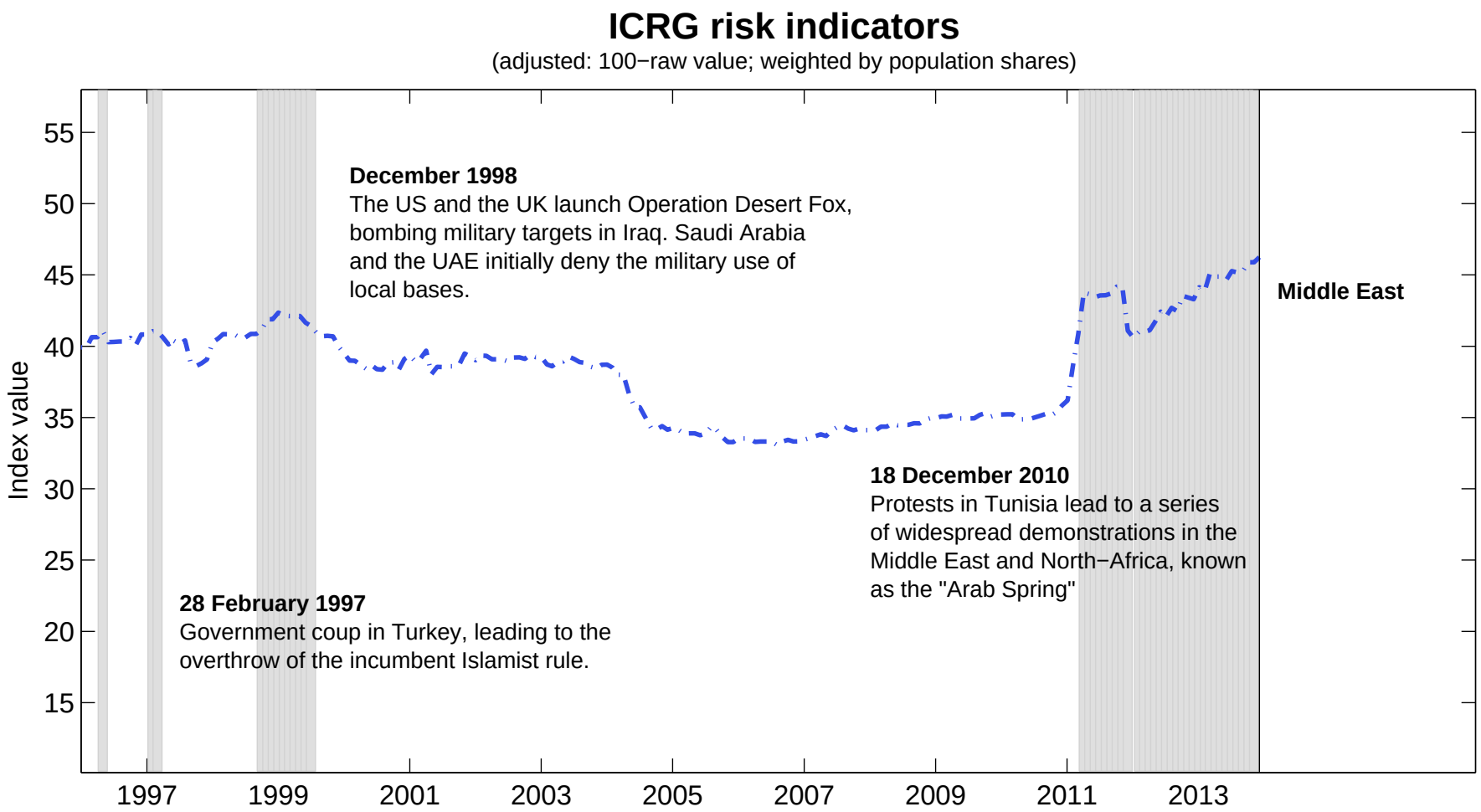
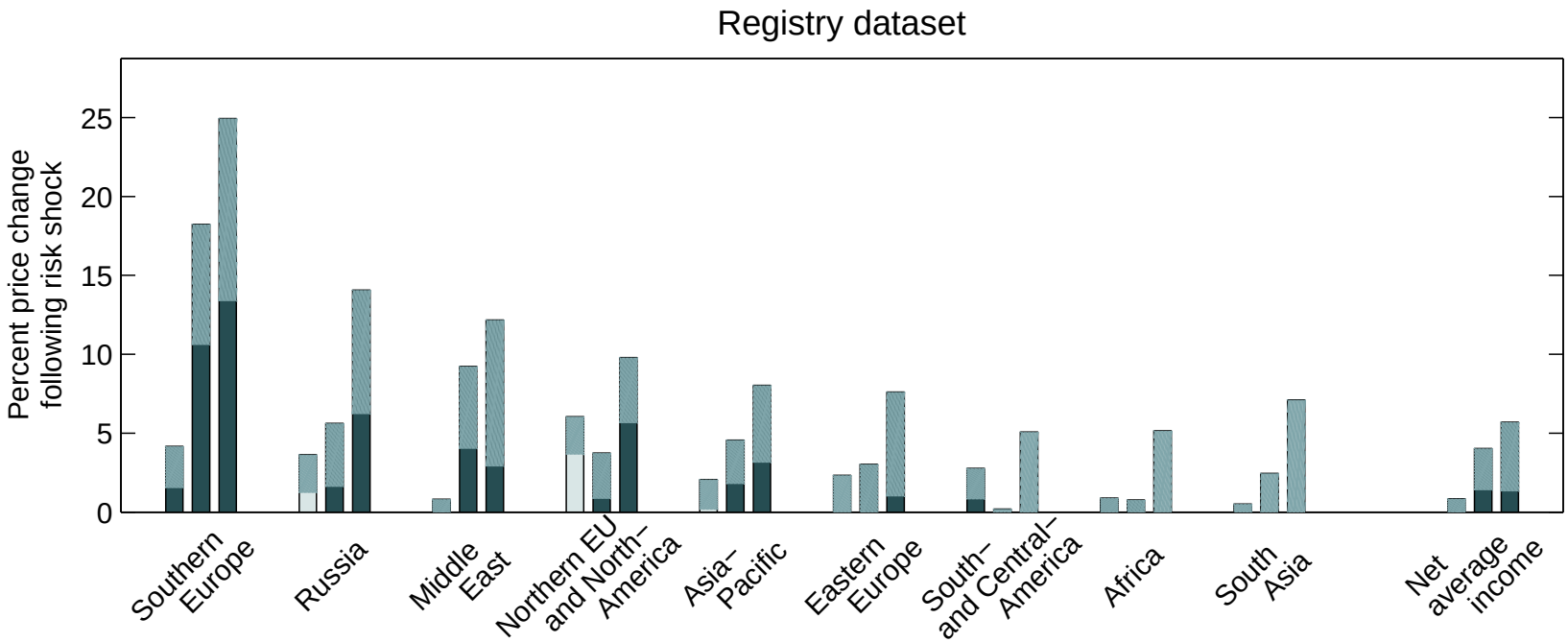


World region joint estimation results

Effects across price categories



Groups according to the 70th and 90th percentiles

of the within-borough-year distribution of house prices