COEN TEULINGS
University of Cambridge

Structural reform in the EU

Lecture 2

Course for DG-Ecfin EU
Brussels
13 November and 1 December 2017

Agenda for today

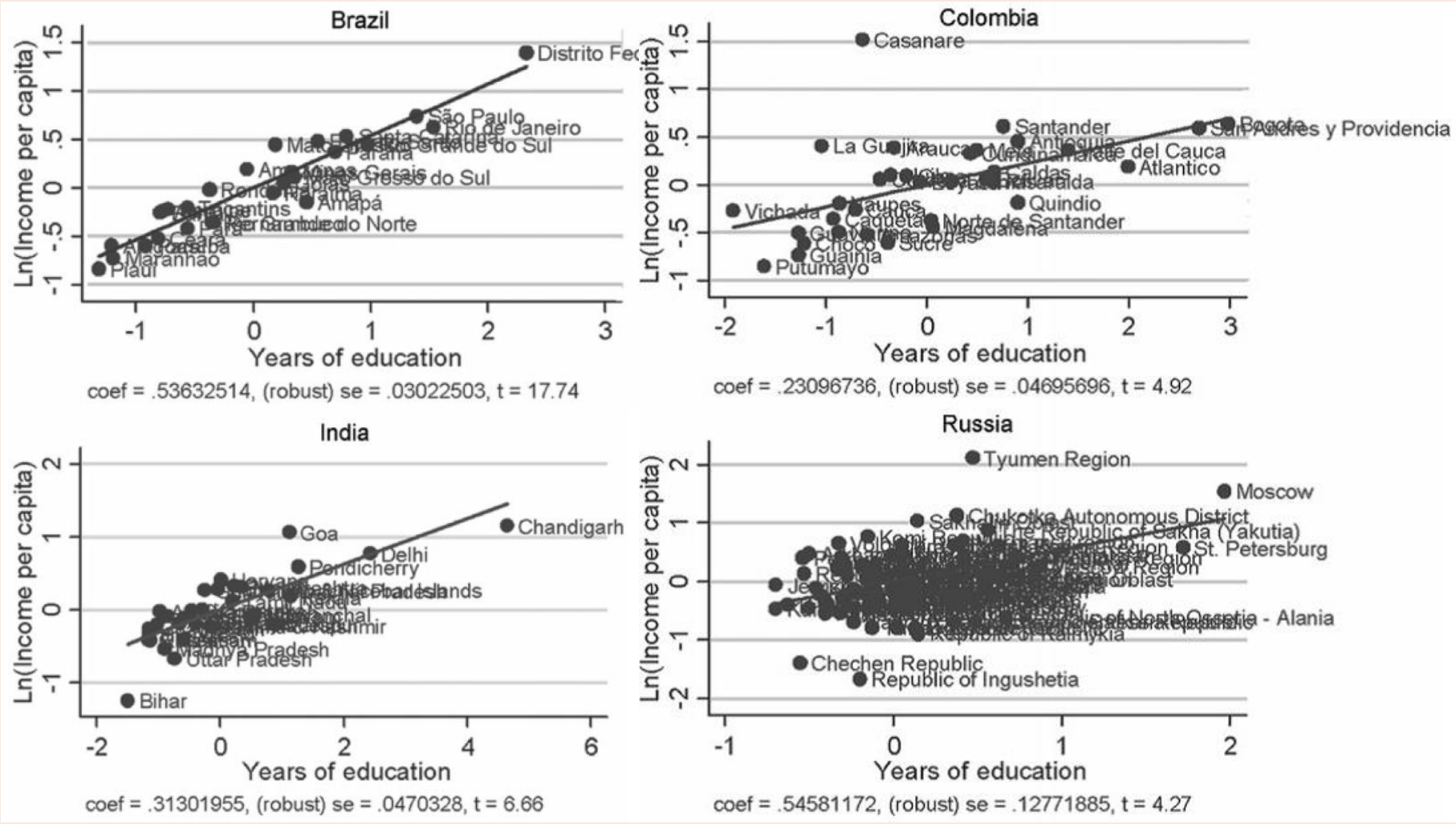
- Part III. Morning: Regional disparities
  - Agglomeration, cities & house prices
  - Zoning policy
  - Social policy & taxation
  - Geography & populism
- Part IV. Afternoon: Monetary union
  - QE revisited
  - Monetary union & public debt
  - Summary: a to do list

Morning: Regional disparities

- Agglomeration, cities & house prices
- Zoning policy
- Social policy & taxation
- Geography & populism

Intra country - interregional wage differences

Geniaola et.al. (2013)



Some light theory

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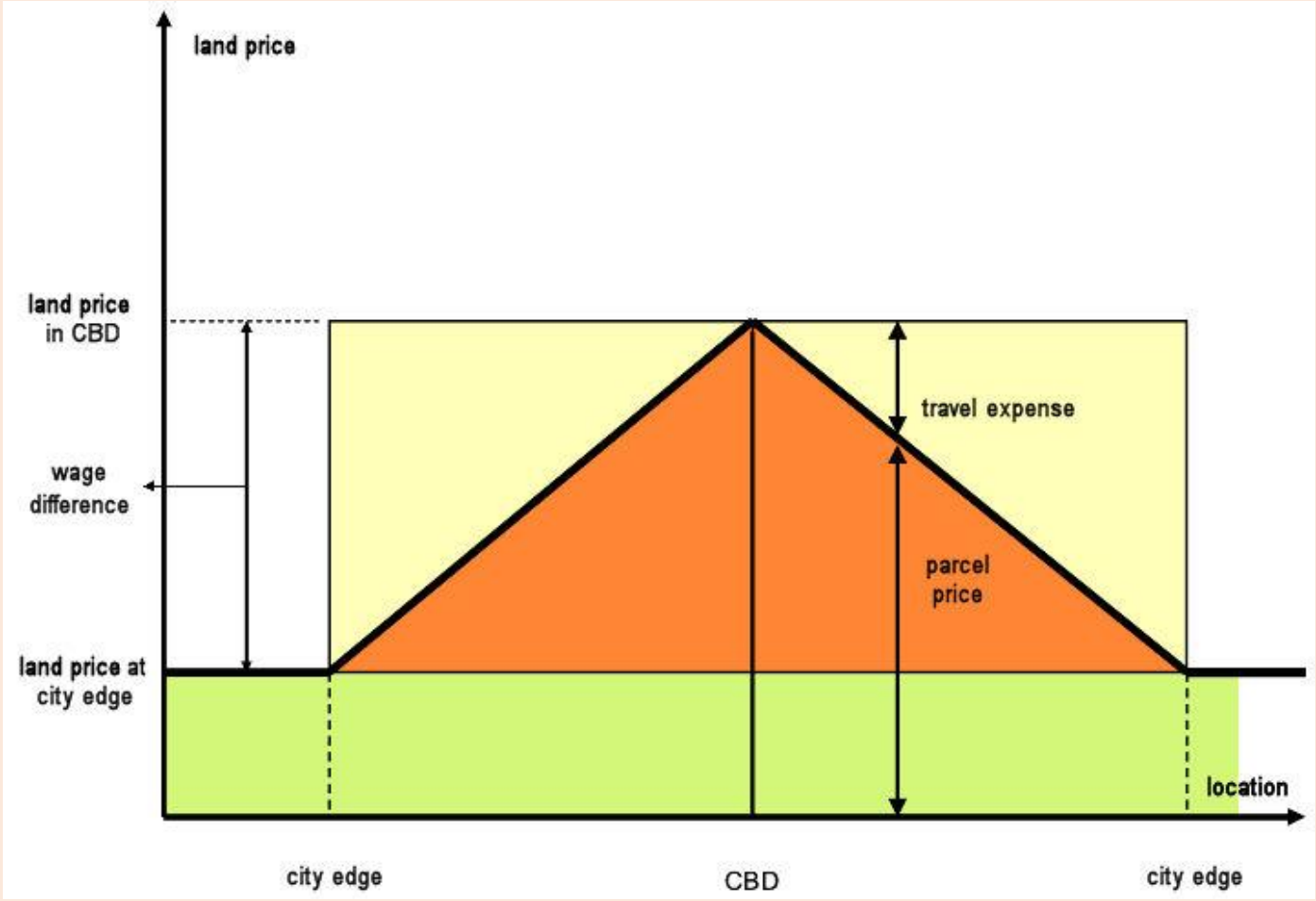


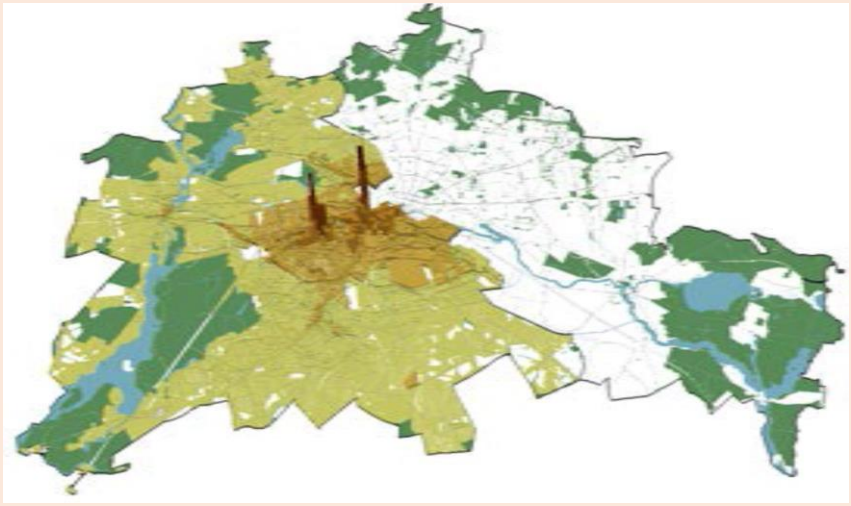
Some light theory: 5 conclusions

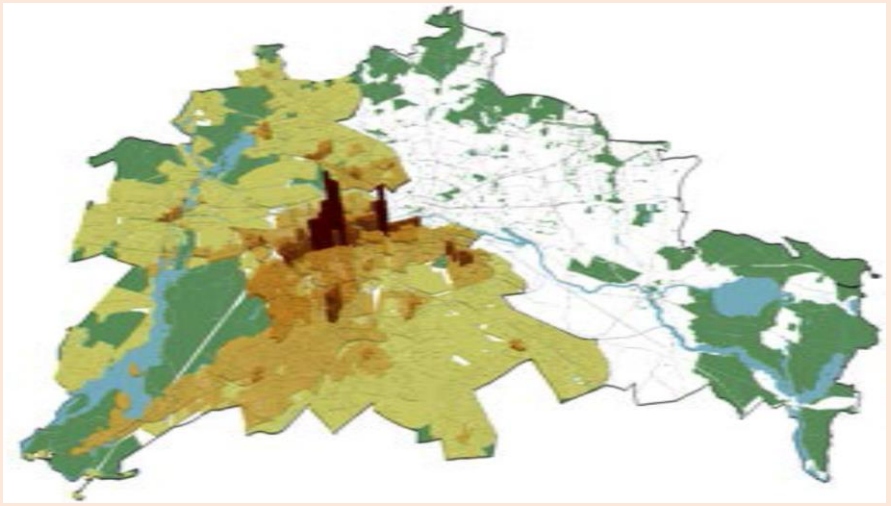
1. Total Land Rent Surplus = Social Value CBD
2. Wages fixed? Land Use & City Size = Efficient!
3. Land Consumption p.p. lower close to CBD
   Population and Construction Density higher
4. Agglomeration Benefits? Density too low!
   Externalities, city size too low
5. Land Tax optimal for funding Local Public Goods
   Henry George taxation

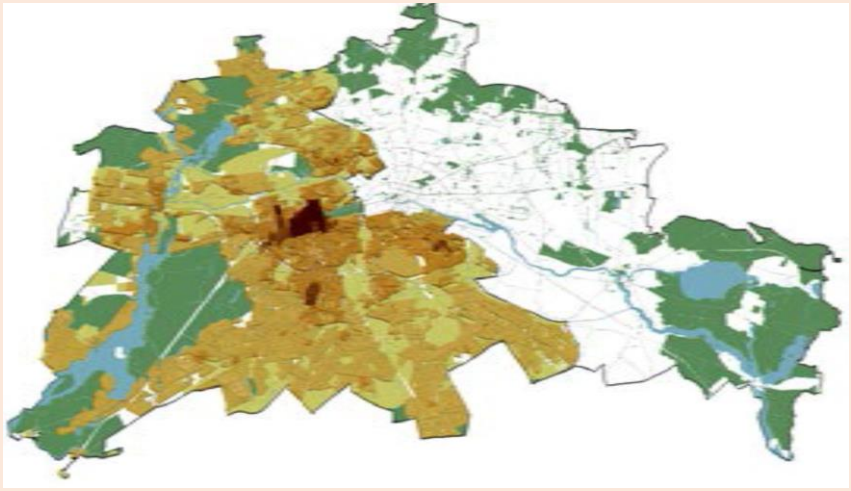
Relation to lecture 1

- Mark ups
  - Sharply increasing since 1980
  - … in particular firms
  - = agglomeration within a firm
- Increasing returns always locally bound
  - Returns to scale parameter
  - … plus a decay parameter

Splendid illustration: Berlin 1936, 1986, 2006



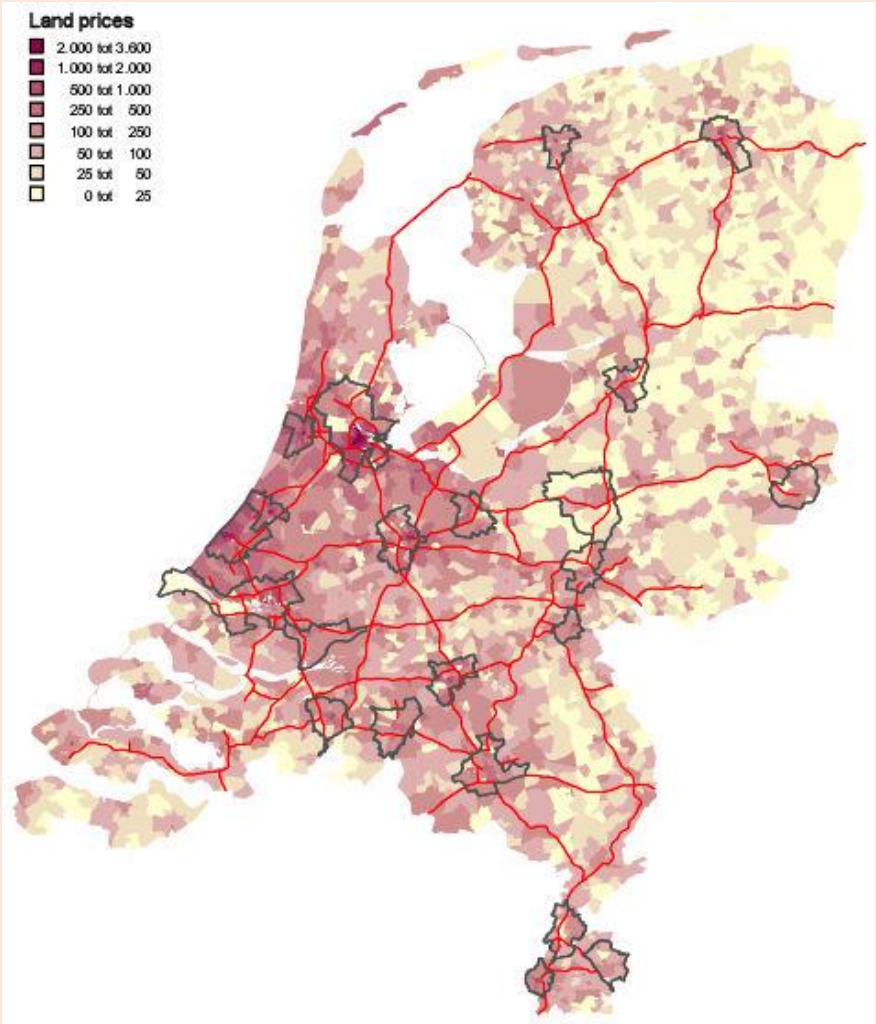


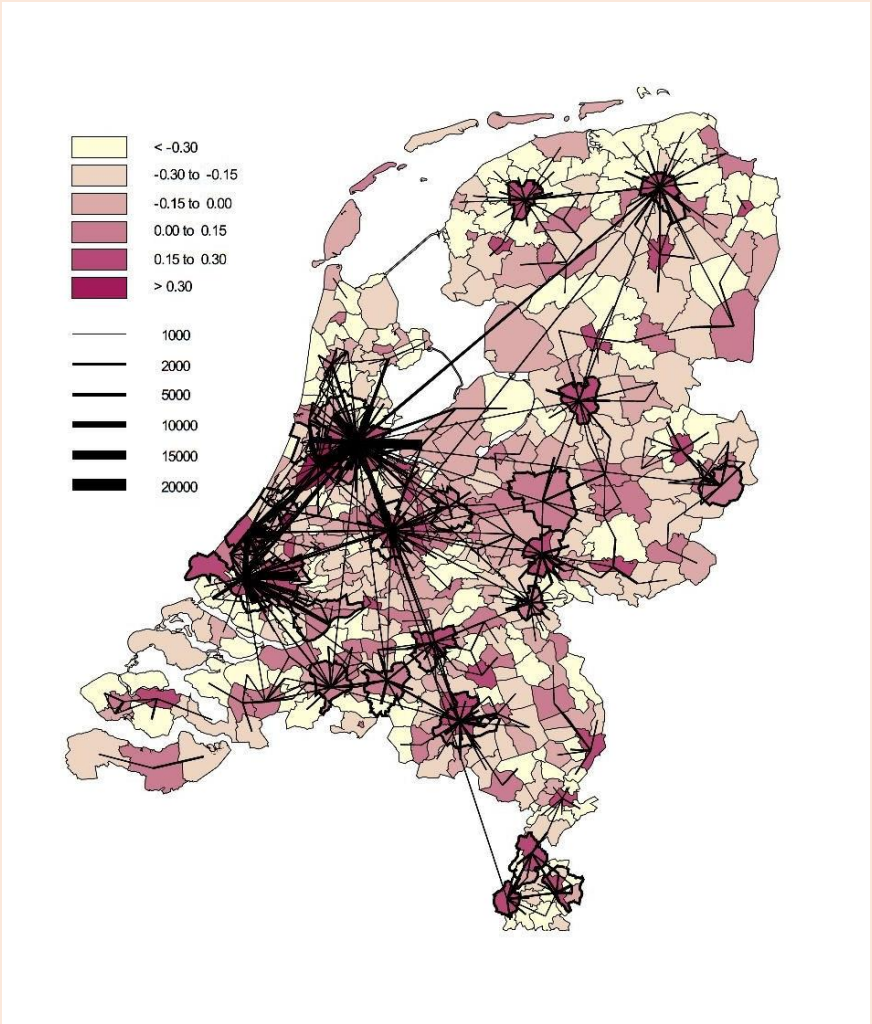


Parameter values from Berlin Wall study

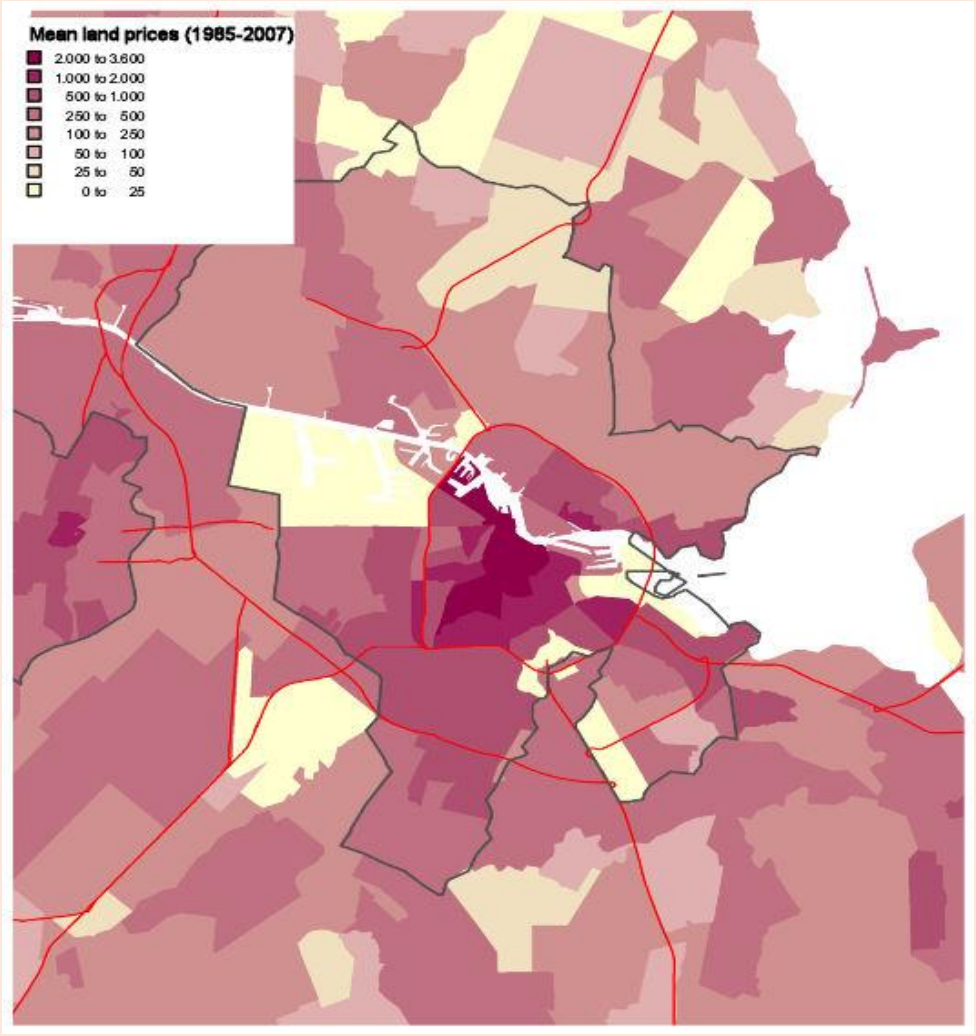
- All spill overs evaluated using land prices
- Half distance spill for
  - Business and consumption: 1-2 minutes
  - Commuting: 60 minutes

Land rents 4000 ZIP codes

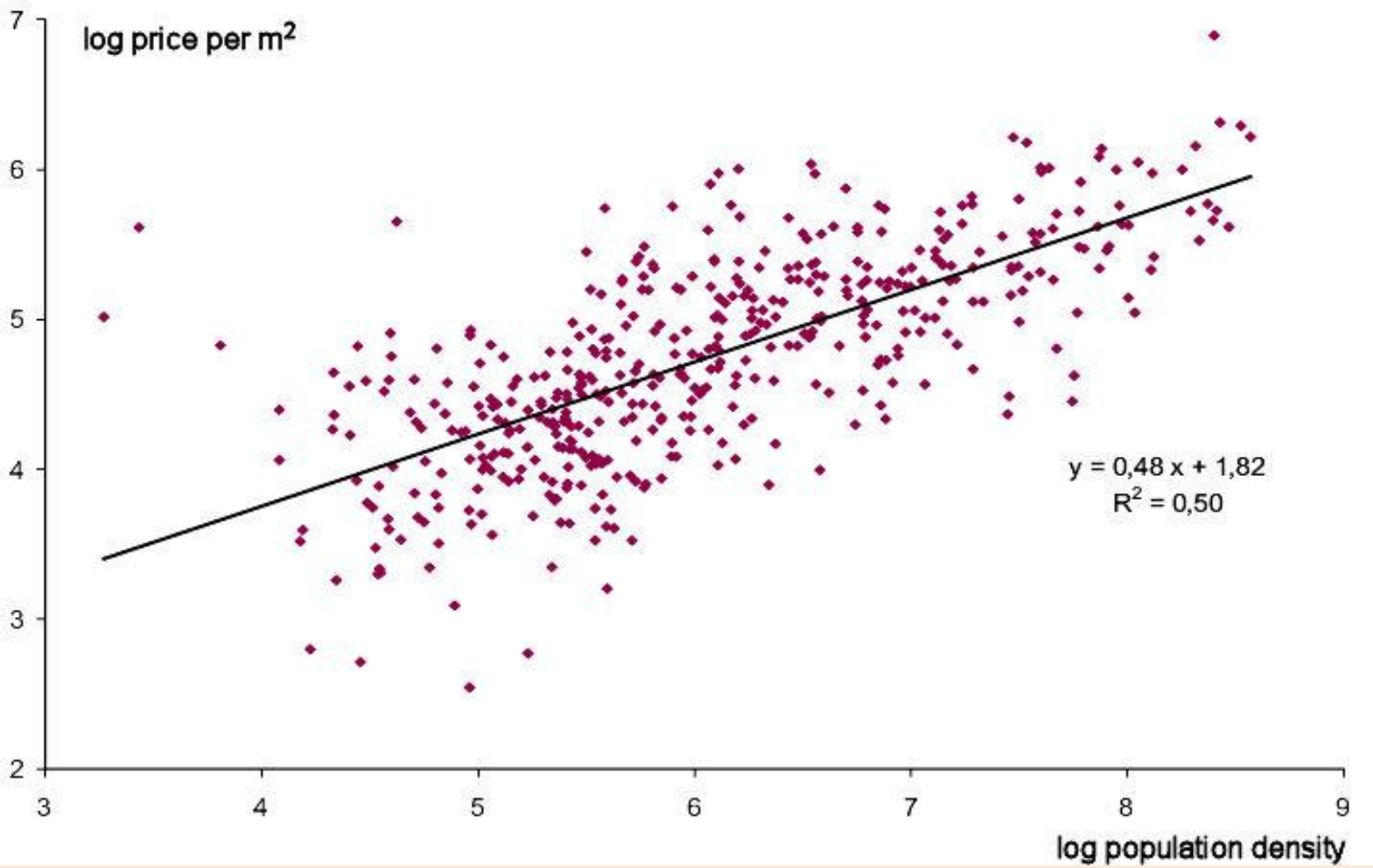




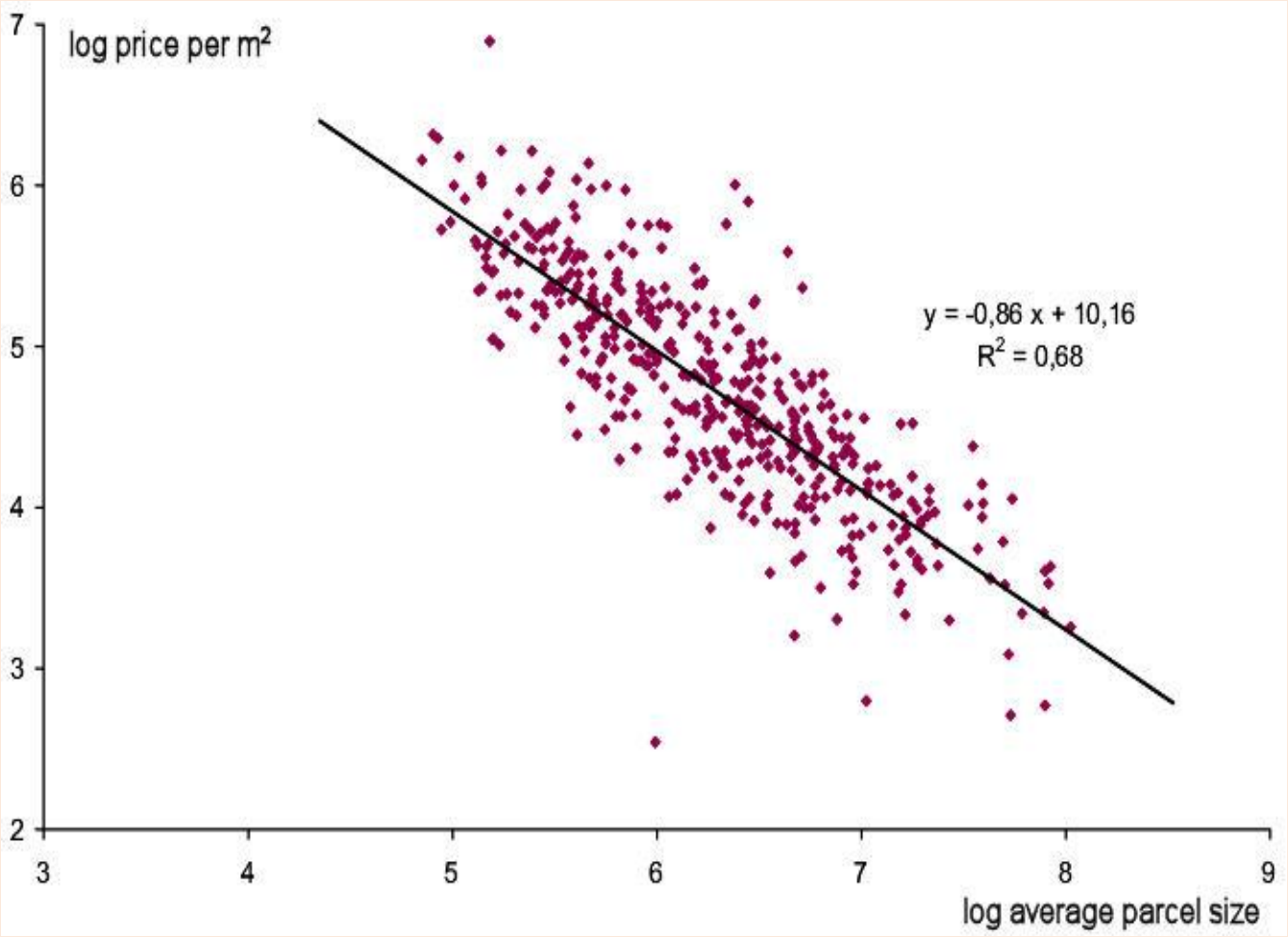
Land rents in Amsterdam



Land rents and population density



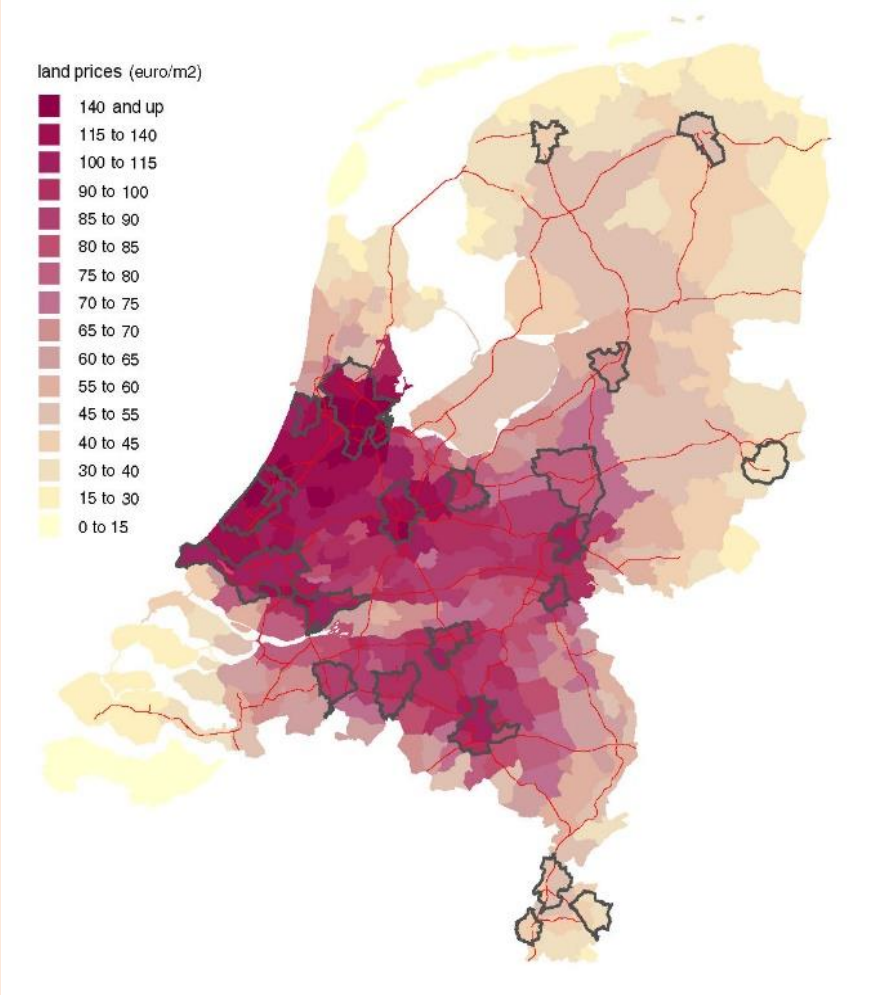
Land rents and lot size

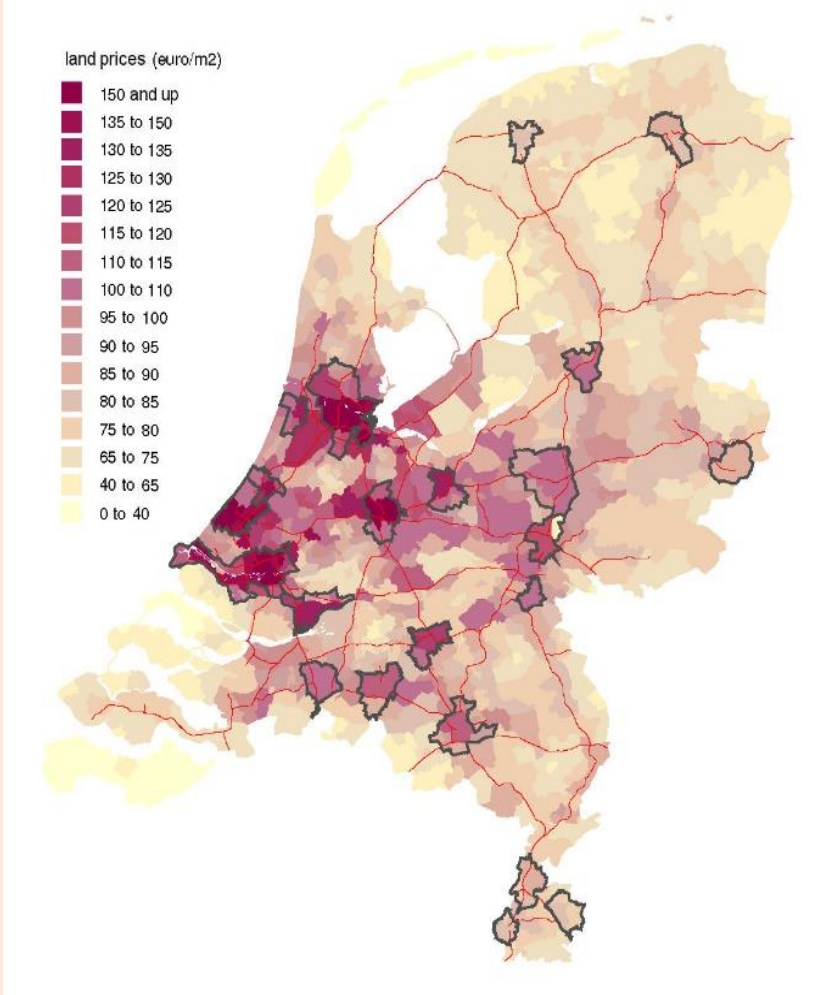


What explains wide variation in rents?

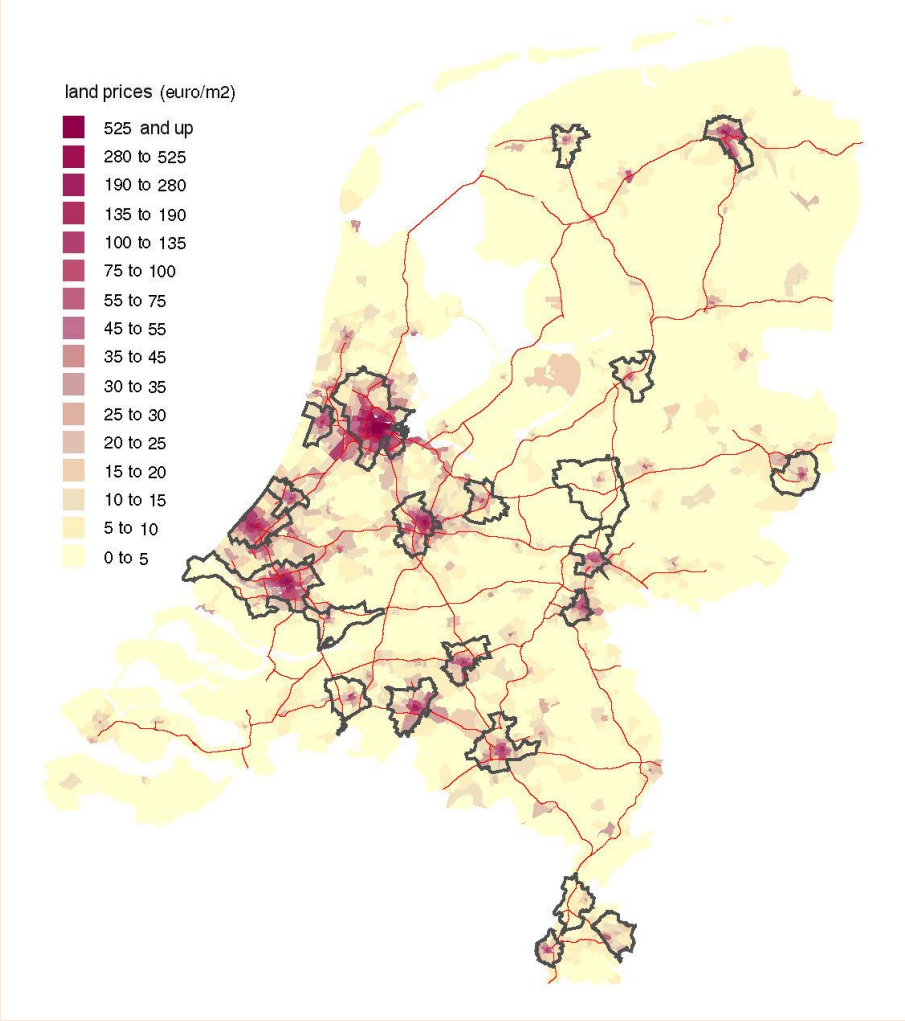
Dependent variable: land prices (per m^2 at PC-4 level)	Average over the period of 1985–2007	Explained variance (without co-variance)	Explained variance (with co-variance)
Access to jobs, by car	0.18	13%	25%
Access to jobs, by public transport	0.09	3%	6%
Subtotal production side			**34%**
Historical inner city	1.70	4%	8%
Proximity of performing arts	0.16	4%	7%
Proximity of luxury shops	0.71	6%	11%
Subtotal consumption side			**38%**
Bad facilities for daily shopping	–7.73	2%	3%
Public nuisance, degeneration,	–1.14	1%	2%

Land rents and transport infrastructure





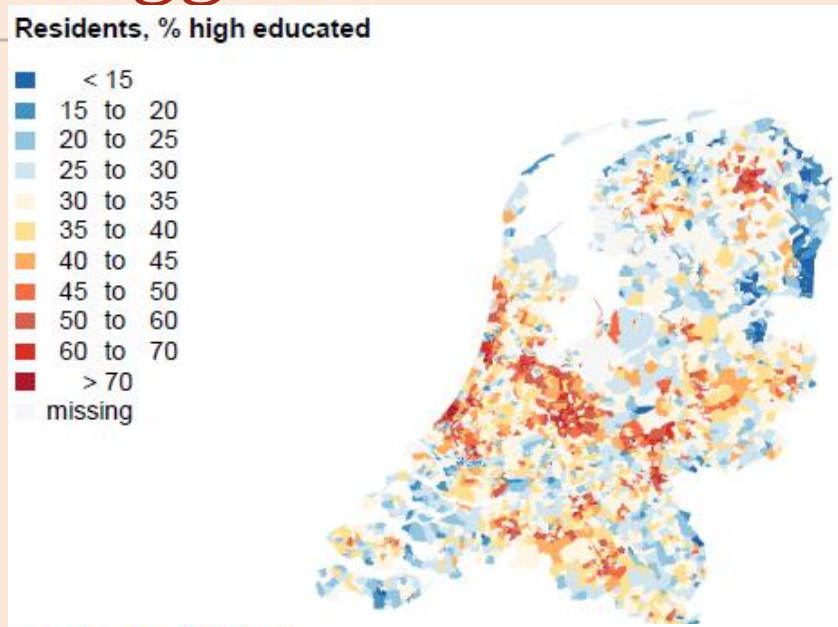
Importance cultural performances

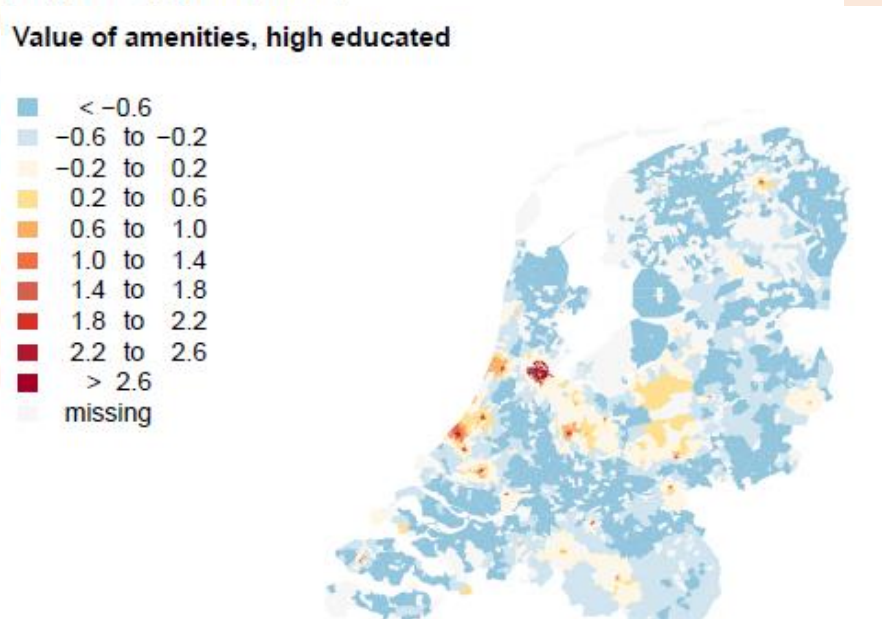


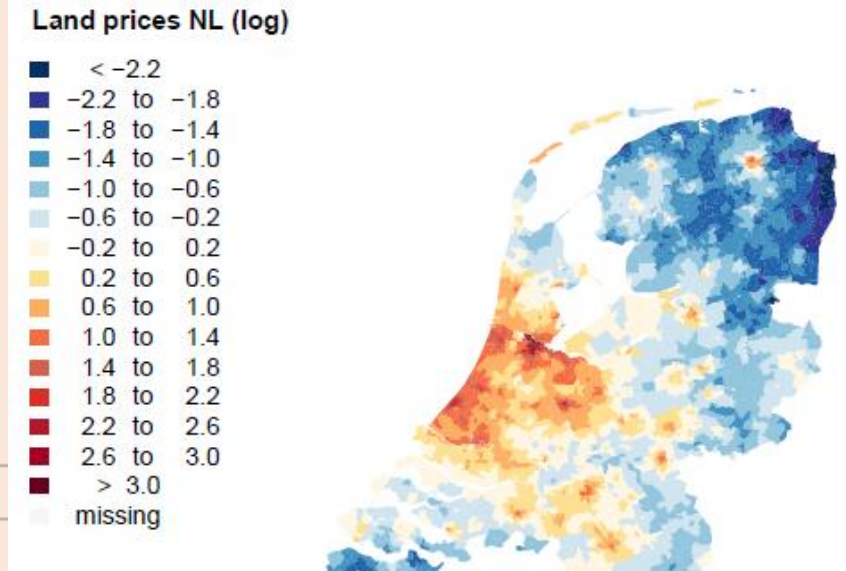
What explains wide variation in rents?

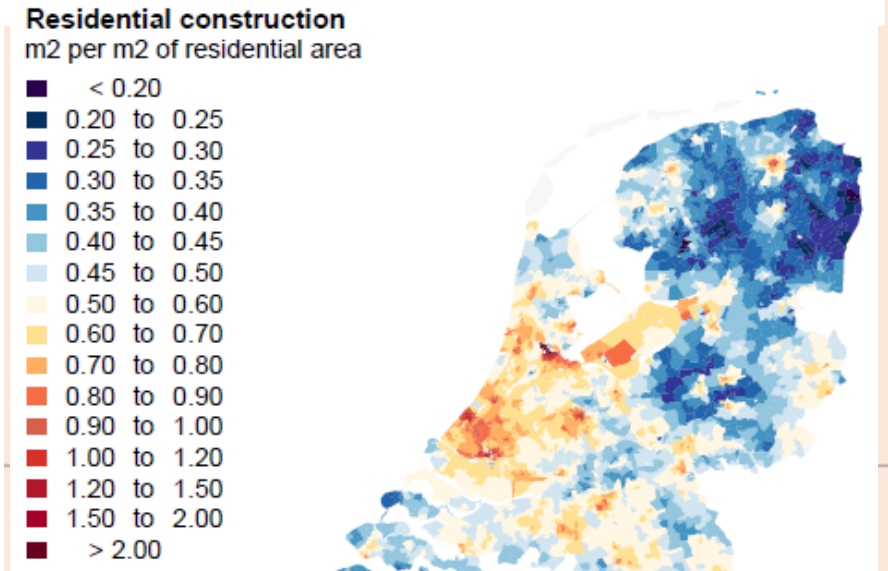
City	Actual land price	Expect land price	By car	By public transp	Histor centre	Perform arts	Luxury shops	Degrad
Amsterdam	396	379	58	38	49	119	80	0
Dordrecht	55	68	29	23	1	5	12	– 1
Enschede	–9	–21	–20	1	–7	10	12	– 10
Heerlen	–34	–24	–18	–4	–4	4	12	– 13
Maastricht	86	60	–16	–3	25	13	38	– 10
Rotterdam	101	139	29	34	–7	30	44	– 4
Hague	254	237	48	43	–3	45	60	6
Utrecht	169	181	44	39	1	44	42	– 10

Agglomeration and education

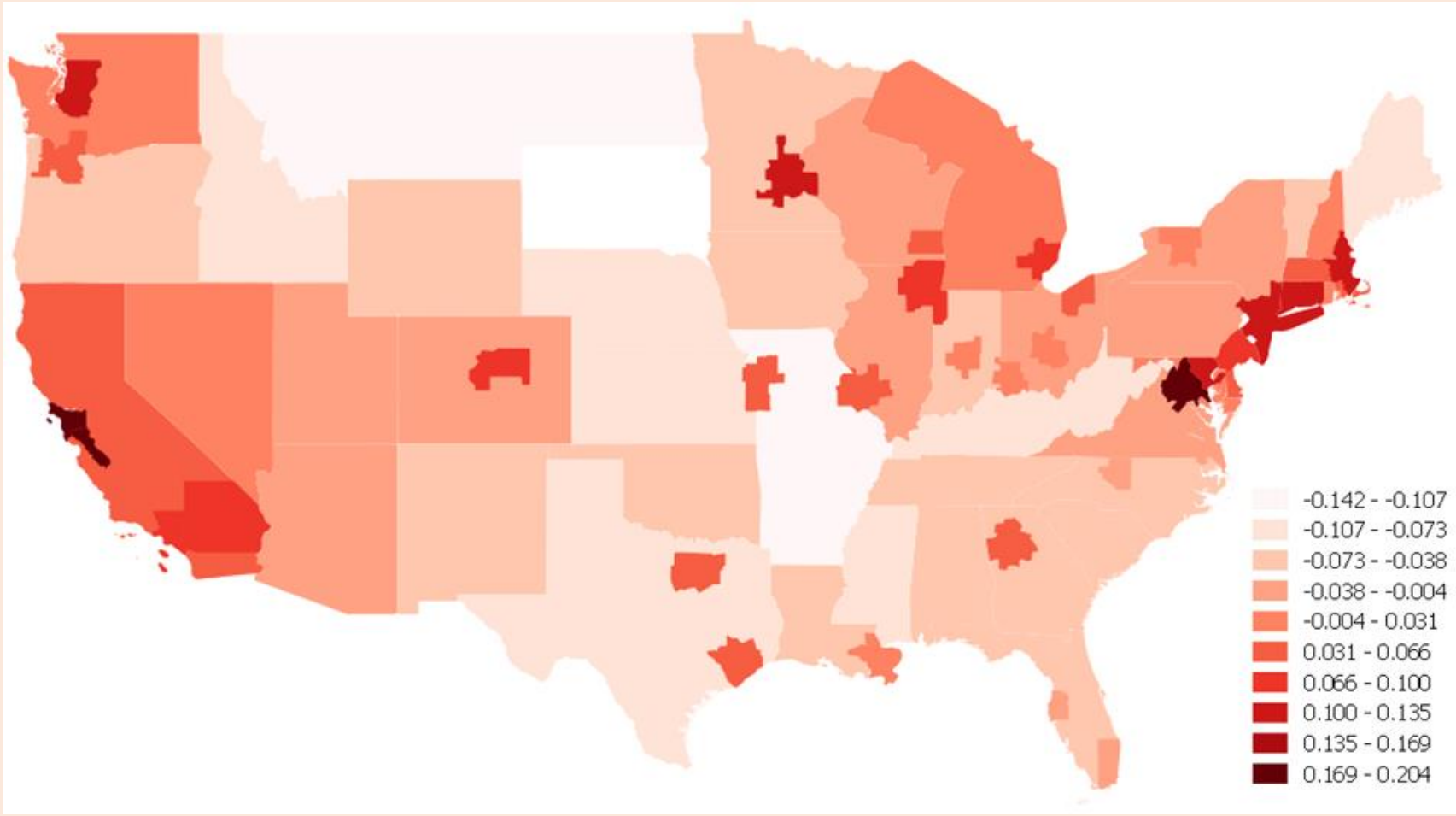








Job complexity in the US



Regional wage dispersion & human capital

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Avg. wage w_r				
Human Capital Index H_r	1.583	1.258	0.649	-0.0728	-0.348
	(7.75)	(7.23)	(3.81)	(-0.31)	(-1.04)
Occupation Index O_r				1.229	1.460
				(3.21)	(3.17)
City Dummy			-0.331	-0.308	-0.301
			(-2.53)	(-4.64)	(-4.11)
City x ln Population			0.0289	0.0251	0.0244
			(3.13)	(5.36)	(4.71)
Spatial Lag		0.574	0.581	0.559	0.531
		(4.46)	(6.55)	(8.02)	(7.22)
South Dummy					-0.0176
					(-1.66)
Observations	81	81	81	81	81
R-squared	0.402	0.548	0.766	0.830	0.835
R-MSE	0.0627	0.0549	0.0400	0.0343	0.0340

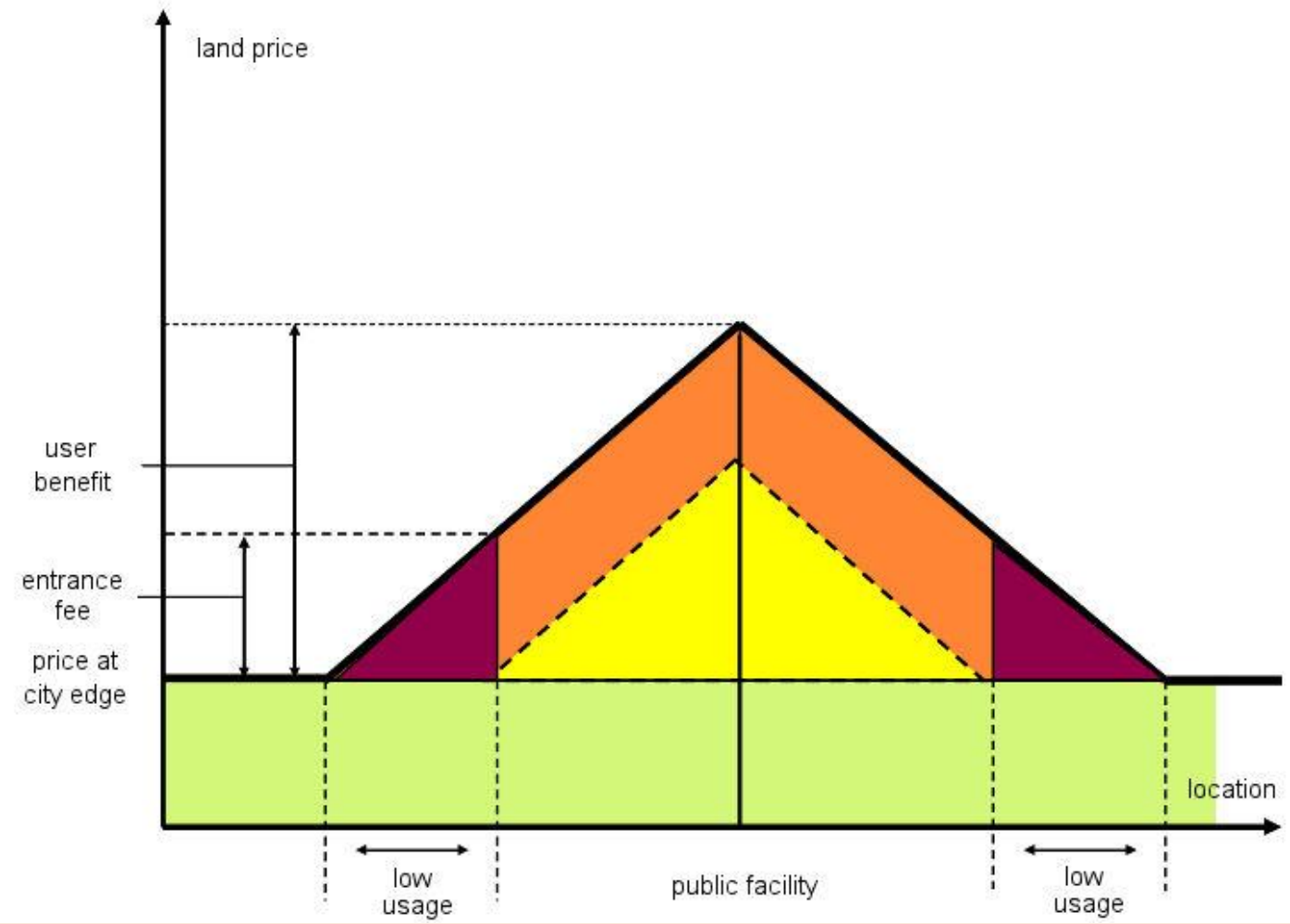
Optimal funding local public goods

- Variable cost by consumer contributions
- Fixed cost by tax on land

Hence

- Fiscal decentralisation
  - Merge municipalities till agglomeration level
  - Make them responsible for provision public goods
- Issue: renting or ownership?
  - Voting: ownership
  - Risk sharing: renting
- Property rights for city on land
- Zoning laws might help city to extract surplus
  - Jane Jacobs argument: precarious nature networks (see Detroit)
- City must maintain high density
  - Compare LA

Optimal funding of public good



Zoning: EU (France) versus US (New York)

Ellickson

Disaster cities: Detroit

Rossi Hansberg

What to do about bad cities?

- Common theme across countries
- Detroit vs. Boston (Harvard! MIT!) Glaeser
- Maintain public services, yes or no?
  - What is efficient = what are the externalities
  - Land rent taxes or nation-wide redistribution
  - Dutch experience: mining, textiles
  - Don’t build new infrastructure
    - Bilbao is the exception not the rule
  - Jane Jacobs: preserve existing networks
- Risk of place based policies: no adjustment

Are cities to big?

Venables

- Difficulty in starting a new city
- Hence, growth continues in existing cities

Conclusion

- **Agglomeration benefits remain important**
- **Public policy should support them**

Agglomeration and land rent

Chen & Teulings (2017), Rossi Hansberg & Wright (2007)

- Land rent = PV of agglomeration benefits
- Paradox: abundant land, land share goes up
  - Reason: elasticity of substitution less then one
  - Increase in land share in cities offsetts fall in agriculture
- If free entry of new cities: benefits wider public
  - Balance growth: land rent used to subsidize public good
  - Historical city center as a scarce resource
  - i.e. European problem: is free entry of cities feasible?
- If not, we enter a Piketty world

Afternoon: Monetary union

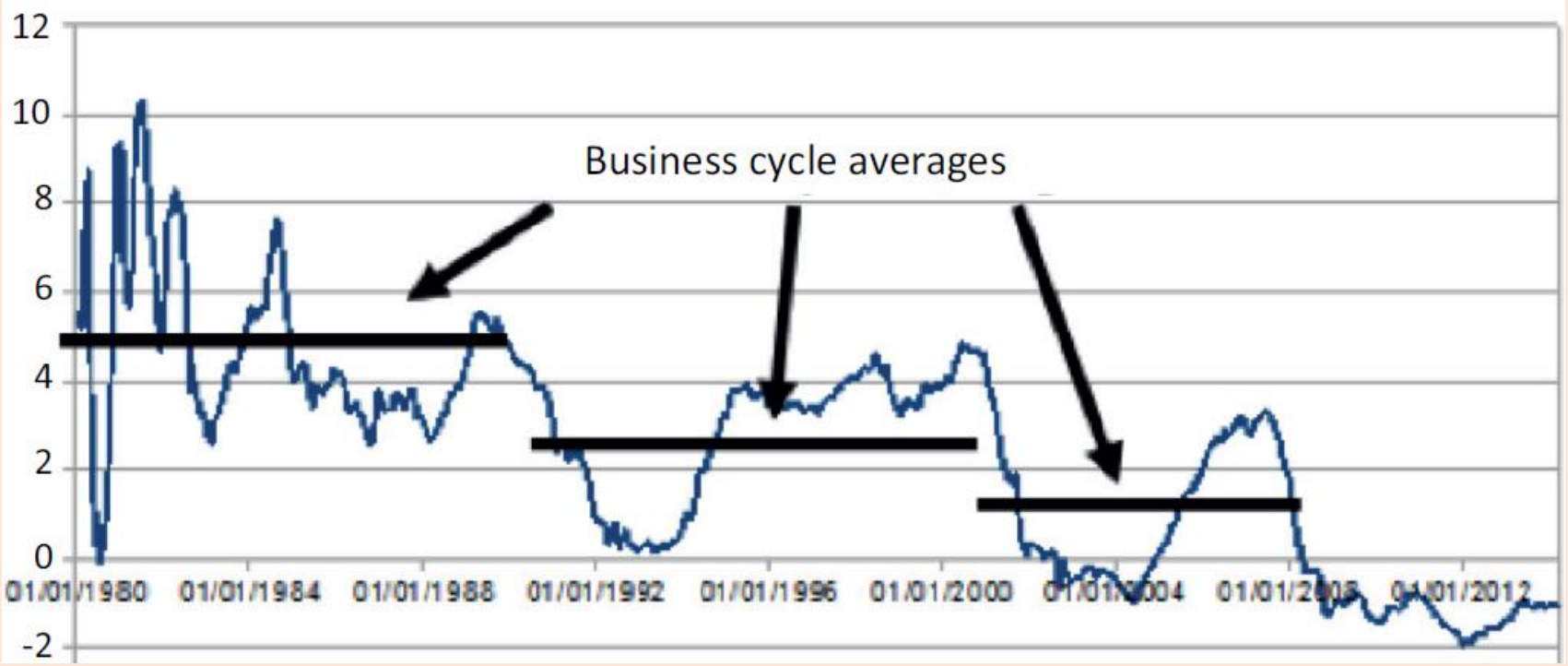
- QE revisited
- Monetary union & public debt
- Summary: a to do list

Is Draghi right? Macro-economics for dummies

- Keynes in 1936: General Theory
  - Liquidity trap
- Friedman in 1968: natural rate unemployment
  - He was right
  - Thatcher & Reagan:

    use interest rates to counter trade unions & reduce inflation
- Later formalized in Taylor rule for CBs
  - Raise interest rate more than 1-to-1 upon hike in inflation
- Draghi policy just applies Taylor rule
  - Like Yellen, Carney and Abe
  - Resistance CBs Germany & Netherlands hard to understand
  - Current situation: excess supply of (safe) capital

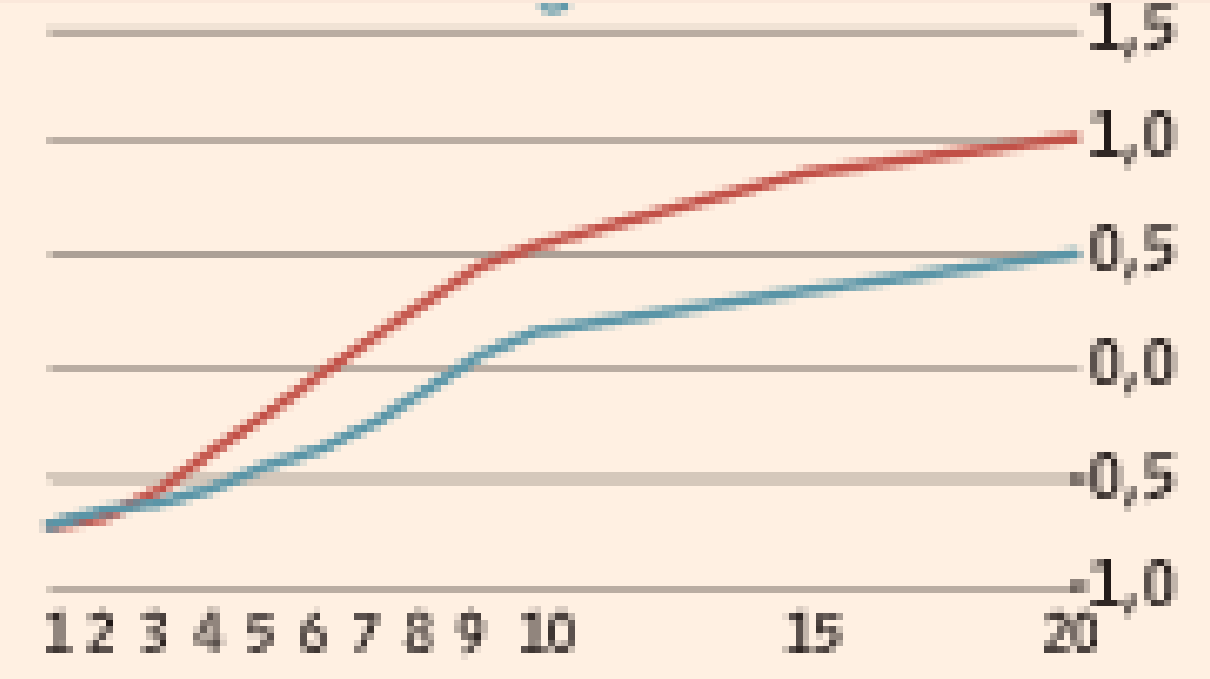
Fall in real interest rates



Economics of ZLB

- Taylor rule requires negative nominal rate
  - Since both real rate and inflation are low
  - Low inflation solvable (in theory), low real rate is there to stay
  - Massive excess saving due to ageing and high markups
  - Italy & Spain absorbs savings Germany & Netherlands
  - … via Target 2 system ECB: close to eurobonds
- QE = maturity transformation
  - Taylor rule applies to short rate
  - QE also targets long rate
  - Signals commitment to keep interest rates low
  - Quantity theory of money as theory of inflation is death

Long interest rate creeping up



: now

: one year ago

Refresher: economics of the savings glut

- OLG model
  - Lack of stores of value
- What stores of value available?
  1. Physical capital = risky investment
  2. Sovereign debt
  3. PAYG benefits
  4. External surplus (Germany, Netherlands)
  5. Bubbles

Details on some alternatives

- Stability dynamic inefficiency?
  - Excess capital: $r < g$
- Tirole (1985): rational bubbles
  - No government enforcement
- Aaron (1966): Pay-As-You-Go (PAYG)
  - Government enforcement of saving and paying
- Sovereign debt
  - Government enforcement of paying

Furter notes on dynamic (in)efficiency

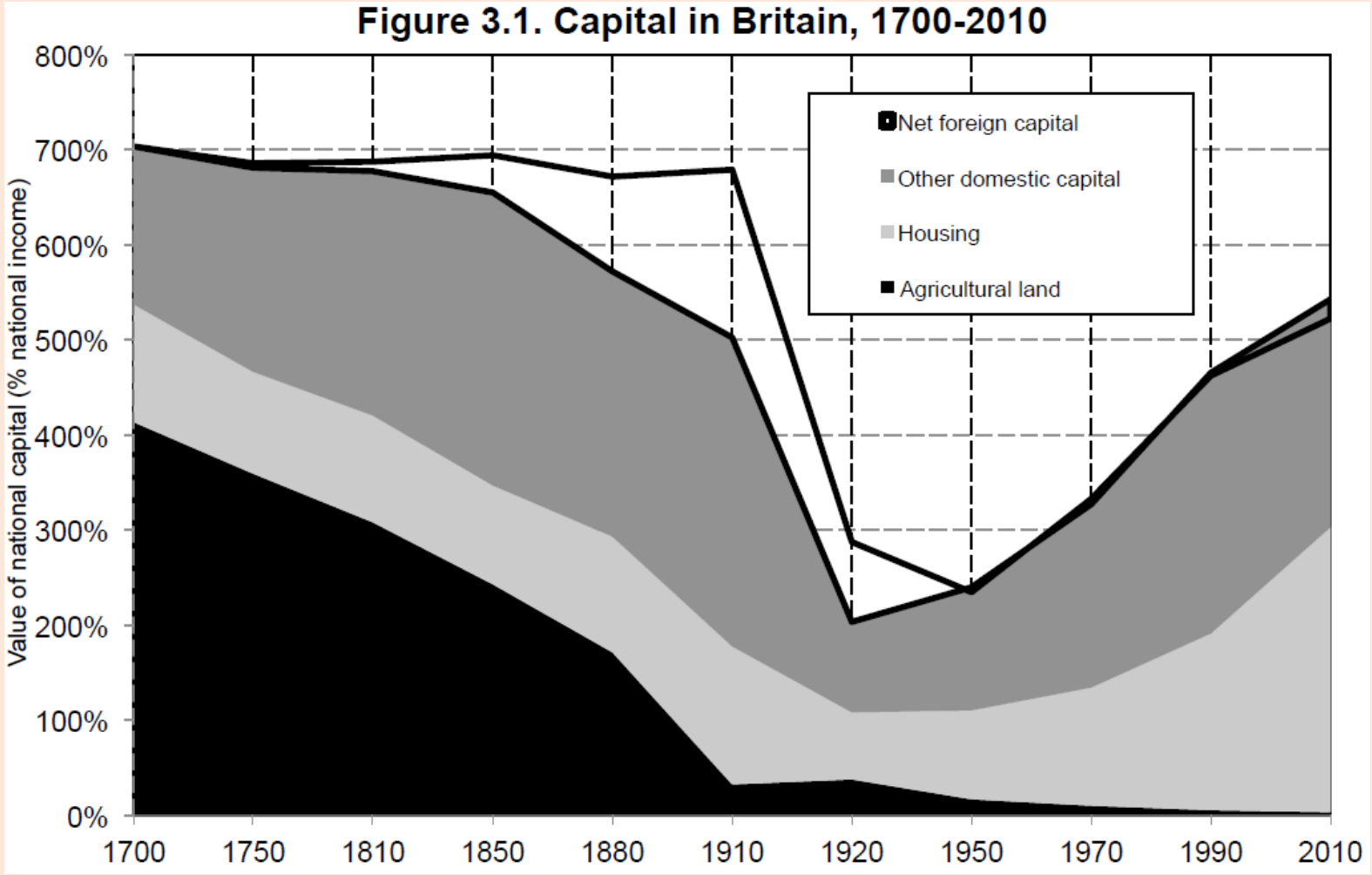
(Caballero & Fahri, 2015)

- Economist dislike dynamic inefficiency
  - Should we burn capital?
  - Keynes famous pyramide citation
- Alternative: safety trap
  - No general excess capital, to little risk taking
  - Policy: risk taking by private pension funds
  - Missing intergenerational insurance market
- Best solution
  - Higher public debt as a store of value
  - Would push up interest rate
  - Resolves Draghi's problem

Bubbles or land?

- Both bubbles and land are store of value
- Rational bubbles sustainable if $r \leq g$
  - With fixed saving rate, price bubble grows at g
- 3 factor balanced growth economy
  - Labour, capital and land
  - Supply of land is fixed
  - Cobb Douglas production with fixed shares
- PV of land = land share / $(r - g)$
  - Bounded land share requires $r > g$

City versus Agriculture in Britain



... and France

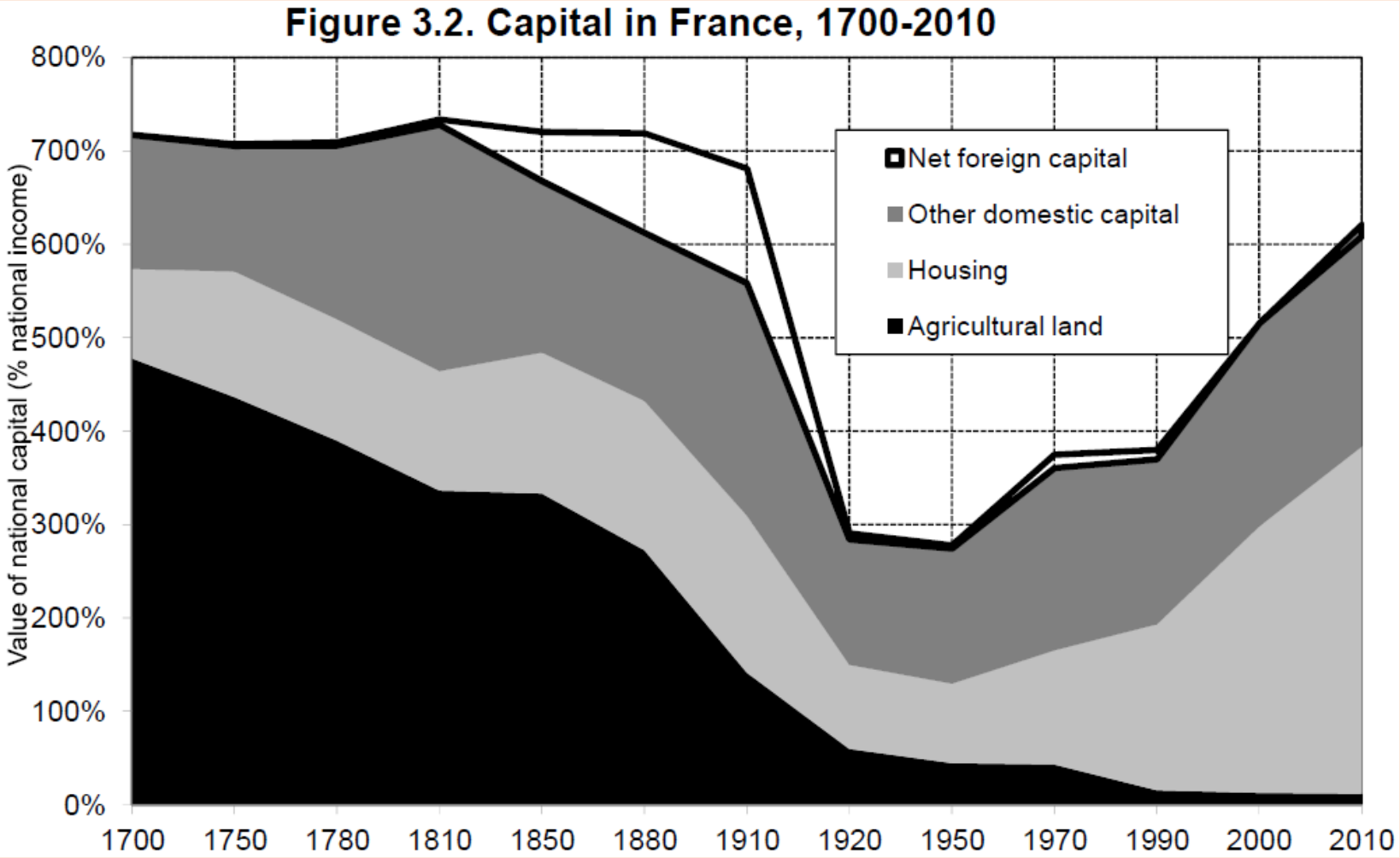


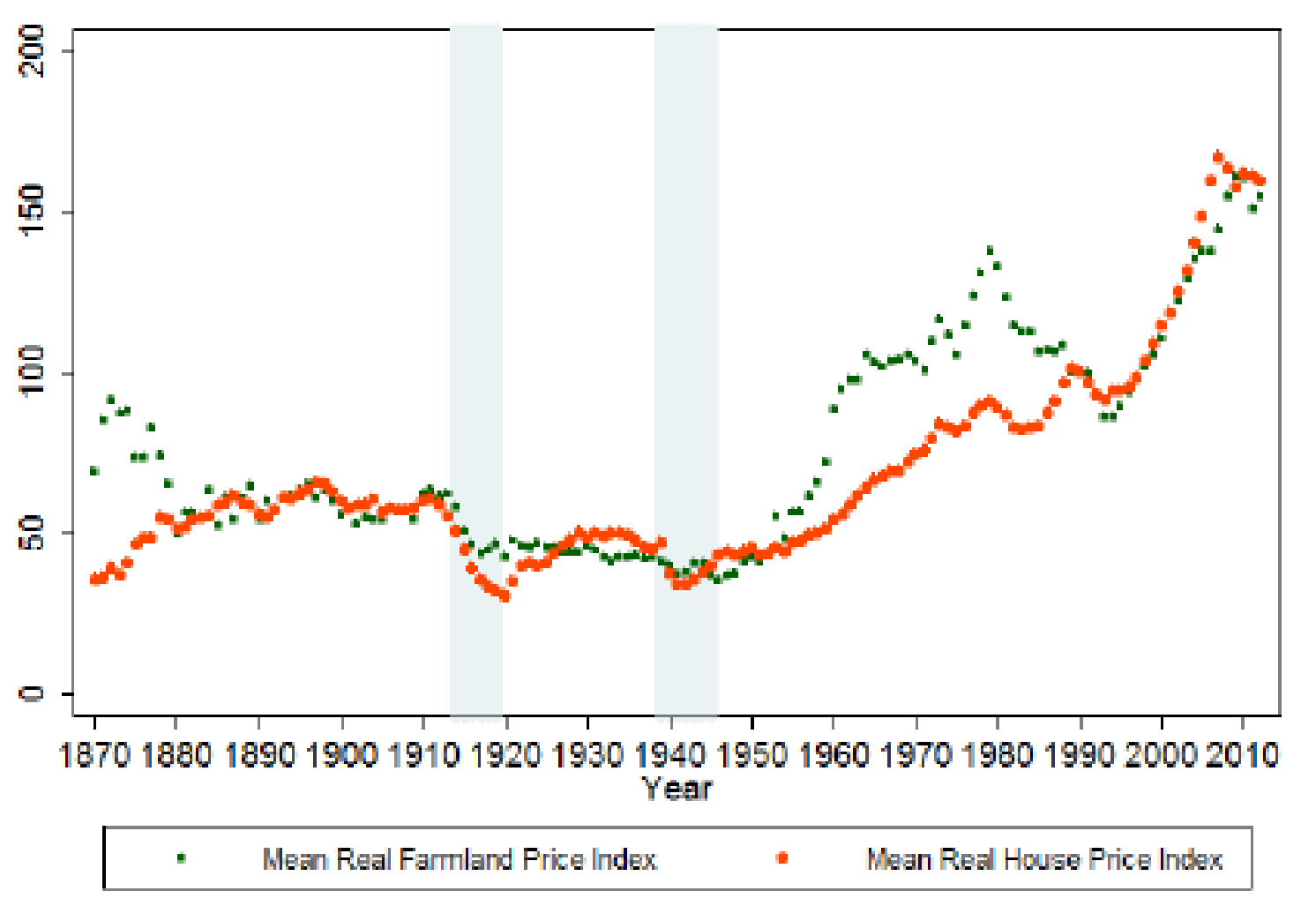
Figure 3.2. Capital in France, 1700-2010
Value of national capital (% national income)
800%
700%
600%
500%
400%
300%
200%
100%
0%
1700
1750
1780
1810
1850
1880
1910
1920
1950
1970
1990
2000
2010
Net foreign capital
Other domestic capital
Housing
Agricultural land

Two theories of high land prices since 1970

1. Agglomeration benefits
   - Agglomeration more valuable
   - Elasticity of sustitution less then one
   - No free entry of new cities
2. Lack of stores of value
   - Increase in demand for stores of value (ageing)
   - *r* moves to *g*
   - Increase in value of land

Did urban land prices out grow countryside?

Knoll, Schularick, Steger (2017)



Are bubbles as good as sovereign debt?

Teulings (2015)

- Theory till sofar suggests
  - PAYG - public debt - bubble/land: perfect substitutes
- True in a world of perfect information
  - … but not in a world of uncertainty
- Consider a world
  - OLG: old generation sells land to young
  - Temporary shocks to net demand for capital
  - Downward sloped net demand for capital
  - Capital depletes in one period
  - Cobb Douglas utility: fixed saving share

Intergenerational distribution

- Temporary surge in capital demand
  - More investment, hence less consumption
  - Who bears the consumption loss? Young or old?
  - Optimal risk sharing: intergenerational sharing
- Capital market response
  - Cobb Douglas: constant saving by the young
  - Increase in interest rate
  - Fall in price of land: favours young above old
- All variability of consumption born by elderly

Alternative: fiscal policy with public debt

- Fiscal policy with public debt
  - Government issues 1-period debt
  - Held constant next period's interest payment
  - Covers capital gains and loss by tax or subsidy
- Market response on surge in capital demand
  - Higher interest rates
  - Hence: less debt issuance to interest paymend fixed
  - Taxation to cover loss
  - Lower wealth young (hence saving & consumption)
- Shares consumption risk between generations
- Reduces volatility land prices

Political economy of sovereign debt

Corsetti & Teulings (2017)

- OLG model: first work, then retire
  - Consumption smoothing: safe for retirement
- Two instruments: taxes *T* & PAYG benefits *B*
  - Hence: saving proportional to *R(T) - B*
- Budget constraint: d*D* = *r.D* + *(1-a)B* – *a.T*
  - *D*: public debt
  - *r*: interest rate
  - *a*: share workers
- Government cannot discriminate upon default
- Median voter (= worker) sets *T* and *D*

Voter outcome

- Median voter is forward looking, hence:
  - Cares about PAYG benefit *B*
  - Does not care about her past
  - Overweighs *B* over *T*
  - Does not care as much about *D*

Maximum sustainable debt

- = highest level for which median voter prefers not to default
  - Sets equal MR and MC of default
  - MR = lower interest payment on debt
  - MC = median voter holds debt for c-smoothing
  - Youngest cohort holds less debt & prefers default
  - Debt is a means to extract surplus from the young
  - Every cohort pays to previous cohort …
  - … and extracts rents from the next

Market distortions as substitute for debt

Teulings (2012)

- Consider tradable market distortions
  - E.g. cab permits, licenses to operate
- Value license = rent income / *r*
  - … in a risk free world
  - Rental income is highly risky (high political risk)
- Retiring cohort can sell PV of future rents
  - Means of rent extraction from future generations
  - Substitute for public debt

Structural reform and austerity: substitutes!

Buti et.al. (2007), Teulings (2012)

- Standard view: austerity forces to reform
- Evidence: none
- Reasoning: a fallacy
- Consider entry barrier to a market
  - Tradable on capital market
  - Current generation captures PV of all future rents
  - Abolishment is transfer to future generations
  - … as is austerity
- Hence: austerity and reform are substitutes

What should get priority? Austerity or reform?

- Suppose: excess consumption current
  - Transfer of consumption to future generations
  - Austerity or reform?
- Reform should get priority
  - Why? Eliminates Harberger triangle
  - Hence: increases surplus
- One could even “buy” reform with public debt
  - However: requires a lot of public commitment
- Implications
  - Market distortions are very costly
  - Transfers wealth from future to current generations

Italy versus Germany

- Suppose taxcollection less efficient in Italy
- Median voter in Italy would set lower tax
  - Hence, it can pay lower PAYG benefit
  - As substitute, median voter votes for distortions
  - She holds more assets / public debt
  - Hence, maximum debt threshold higher
  - … and therefore votes for higher debt

Conclusion: distrust is main culprit

- Explains high debt Italy / low debt Germany
  - Invokes distrust between member states
  - Explains why Europe thinks deficits member states are the main problem, while European deficits are low from a global perspective
- Pushes up interest rate
  - Germany should like that!
- Improve efficiency Italian tax-service
- Centralize fiscal policy

A program for the EU: general lessons

- EU policy has to deal with rising populism
- EU success: Free trade (services: ECJ)
- Revival of Beveridge plan
  - Provide insurance
  - Maintain open access to education

To do list: 7 general points

1. The old agenda: a balanced reform program
2. Fix low labour share
3. Raise retirement age
4. Create an EU wide banking system
5. Fix Stability Pact
6. Offer regional support policies
7. Anti-monopoly policy in IT/network industry

To do list: 1. Balanced reform

- What are proper incentives?
  - E.g. Hartz reforms: EU stick counterproductive
  - More seizing the opportunity, than forcing it
- Reform
  - Lower minimum wages (France)
  - Less EPL (France, Italy, but also Spain, Portugal, Greece, Netherlands)
  - Opening up services (Italy)
- Allow for offsetting fiscal policy
  - Using fiscal policy as a stick is ill-concieved

To do list: 2. Fix low labour share

- Particular problem: Germany, Netherlands (US?)
- Analysis as yet incomplete
  - Cause: flexible / dual labour markets?
  - Should flexibility be accompagnied by countervailing power? Denmark
- Possible policies
  - Minimum wages (use 4% spike rule)
  - Some form of collective bargaining (see recent OECD study)

To do list: 3. Raise retirement age

- Study Japan
- Unsustainble
  - Working from 25 till 60
  - Being retired from 60 till 80
- Massive excess saving
  - Link retirement age to life expectancy (Netherlands)
- Provide incentives to continue working

To do list: 4. EU wide banking system

- Single currency requires single capital market
- Will increase agglomeration forces
- Will reduce incentives for sovereign debt repayment

To do list: 5. Fix stability pact

- 1% and 3% norms are mistakes
  - 4% nominal growth, 60% debt target
  - Hence: 2,5% deficit average is fine, 1% is too low
  - Cyclical variation: 3%
  - Hence: max 5,5%
- US
  - Federal debt 60%
  - State debt about 10%; higher is unsustainable
- Japan: high debt needed as store of value
- Hence: substantial EU debt required

What explains low real interest rates?

1. Monetary policy? Yes, but only till 1990
2. Demand for loanable funds? Maybe
    1. Lower growth
    2. Rise of the IT industry
3. Supply of loanable funds? Yes!
    1. Yes, China: 1-child-policy (1% of world GDP)
    2. Yes, demography: the introduction of the pill

Role of QE

- ZLB for short term interest rate
  - ZLB = Zero Lower Bound
- Standard monetary policy affects this rate
  - Constrained by ZLB
- Instead: QE reduces long term rates
  - By itself: distorting the yield curve
  - Commitment device for sustained low rate
    - By an intertemporal arbitrage argument
  - Hence: QE = maturity transformation
- Fixe wage setting institutions (see 2. above)

Why do countries repay their external debt?

Corsetti & Teulings

- Well, some don’t: Greece
- Why does Italy do?
  - See example of Japan
  - Sovereign debt as a store of value
  - Median voter is forward looking
  - Expects future median voter to serve its debt
  - … as long as current median voter does the same
  - Sustainable transfer of future to current generations
- Entry barriers as substitute for PAYG benefits
- What happens when banks hold less local debt?

Some agonizing mechanisms

- Higher interest rates forces Italy to reform?
  - In fact, it favours current generations by increasing the liability of future generations
  - Or it induces the median voter to vote for default to the detriment of Germany
- All disciplining mechanism rely on funding stop
- Standard mechanism for country in distress
  - Negative shock causes depreciation
  - Hence, reduces external value of sovereign debt
- Mechanism for country in monetary union?
  - Higher interest? Perverse effect!
- Conclusion: only EU common debt sustainable

To do list: 6. Regional support policies

- Henry George taxation
- Agglomeration forces
  - Within countries (Italy, France, Spain, Germany, Netherlands)
    - Difficult but doable
  - Between countries (Rumania, Italy, Portugal)
    - Extremely difficult
    - Find proper principle
- Unemployment insurance?
  - Devil is in the detail, operational difficulties
  - Risk of place-based policies

To do list: 7. Anti-monopoly policy IT/network

- Network industries
  - Stronger than fixed cost + constant marginal cost
  - Falling **marginal** cost!
- IT makes up for 25% of market cap
  - Most firms did hardly exist 20 years ago
- Wave in monopoly power around 1910
- Innovation as a public good
- EU – US

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