

Thursday 25th of October 15.30-17.00



RSAN

# What Can Urban Economic Policy Do?

Lessons from the evaluation of past policy interventions

**Henry Overman**  
Professor of Economic  
Geography at the  
London School of  
Economics



RSAN Urban Futures Lecture

Location: VU University Amsterdam,  
main building, Agora 1

Admission: Free with a valid registration

After the lecture drinks will be served

For more information and registration:  
[www.rsanederland.nl](http://www.rsanederland.nl)

Before the lecture  
presentations will  
be given by PhD  
students working on  
the related topic.  
Please be welcome  
between 13.00 and  
15.00.



# The Effect of Brownfield Redevelopment on Surrounding Residential Areas: The Case of the Amsterdam Western Gas Factory

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Jan Rouwendal

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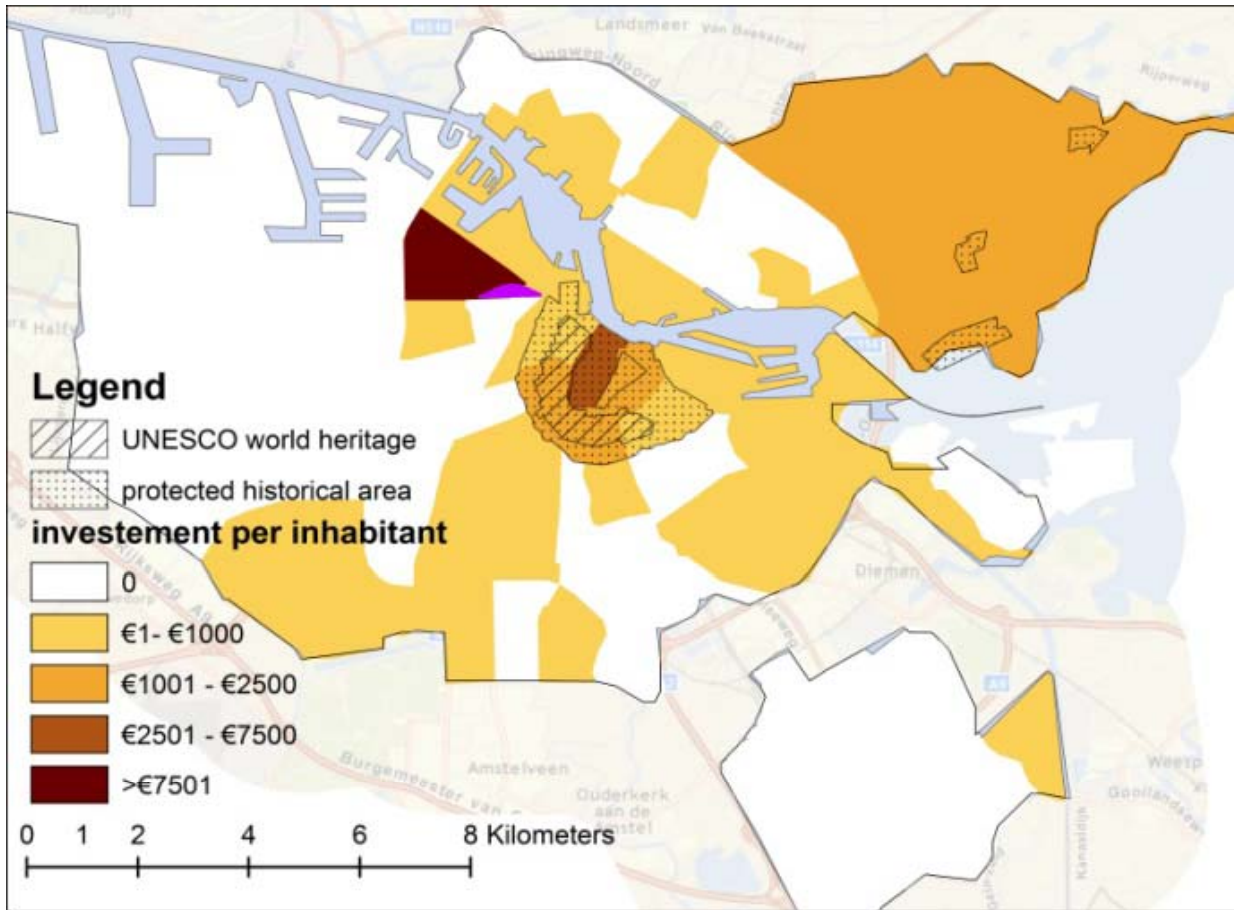
The Urban Futures Lecture  
October 25  
VU University Amsterdam

# Definitions

## ○ **Brownfields**

- US urban planning jargon
  - Land that is previously used for industrial purposes and is available for re-use
- 
- Mostly contaminated with hazardous waste or pollution
  - Has the potential to be re-used after a cleanup

# Western gas factory



Investment per inhabitant in listed built heritage by the government

# Western gas factory



# Western gas factory



# Central question

- **What has been the effect of the redevelopment of the Western gas factory on surrounding neighbourhoods**

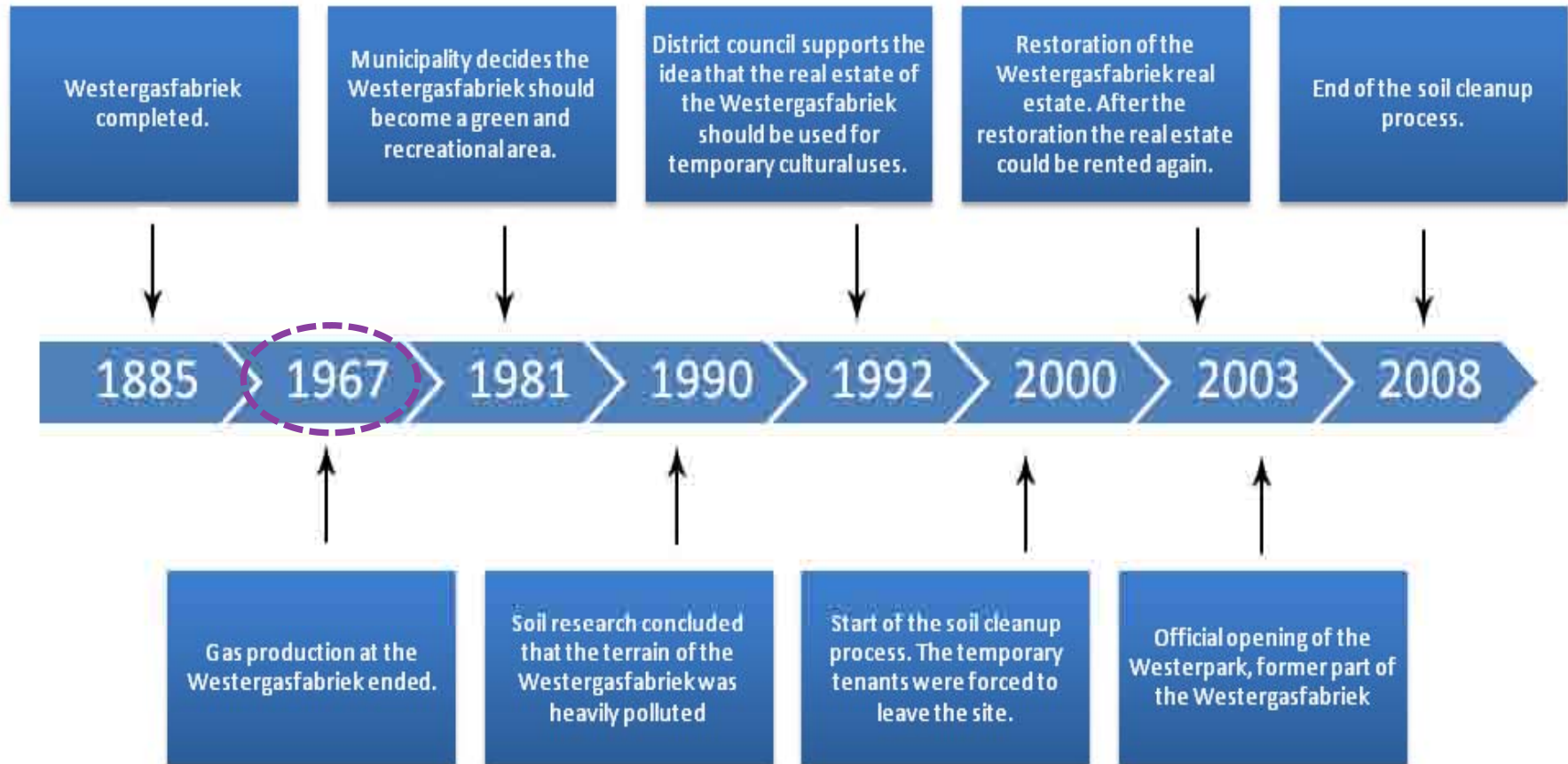
# Literature

## ○ Housing Externalities

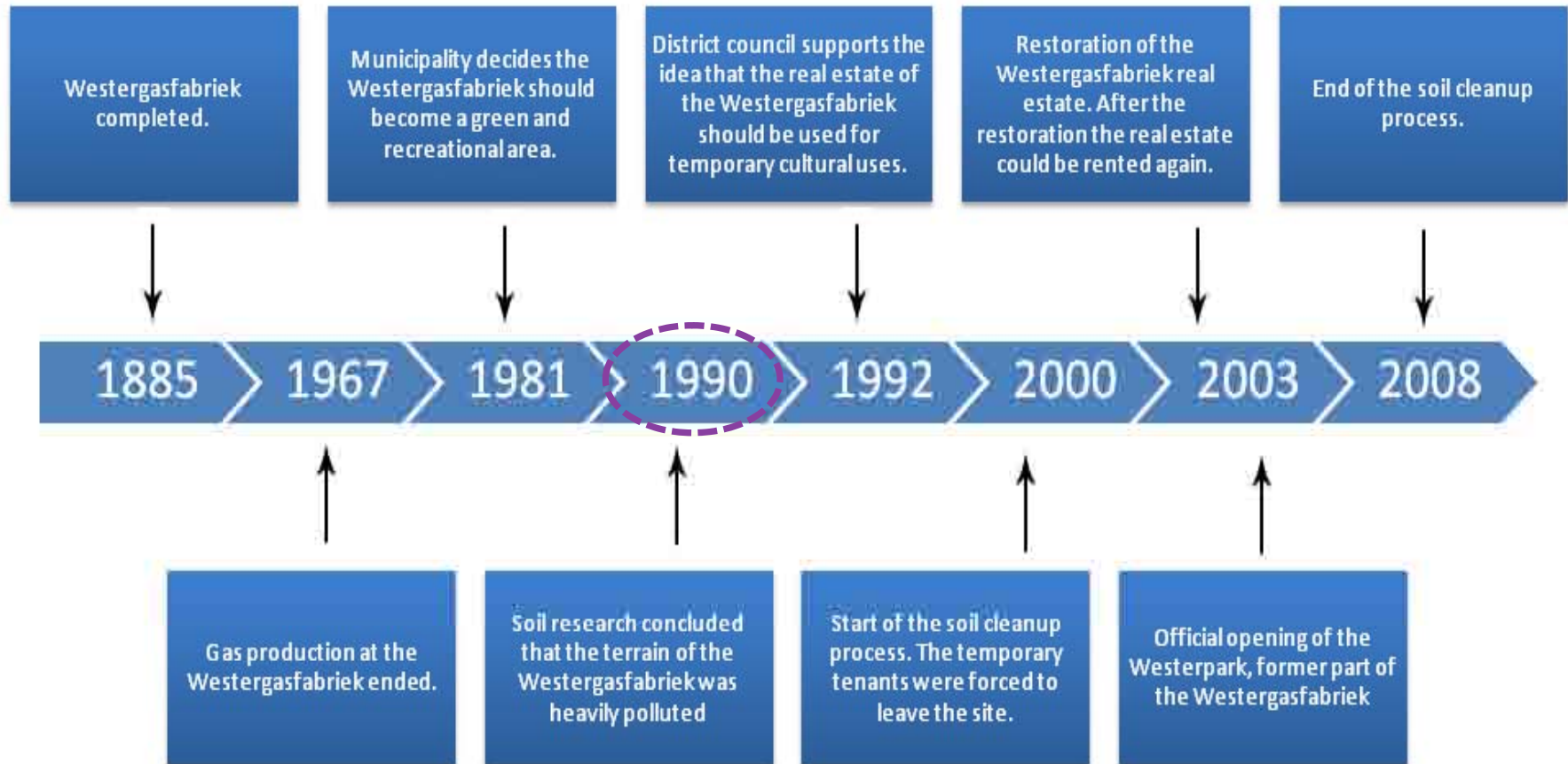
- Rossi-Hansberg et al. (2010) in J. of Political Economy
  - Effect of residential urban revitalization programs on land values in the city of Richmond, Virginia (US)
  - Large, and fall by half approx. every 1 000 feet (~300m)
  - 1 dollar of home improvement generated between 2 and 6 dollars in land value gains over a 6-year period
  - Land prices in neighbourhoods targeted for revitalization rose by 2 to 5% at an annual rate above those in a control neighbourhood
  - Argue that results are place- and program-based.



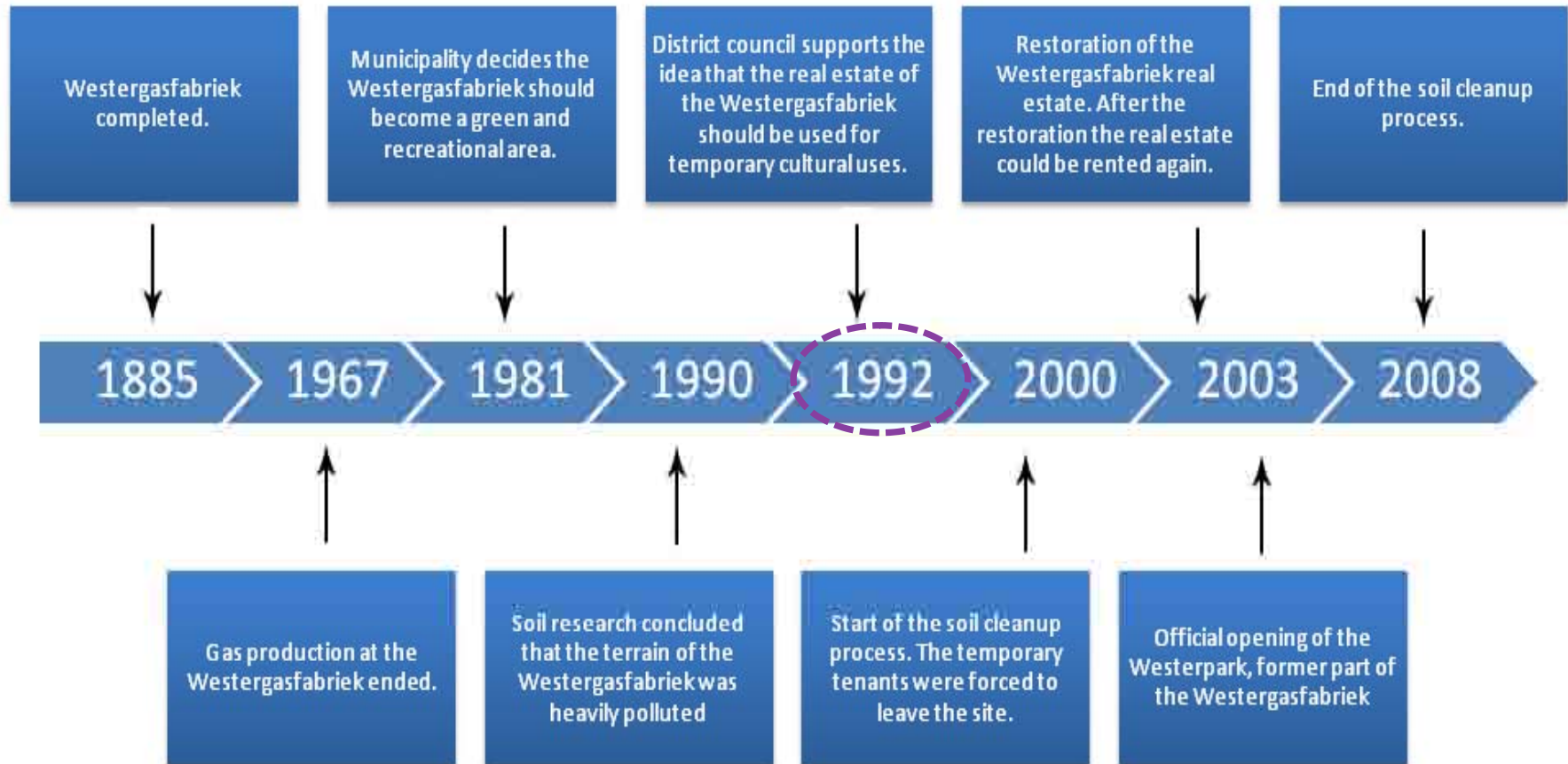
# Timeline



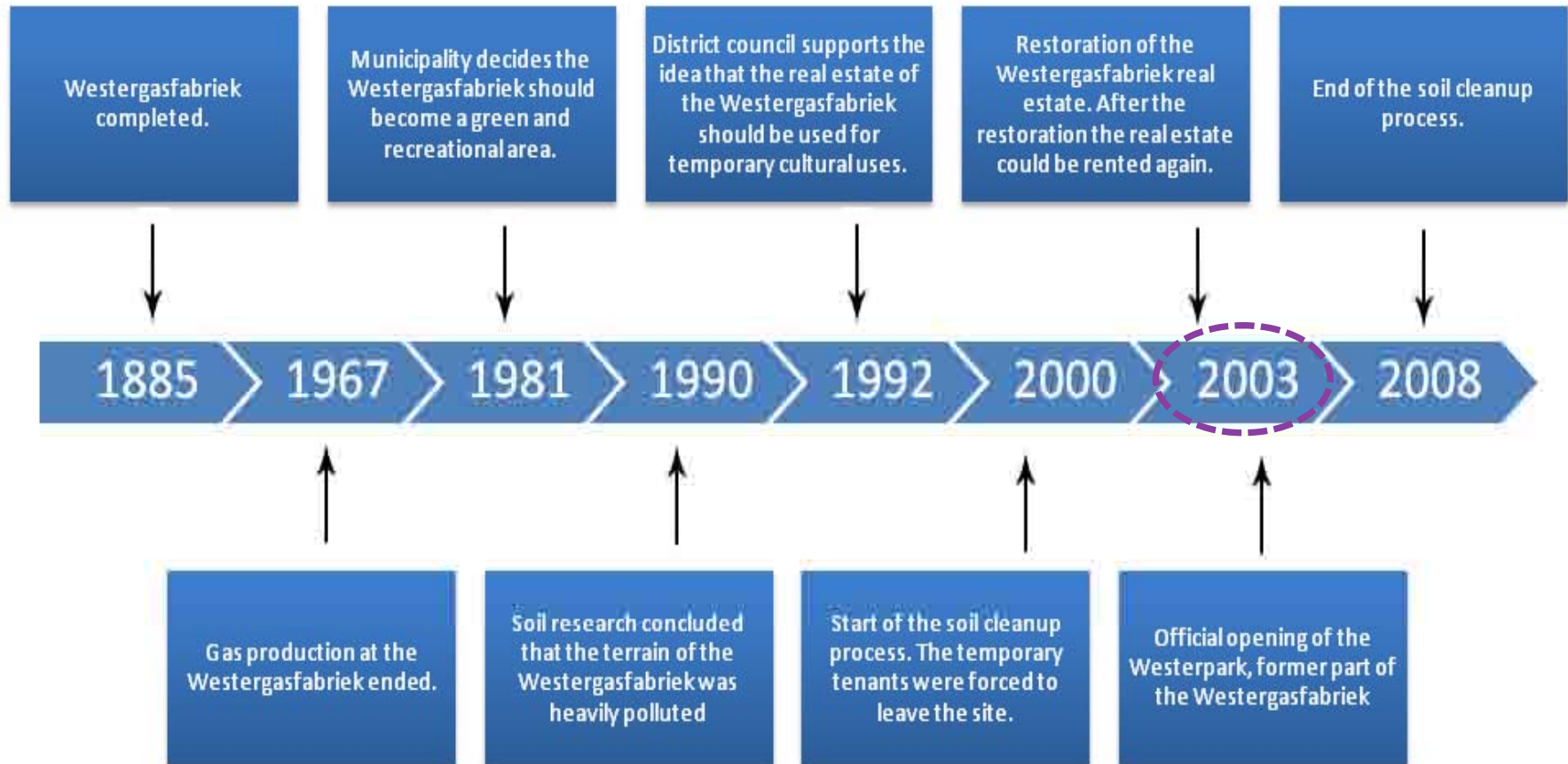
# Timeline



# Timeline



# Timeline



# Investments

Investment	Financed by	Amount (million €)
Large-scale cleanup process 2000 – 2008	General government City of Amsterdam	20
Public space (Westerpark) 1996 – 2003	District council	20
Restoration historic buildings 2000 – 2003	Property developer (Loan from National Restoration Fund)	26,5

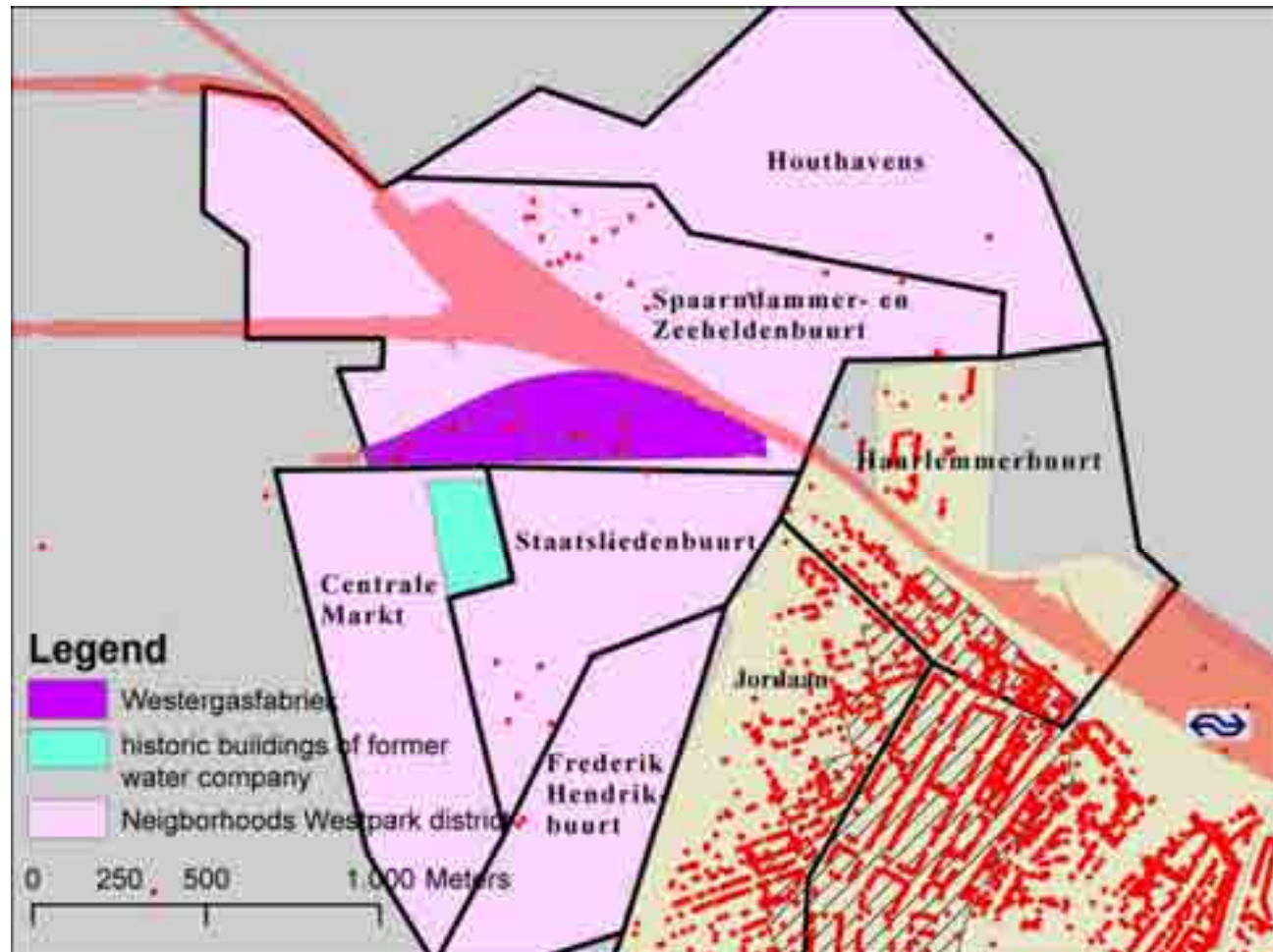
# Surrounding neighbourhoods

- **Observation:**

- In the last decade, neighbourhoods surrounding the Western gas factory have caught up in house prices compared to the average of Amsterdam

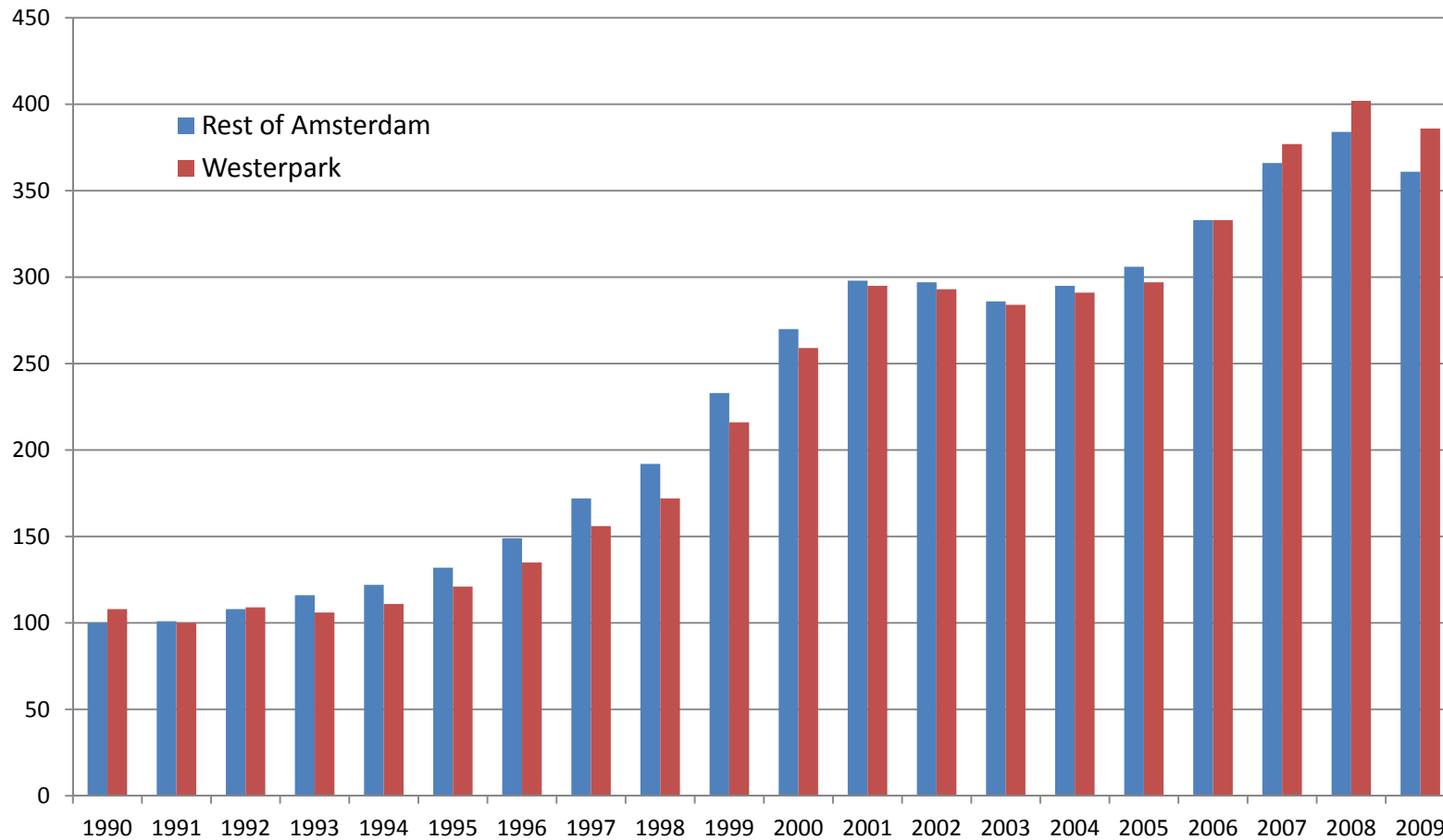
- **Did the redevelopment of the Western gas factory play a role in this process?**

# Surrounding neighbourhoods



# Catching up

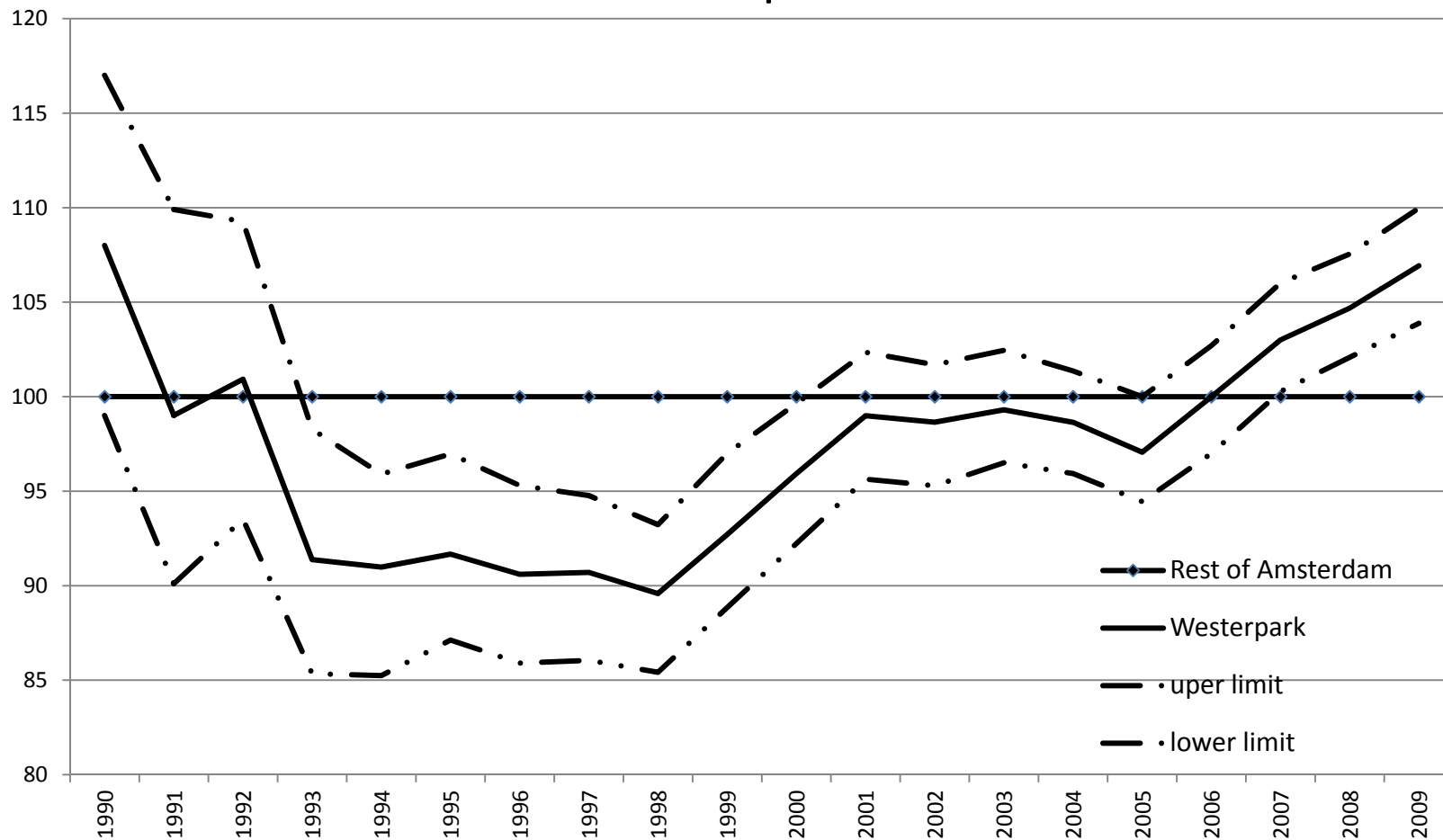
## Hedonic price index





# Catching up

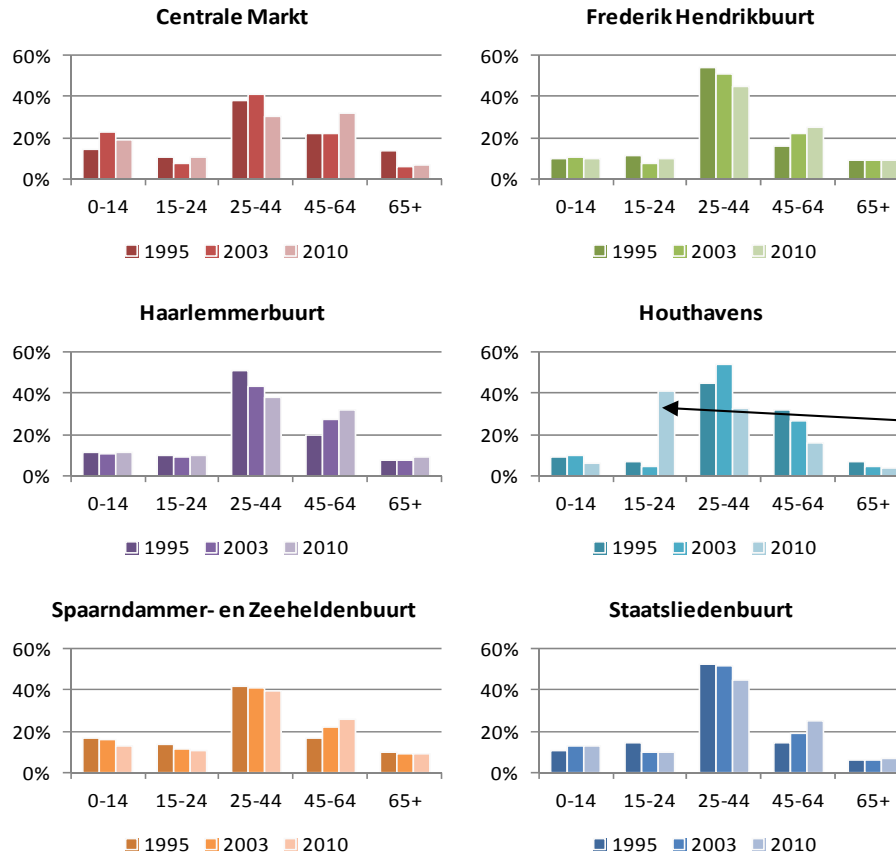
## Hedonic price index



# This paper

- **What has been the effect of the redevelopment of the Western gas factory on house prices in surrounding neighbourhoods**
  - Hedonic price methods (Preliminary results)
- **How did the household demographics change**
  - Descriptive statistics

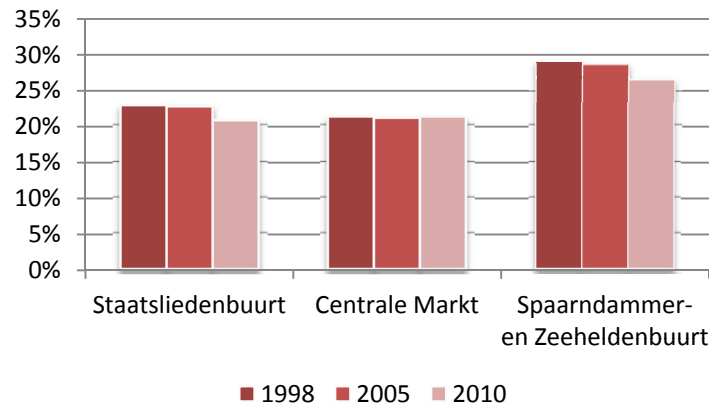
# Descriptive statistics



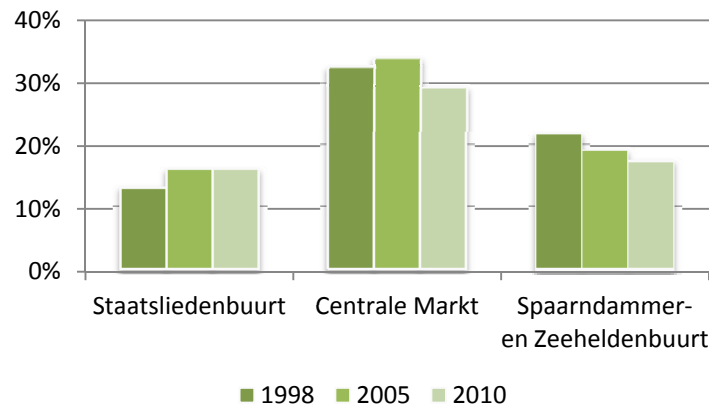
Housing supply went from **20** in 1995 to **350** in 2003 to **590** in 2010.

○ Overall, the ageing of neighbourhoods seems normal

# Descriptive statistics



% Non-western households



% Households with children (-18)

○ Overall, the changes in neighbourhood demographics seem modest

# Base model

## ○ Hedonic price model

$$\ln(p) = \beta_0 + \beta_j S_j + \alpha_{100} drs_{100} + \dots + \alpha_R drs_R + \alpha_{100,2003} drst_{100,2003} + \dots + \alpha_{R,2003} drst_{R,2003} + \gamma_i Y_i + \theta_n N_n + \varepsilon$$

- Structural characteristics  $(S_j)$
- Distance range dummies  $(drs_R)$
- Treatment: Distance range dummies \*  $Y_i$   $(i \geq 2003)$
- Year dummies  $(Y_i)$
- Neighbourhood dummies  $(N_n)$

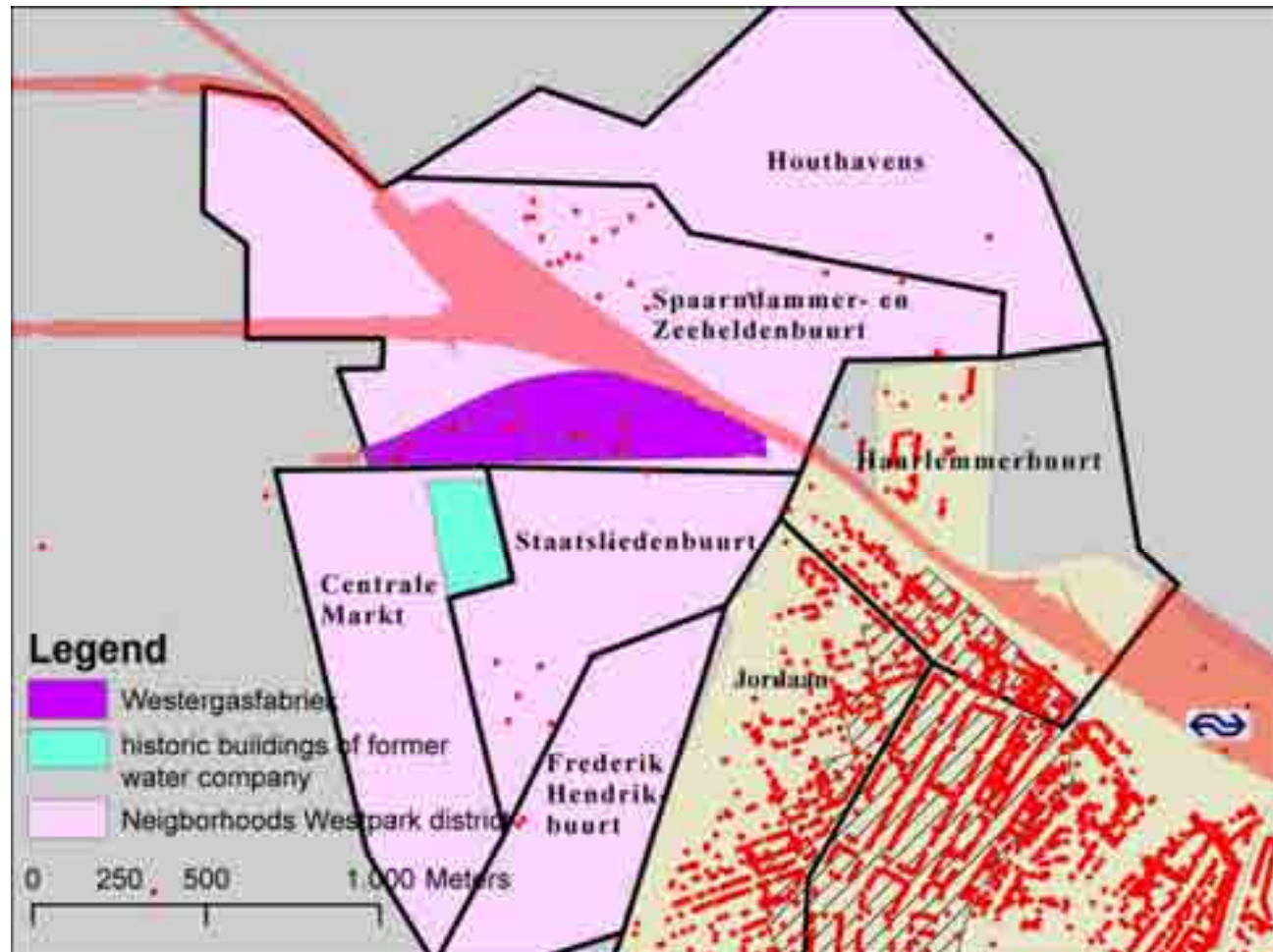
# Base model

## ○ Hedonic price model

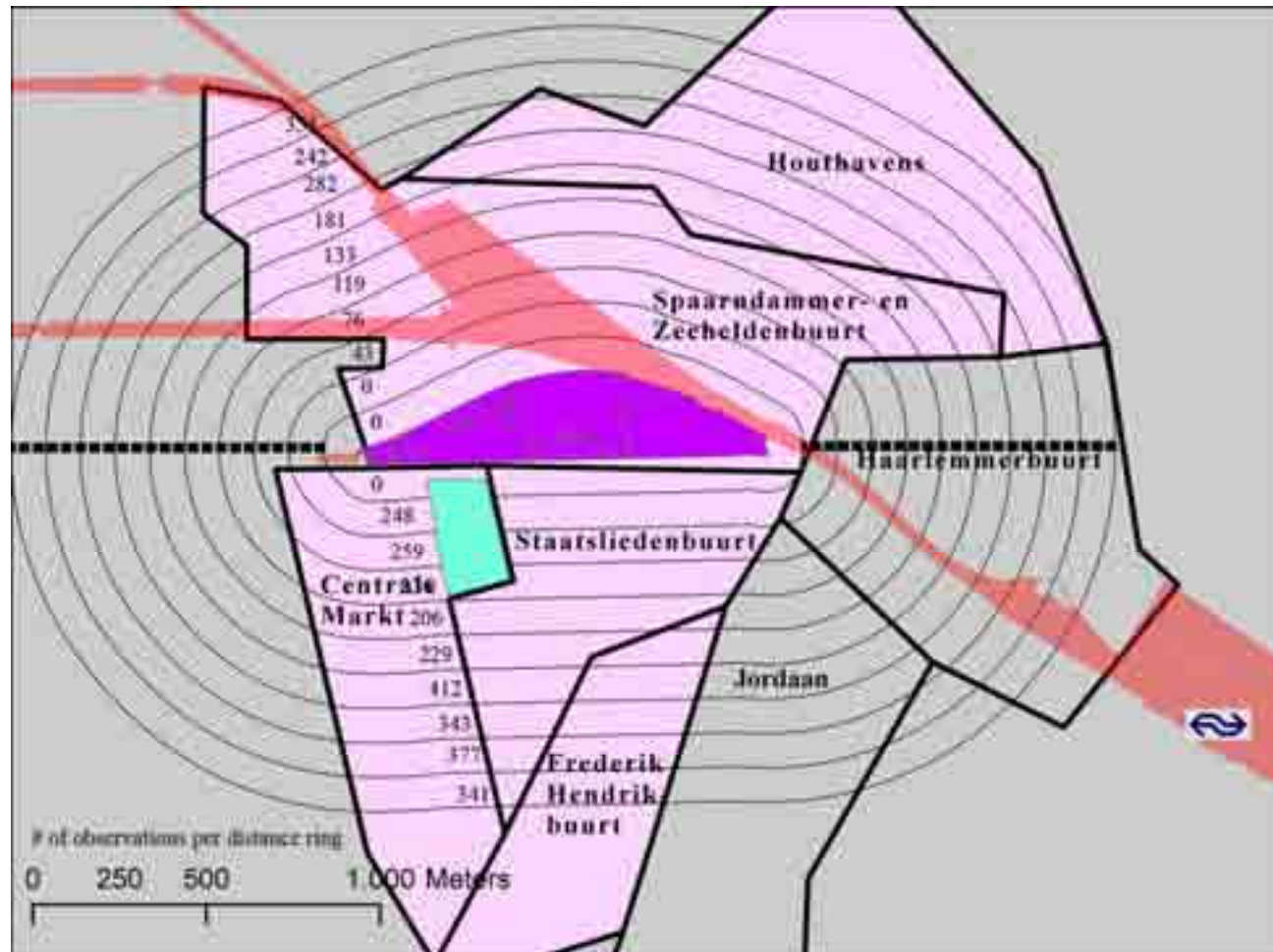
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# 'Treatment'



# Sample



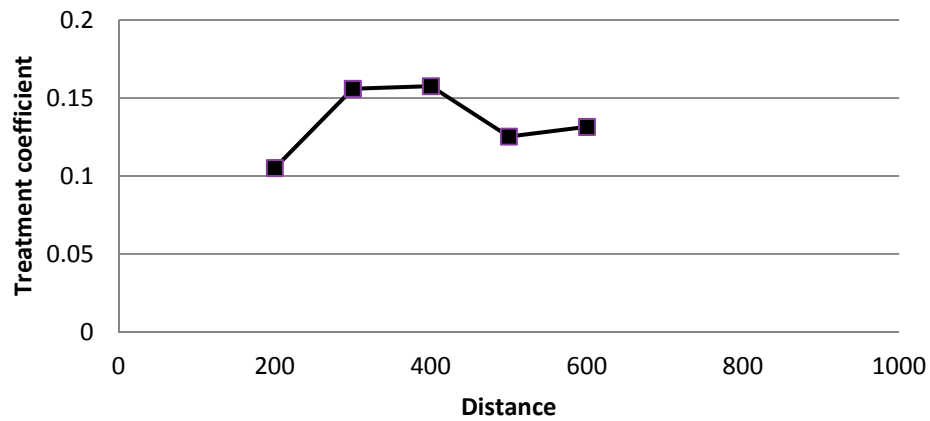
Reference: Outer southern ring(s)



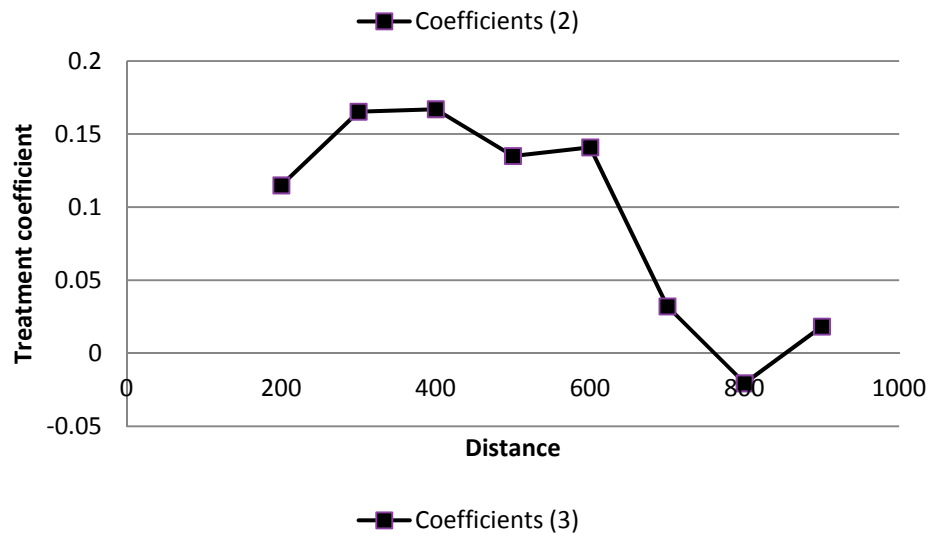
**Table 1.** Hedonic analysis results

	(1)	(2)	(3)
	< 1000m	< 1000m	< 1000m
<b>Treatment (year &gt;= 2003)</b>			
Dist range 100m-500m * 2003-2009	0.1253*** (0.0144)		
Dist range 100m-200m * 2003-2009		0.1051*** (0.0223)	0.1149*** (0.0290)
Dist range 200m-300m * 2003-2009		0.1559*** (0.0220)	0.1653*** (0.0292)
Dist range 300m-400m * 2003-2009		0.1576*** (0.0216)	0.1670*** (0.0287)
Dist range 400m-500m * 2003-2009		0.1253*** (0.0274)	0.1350*** (0.0331)
Dist range 500m-600m * 2003-2009		0.1315*** (0.0291)	0.1409*** (0.0346)
Dist range 600m-700m * 2003-2009			0.0321 (0.0267)
Dist range 700m-800m * 2003-2009			-0.0205 (0.0282)
Dist range 800m-900m * 2003-2009			0.0183 (0.0292)
<b>Control variables</b>			
Structural characteristics	x	x	x
Building period dummies	x	x	x
Dist range dummies	x	x	x
Year fixed effects	x	x	x
Neighbourhood fixed effects	x	x	x
Constant	9.3544*** (0.0658)	9.3415*** (0.0652)	9.3626*** (0.0652)
Observations	2552	2552	2552
Adjusted R-squared	0.923	0.924	0.925

# Results

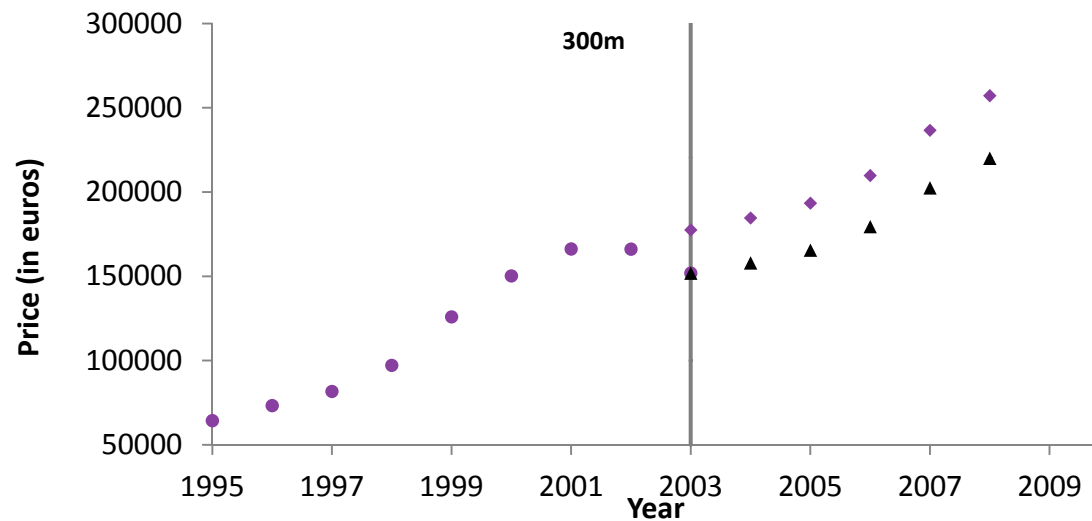


Specification (2)



Specification (3)

# Results



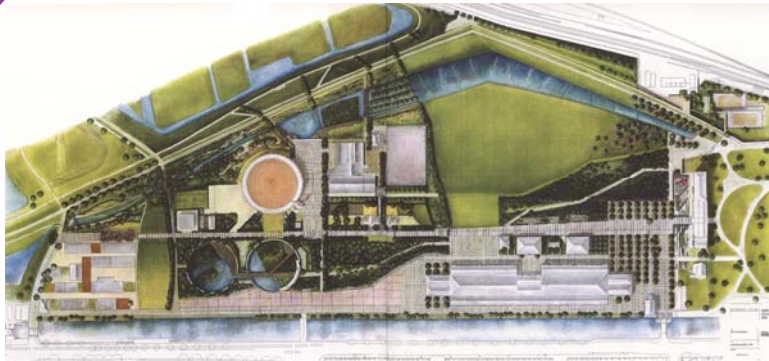
## ○ House price evolution with and without ‘treatment’

- Standard house in Staatsliedenbuurt within 200m to 300m from the Western gas factory

# Conclusions

- **We find a positive and significant effect from the redevelopment of the Western gas factory on house prices (on the south)**
  - until approx. 500m-600m
  - steep decline after 600m
- **The ‘treatment’ effect is between 10 - 16% on house prices compared to the reference (outer southern ring)**
- **Robustness?**
  - Sample size
  - Treatment distance
  - Treatment year

# Questions?



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Piet Rietveld  
Jan Rouwendal

## Thank you for your attention!

