A World Divided: Refugee Centers, House Prices, and Household Preferences

Martijn I. Dröes (University of Amsterdam)
Hans Koster (VU University Amsterdam)

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Introduction

- United Nations (UNHCR): 25.9 million refugees.
- Asylum requests in EU from 300,000 (2012) to 1.3 million (2015).
- Refugee camps at the border, but also dedicated refugee centers (RCs) within EU member states.

Katsikas, www.artsenzondergrenzen.nl

Ter apel, www.coa.nl

Introduction

- A lot of local opposition against the openings of RCs.
  - Negative externality (noise pollution, nuisance, crime).
  - Attitudes of incumbent households towards immigration.

Heesch, Roel Kuilder

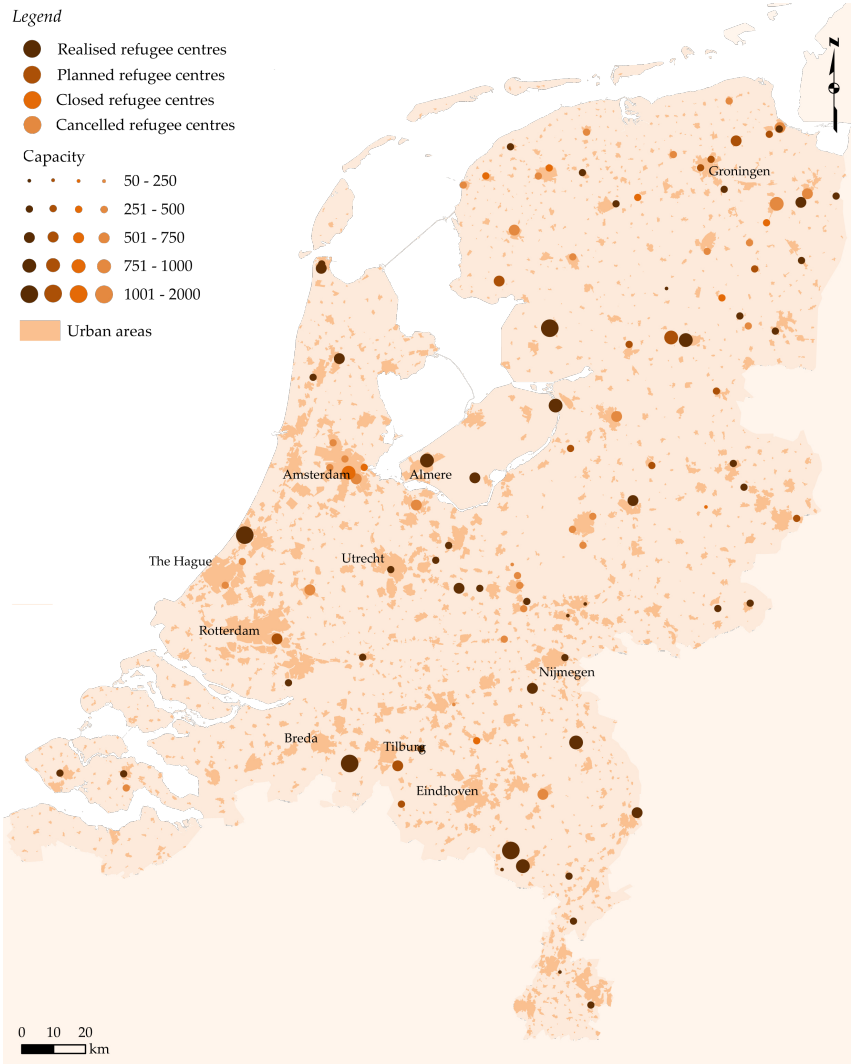
Question and contribution

- ***To what extent are households willing to pay to <u>not</u> live close to a refugee center?***
- 3.6 million transaction prices, 1990-2015, Dutch Association of Realtors (NVM).
- Refugee center data (Netherlands)
  - RCs in 2015. (permanent, www.coa.nl)
  - RCs opened and closed <2015.
  - Planned (but canceled) RCs in 2016, 2017.
- Local voting behavior (share of nationalist votes).
- Administrative microdata (household level)
  - Income, type of household, western/non-western.
- Data on subjective well-being (neighborhood level)
  - Nuisance, neighborhood satisfaction, feeling of unsafety.

Data

Refugee center data

1. 109 RCs, 51 RCs in 2015, 33 RCs canceled.
2. Opened (as of end 80s) fairly evenly over time.
3. Random spatial mix.
4. But differences in housing characteristics.
5. Prices higher for closed, lower for planned.



Data

Table: House price dataset

	mean	st.dev.	min	max
Transaction price (euros)	203,626	114,657	25,000	1,000,000
Asking price (euros)	216,367	124,536	22,916	1,400,000
Time on market (days)	135.1	185.7	0	1,825
Refugee center opened, <2km	0.0283	0.166	0	1
Within corridor to shopping area	0.0012	0.034	0	1
Size in m^2	117.0	37.58	26	250
Number of rooms	4.336	1.330	0	25
Terraced property	0.320	0.466	0	1
Semi-detached property	0.277	0.447	0	1
Detached property	0.121	0.326	0	1
Property has garage	0.324	0.468	0	1
Property has garden	0.973	0.161	0	1
Maintenance state is good	0.865	0.342	0	1
Property has central heating	0.894	0.308	0	1
Property is (part of) listed building	0.00606	0.0776	0	1

Notes: The dataset also includes 6 construction decade indicators. The number of observations is 2,649,070.

- Treatment area $<$ 2km of RCs.

Data

Table: Household level data

	(1) mean	(2) sd	(3) min	(4) max
Age of head of the household	38.58	12.12	25	94
Person is foreigner	0.0470	0.212	0	1
Disposable income	35,847	23,642	6,019	1,000,000
Household size	2.174	1.154	1	11
Single household	0.335	0.472	0	1
Single parent with kids	0.0395	0.195	0	1
Couple	0.381	0.486	0	1
Couple with kids	0.244	0.430	0	1
Person is male	0.692	0.462	0	1

Notes: The number of observations is 57,728.

Identification strategy

- Hedonic, difference-in-differences (DID) model:

$$\log P_{it} = \beta_1 \mathcal{RC}_{it} + \beta_2 X_{it} + \lambda_j + \lambda_t + \epsilon_{it}, \quad (1)$$

  - $\log P_{it}$ house price for house i at time t.
  - $\mathcal{RC}_{it}$ equals 1 after opening of an RC within 2km.
  - X_{it} housing characteristics.
  - λ_j, λ_t location and time fixed effects
  - ϵ_{it} the error term.

- Three control groups:
  - Rest of the Netherland.
  - Planned but canceled RC areas.
  - Variation in opening dates of RCs only (preferred).

- Ton of robustness checks & extensions (*e.g.* corridor analysis, repeat sales, openings/closings, nationalist votes.)

Identification strategy

- Non-parametric, IV, hedonic approach (Ekeland et al., 2004):

Step 1) Determine the marginal price γ_{1j} for RCs per household j:

$$\tilde{P}_{ijt} = \gamma_{1j}(W_{it}, X_{it}, Z_{jt})\tilde{\mathcal{RC}}_{it} + \gamma_{2j}(W_{it}, X_{it}, Z_{jt})\tilde{X}_{it} + \tilde{\epsilon}_{it}, \quad (2)$$

Step 2) Estimate the demand/willingness to pay (WTP) curve:

$$\gamma^*_{1j} = \alpha_{1j} W_{it} + \alpha_{2j} Z_{jt} + \alpha_{3j} X_{it} + \mu_{jt}, \quad (3)$$

- Use $\mathrm{E}[X_{it}|Z_{jt}]$ and $\mathrm{E}[X^2_{it}|Z_{jt}]$ as instruments for X_{it}.
- $\mathcal{RC}_{it}$ is a dummy variable, interval regression.
- Particularly interested in α_{1j} (large RCs?), α_{2j} (Income?).

Results

Table: Regression results hedonic DID model

(Dependent variable: the log of house price)

	(1)	(2)	(3)	(4)	(5)
	Full sample	*Placebo as control group*	*Timing opening of RCs only*	*Response function*	*Distance profile*
Refugee center opened, <2km	-0.0303***	-0.0524***	-0.0599***	See Fig. **??**	-0.0814***
	(0.0077)	(0.0086)	(0.0089)		(0.0146)
Refugee center opened, 2-5km					-0.0487
					(0.0350)
Refugee center opened, 5-10km					0.0152
					(0.0147)
Housing characteristics	Yes	Yes	Yes	Yes	Yes
Postcode fixed effects	Yes	Yes	Yes	Yes	Yes
Year and month fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	2,640,378	318,193	194,436	194,436	194,436
R^2	0.92	0.93	0.93	0.93	0.93

Notes: For columns (2)-(6) we only include observations within 2km of an RC. Standard errors are clustered at the neighborhood level and in parentheses. *** p<0.01, ** p<0.05, * p<0.1

- On average, the opening of an RC decreases house prices by about 3%-6% within a 2km radius.

Results

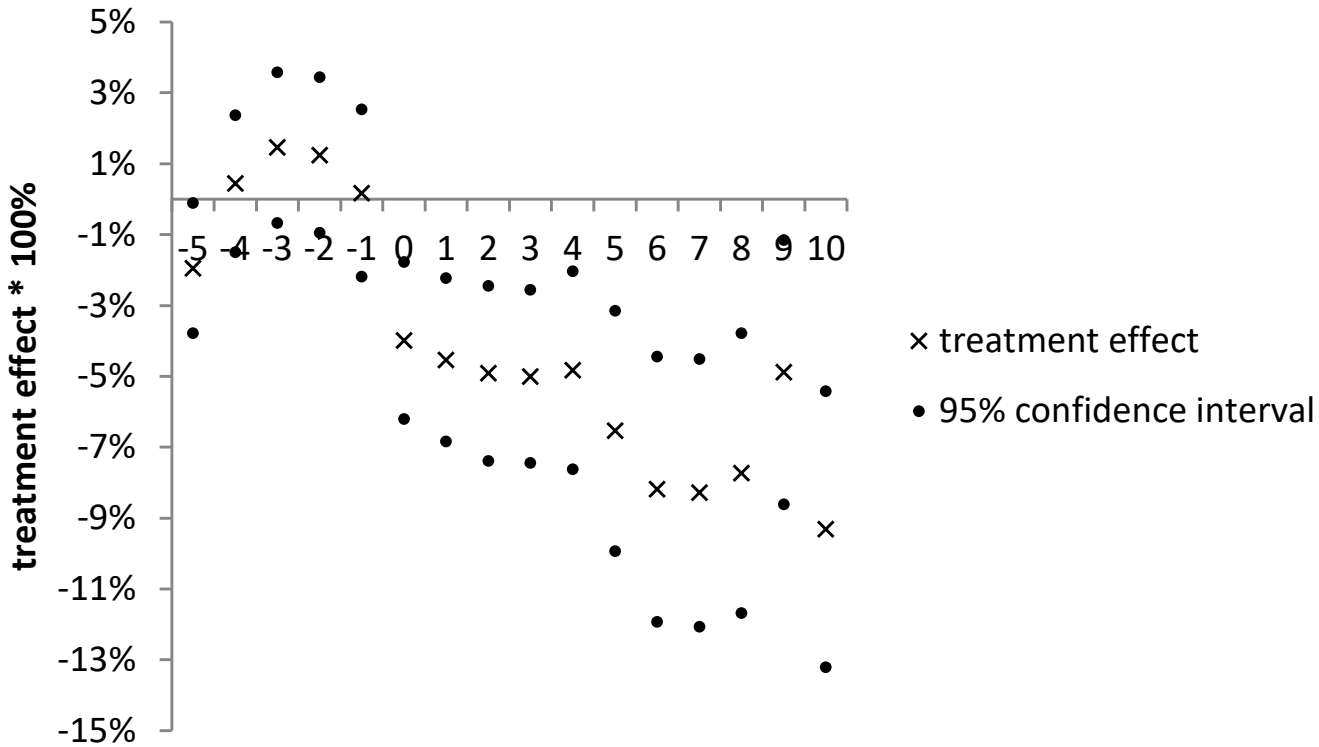


Figure: Response function

- Discrete jump, gets more neg. over time, effect is permanent.

Results

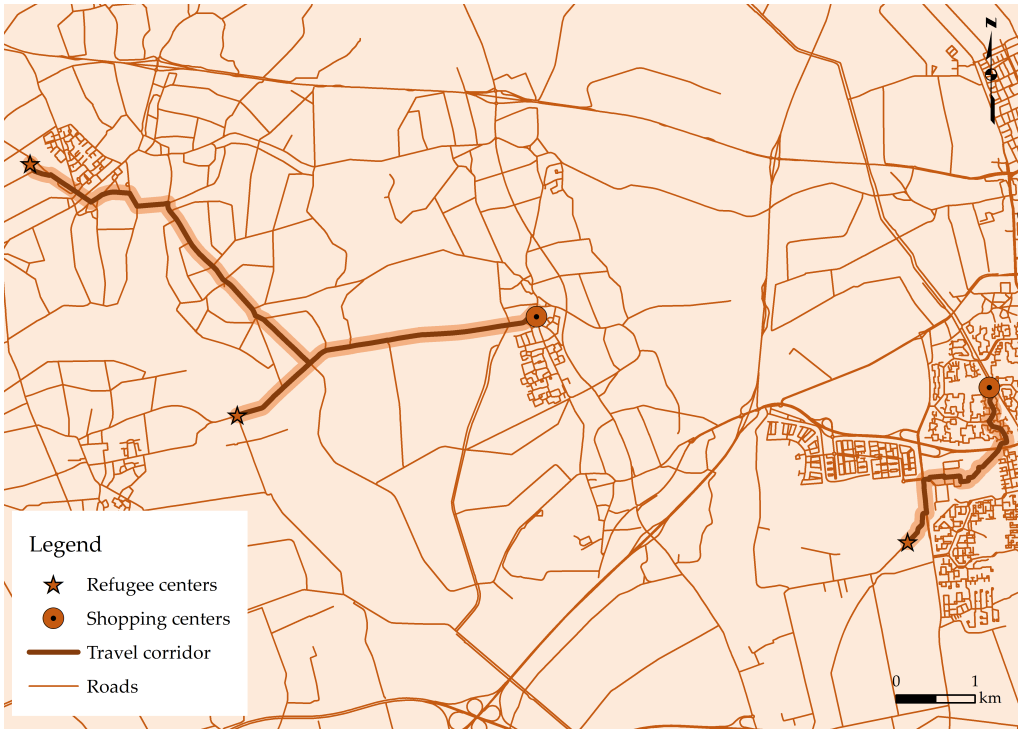


Figure: Corridor analysis

- Results are robust to using a triple difference strategy combining circles and corridors.
- Causal effect + not equi-directional.

Results

Table: Robustness and extensions

	(1) *Opened RCs only*	(2) *Closings*	(3) *Repeat sales*	(4) *Time-varying coef.*	(5) *Markup*	(6) *Time on market*	(7) *Number of refugees*	(8) *Over time/voting*
Refugee center opened, <2km	-0.0520***		-0.0521***	-0.0299***	-0.0109***	0.1507***	-0.0596***	see Fig. ??
	(0.0142)		(0.0099)	(0.0081)	(0.0023)	(0.0513)	(0.0090)	
Refugee center closed, <2km		0.0494***						
		(0.0155)						
RC x $(log(ref.) - log(\overline{ref.}))$							0.0024	
							(0.0096)	
Housing characteristics	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Postcode fixed effects	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Year and month fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	194,436	194,436	40,012	194,436	194,436	191,774	194,436	194,436
R^2	0.93	0.93	0.76	0.96	0.25	0.26	0.93	0.93

Notes: This table uses the variation in the timing of refugee centers only, see specification (3), Table **??**. Standard errors are clustered at the neighborhood level and in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Results

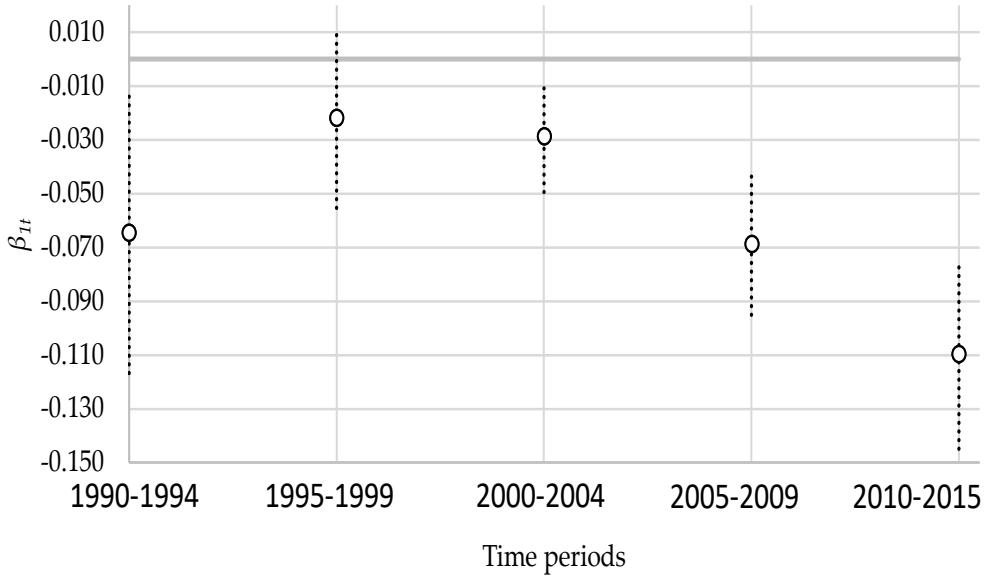


Figure: Effect over time

- During Yuguslavian and Iraqi war effect actually less negative.
- Negative effect at the end in line with rise of more populist, anti-migration political parties in Europe.

Results

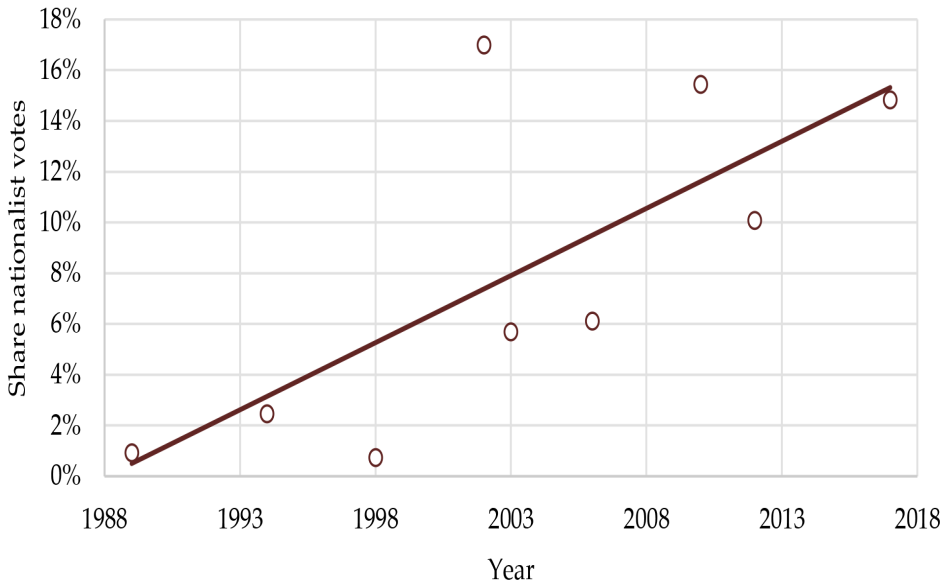
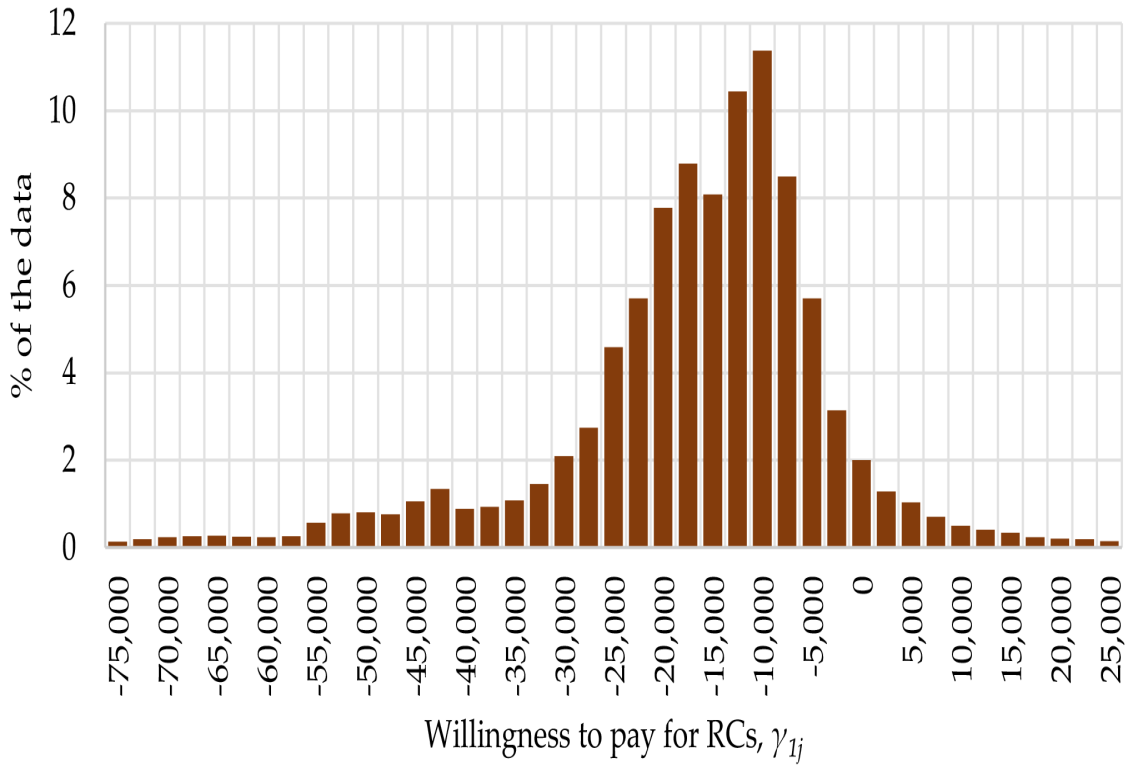


Figure: Average share of nationalist votes

- Dutch national elections (1989-2012), votes per municipality.
- Nationalist parties: 1998 CD, 2002 LPF, 2006 PVV.
- Range 2.2%-16%, average 6.4%.
- Interaction effect with share *before* RC is opened.
- Price effect: 5.8% + 0.45% per percentage point higher share.

Results



- Median willingness to pay (WTP): $-€16,000$, 5% pos.

Results

Table: Variation in WTP

(Dependent variable: the willingness to pay for refugee centers, $\hat{\gamma}^*_{1j}$)

	(1)	(2)	(3)	(4)
		Maximum likelihood		*Maximum likelihood + control function*
RC is newly built	6,434	5,777	1,862	2,911
	(4,606)	(4,550)	(3,553)	(3,692)
RC capacity *(in 100s)*	-3,330***	-3,313***	-3,065***	-2,924***
	(919)	(917)	(902)	(904)
Income *(in sd)*		-872*	-537	-1045***
		(452)	(388)	(351)
Age 30-49		168	-1,309***	-523
		(729)	(478)	(507)
Age 50-69		2,399*	-250	2,424**
		(1,487)	(871)	(1,137)
Age $\geq$ 70		4,705	2,849	10,297***
		(3,121)	(2,656)	(3,135)
Non-western foreigner		7,854***	6,623***	7,022***
		(2,044)	(1,729)	(1,793)
Household size		616	44	-1,655**
		(498)	(364)	(719)
Household – couple		2,380*	-1,660*	109
		(1,421)	(990)	(1,116)
Household – kids		3,364***	1,005	226
		(981)	(963)	(1,023)
Household – share male		330	-250	-389
		(538)	(438)	(477)
Housing attributes	No	No	Yes	Yes
Number of observations	57728	57728	57728	57728
McFadden Pseudo-R^2	0.011	0.012	0.023	0.023

Notes: We only include observations within 2km of an RC. Bootstrapped standard errors are clustered at the neighborhood level and in parentheses. *** p<0.01, ** p<0.05, * p<0.1

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- −€3,000 per 100 persons increase in size RC.
- Non-western foreigners €7,000 more pos. WTP.

Results

- Neighborhood level data (Dutch Housing Demand Survey, several editions).
- Probability of being *dissatisfied* with the neighborhood, experiencing *nuisance*, and *wanting to move* within 2 years go up by about 2 percentage points after opening of RC.
- No effect on feeling more unsafe.
- Small pos. employment effects.

Conclusion

- House prices go down by about 3%-6% after opening of an RC within 2 km.
- The effect is permanent and robust to different specifications (a triple difference approach).
- Effect is correlated with the local share of nationalist votes.
- Median WTP is negative, lot of variation: Place RC in more ethnically diverse neighborhoods, don't make them too big.
- Effects on nuisance and neighborhood dissatisfaction.

Thank you for listening!

Amsterdam Business School,
Finance department,
Real estate group

m.i.droes@uva.nl