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Human Capital, Regional Economic Development and Inequality

Jouke van Dijk

Professor of Regional Labour Market Analysis, University of Groningen, Faculty of Spatial Sciences, Department Economic Geography

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Email: Jouke.van.dijk@rug.nl

Website: www.joukevandijk.nl

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Country The Netherlands

- ✓ Population: 17 million (and 19.7 million bicycles)
- ✓ GDP: US$ 1 trillion (China US$ 15 trillion)
- ✓ GDP per capita US$ 58.000 (China US$ 11.000)
- ✓ Bicycle used for 26% of all trips by all groups of the population
- ✓ Compact cities & towns = strong urban & regional planning

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City of Groningen

- ✓ City since 1040
- ✓ Cultural & economic capital of the North, two hours from Schiphol Airport
- ✓ University city:
  - 220.000 inhabitants, 60.000 students
  - 50% younger than 35
- ✓ Wide choice in student associations
- ✓ Lively and cosmopolitan
- ✓ ERSA Congress 2017

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Groningen / **University**

- ✓ Founded in 1614
- ✓ Top 100 research university;
- ✓ Nobelprize 2016 Chemistry: Ben Feringa

- ✓ Student-oriented, 30.000 students
- ✓ International classroom: 5.000 student from abroad
- ✓ Recognize differences in talent and ambition
- ✓ Stimulate cross-border research and education

John Maynard Keynes prediction in 1930:

In the summer of 1930, at the start of the Great Depression, John Maynard Keynes gave a speech in Madrid entitled «Economic Possibilities for our Grandchildren». He stated that, over time, humankind was solving its economic problems thanks to the process of capital accumulation.

He predicted that the standard of living in progressive countries would, in one hundred years, be between four and eight times higher than it was in 1930, and that the standard working week would be fifteen hours. An important societal problem foreseen in Keynes' prediction would be how to spend leisure time (Keynes, 1963).

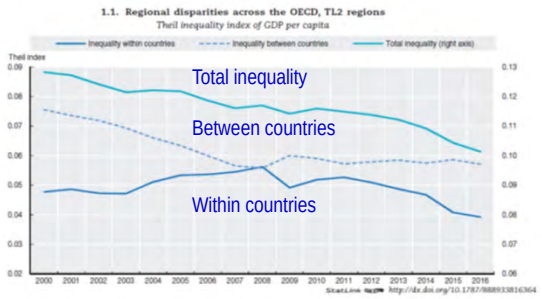
Current trends on (regional) labour markets (1)

- Economic crisis is over, shortages occur already in severaly occupations, mismatch education – jobs?
- Population decline and aging: shrinking labour force?
- Regional and urban-rural disparities: increasing role of cities; social and economic risks of climate change
- Increasing inequality in personal income and accces to jobs
- Sectoral shifts from agriculture/industry to services
- Increasing knowledge intensity, ICT-revolution, more higher educated, but also a large pool of low-literate people: question of inclusiveness
- Polarisation on the labour market due to automation and robotization: medium level jobs disappear!

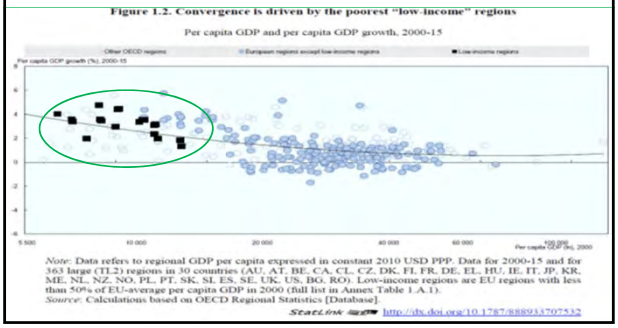
Current trends on regional labour markets (2)

- Flexibilisation (24/7 instead of 9 to 5), more self-employed, more temporary contracts and flexible and/or part time jobs
- Changes competences → 21st century skills, need for life long learning
- Increasing spatial mobility, especially of higher educated: commuting (self driving cars), internal migration, international migration
- Localization and Globalization; off-shoring/reshoring; Brexit, Catalunya; Trade restrictions, etc.
- Decentralisation of labour market policy to regions
- Quality of institutions and governance

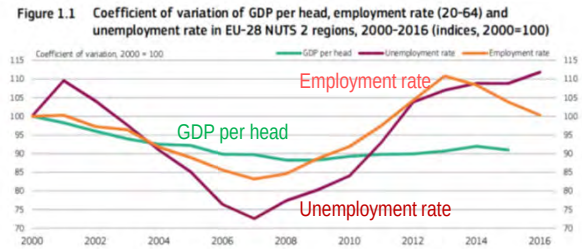
Regional disparities GDP per capita across OECD 2000-2016



GDP per capita and growth 2000-2015: convergence is driven by the poorest "low income" regions

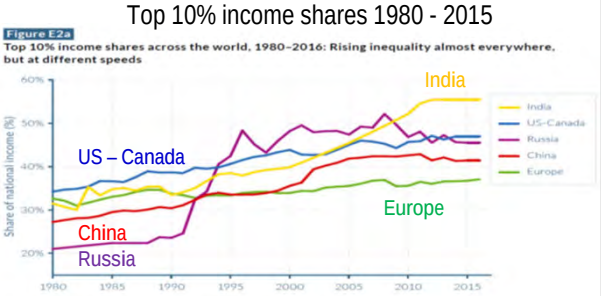


Regional disparities GDP and (un)employment differ!

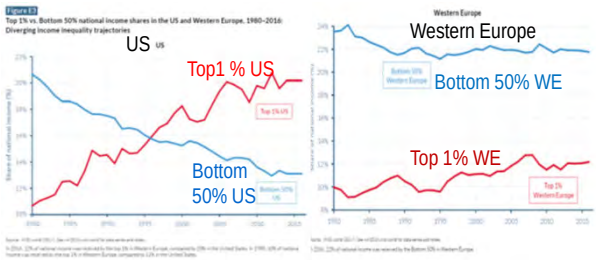


Complex relation between GPD, employment and unemployment

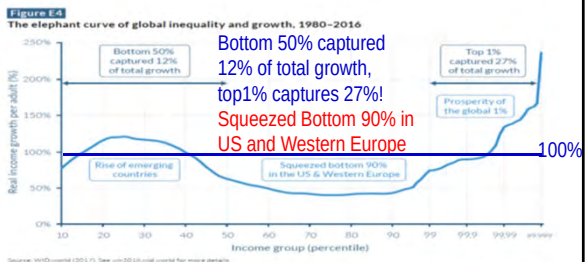
Increasing inequality in personal income all over the world
Top 10% income shares 1980 - 2015



Income inquality: top 1% versus bottom 50% in EU and US



The elephant curve of inequality in real income growth



Bottom 50% captured 12% of total growth, top1% captures 27%!
Squeezed Bottom 90% in US and Western Europe
100%

Knowledge capital and economic growth for countries

Growth of GDP p.c. 1960-2000

How about regions?

Source: OECD, 2015

Classic question about regional growth still in debate

Literature: do "jobs-follow-people or people-follow-jobs?" (Borts and Stein 1964; Steinnes and Fisher 1974) or related "chicken-or-egg" (Muth 1971). Later *The Determinants of County Growth* by Carlino and Mills (1987) with lagged adjustment framework. The question relates:

- Do people move for economic factors (jobs) or amenities and quality-of-life factors? (e.g. Lowry,1966; Partridge 2010). Borrowed size.
- Is the residential location decision made before or after the job location decision? (e.g., Deding et al. 2009).
- Are employment locations of firms really exogenous to residential locations? Or vice-versa (as assumed in the monocentric city model)?
- Do these patterns differ by level of education / human capital and change over time with footloose 24/7 jobs and soon by the self-driving car?

Duelling theoretical models and empirical result

- New Economic Geography (Krugman, 1991): falling transport cost lead to concentration of people and economic activities
- Amenity migration (Graves, mid1970s): people are moving to nice places, warm climates; Storper & Scott (2009): people only move to nice places with suitable employment
- Agglomeration effects, attractiveness of (big) cities; high level facilities like universities, hospitals, etc.; cultural amenities like musea, concerts, etc. (Gleaser et al, 2001 etc., Florida, 2003)

→ Partridge (2010): for the US, Graves is the winner!

→ Hoogstra, Van Dijk & Florax (2017) find based on a meta-analysis of 321 studies that the results are highly divergent, but that more results point towards "jobs following people" than towards "people following jobs".

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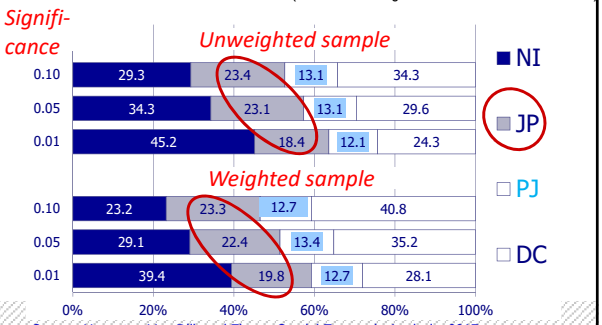
Classification of the results: (Results are weighted based on the dataset used)



Source: Hoogstra, Van Dijk and Florax, Spatial Economic Analysis, 2017

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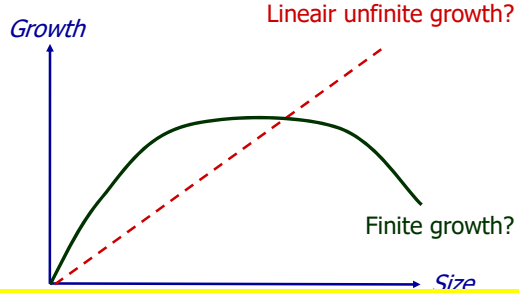
Agglomeration and growth



Trade off between agglomeration benefits vs congestions cost (Broersma and Van Dijk, JEG, 2008)

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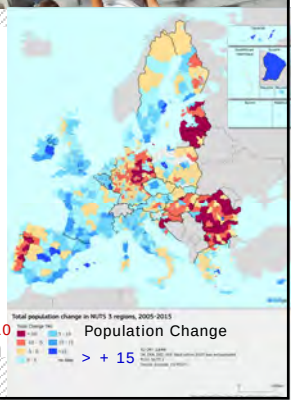
Migration & mobility

- Migration is main determinant of population change
- Higher educated are more mobile and move to bigger cities
- Two out of three people in new EU-countries since 2004 live in a shrinking NUTS 3 region



Source: EU-Commision (2017), 7-th Report on Economic, Social and Territorial Cohesion

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Interaction Between Population Change and Change in the Share of 25–34 Year Olds With a College Degree, 2000–2010: many cities show an increase in human capital in spite of population decline

(Franklin, 2017)

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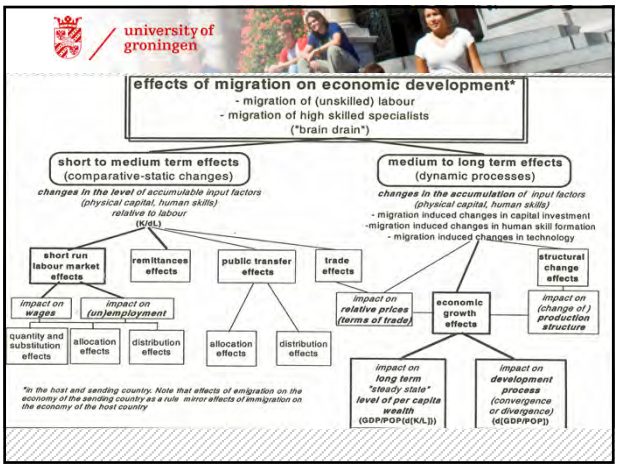

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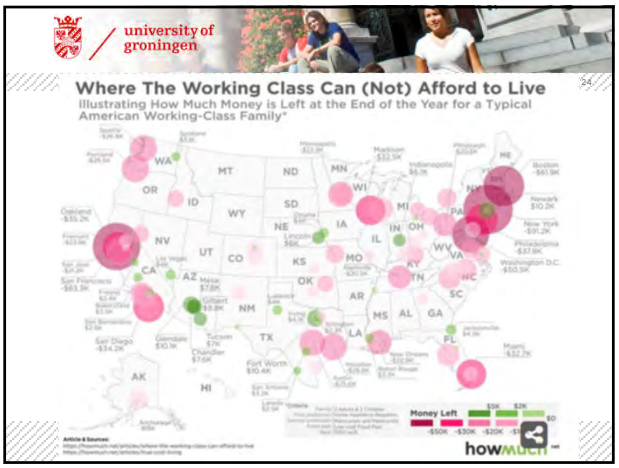

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Policy issues: how to reach full employment?

- Human capital is a crucial factor in economic performance for individuals, firms and regions
- The question what determines growth plays a central role in policy discussions: is catering to the wishes of firms by improving the business climate of a place a better strategy than catering to wishes of people and improving the people climate of a place?
- Changing location patterns of firms, changing migration patterns of people, especially of **higher educated** and richer people with changing preferences and rapid technological changes
- Changing policy focus from only economic goals like GDP, income and (un-)employment to broader goals like well-being and quality of life: e.g. OECD-project 'How is life in your region?'

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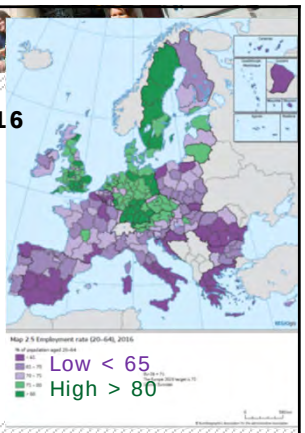
Employment rate 2016

- Employment rate (jobs per 1000 population 15-64) is much higher in North-West Europe
- Average EU 28 = 71



Source: EU-Commision (2017), 7-th Report on Economic, Social and Territorial Cohesion

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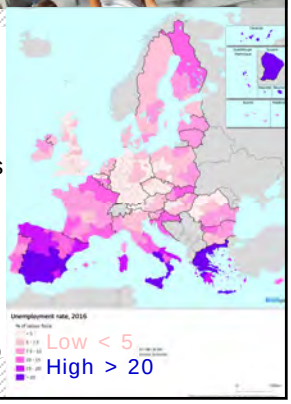
Unemployment 2016

- Unemployment is still above pre-crisis level and regional disparities have not started narrowing yet
- In particular youth unemployment remains high
- Average EU 28 = 8.5%



Source: EU-Commision (2017), 7-th Report on Economic, Social and Territorial Cohesion

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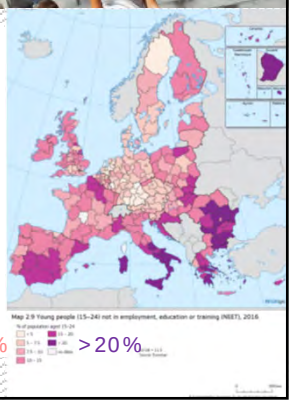
Youth - NEET

- Young people
  Not in
  Employment,
  Education or
  Training **(NEET)**
  more than 20% in some Southern and Eastern regions
  → Social exclusion



Source: EU-Commision (2017), 7-th Report on Economic, Social and Territorial Cohesion

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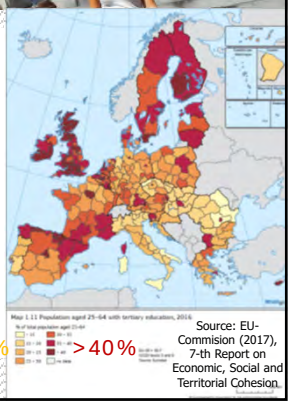
Education

- Population aged 25-64 with tertiairy education, 2016
- Large regional disparities in education; higher educated are more mobile and concentrate in (big) cities with HEI's
- Average EU 28=31%



Source: EU-Commision (2017), 7-th Report on Economic, Social and Territorial Cohesion

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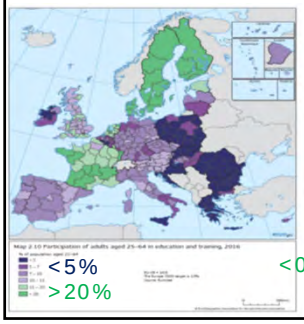
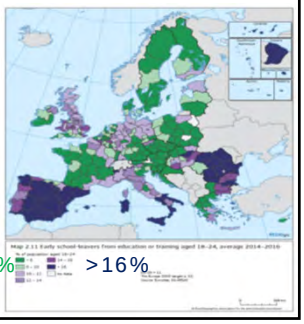
Adult education / training | Early schoolleavers





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The individual benefits of investing in human capital

- Human Capital Theory (Sjaastad, 1962) and Job Search Theory (Lippman and McCall,1976, 1979 and Pissarides, 1976): higher educated have higher wages, lower risks of unemployment; but also better health, higher life expectancy
- Higher educated are more spatially mobile because they have lower (information and psychic) cost and higher returns in terms of future wages. Path-dependency: if they move once, they are more likely to move again: onward moves versus return moves
- In- and outflows of migration are highly correlated: but destination choice has mixed relations with regional differences in wages and unem-ployment (e.g. Lowry, 1966). Regional differences in cultural and natural ameneties and quality of life also play a role (e.g. Graves, 1980)

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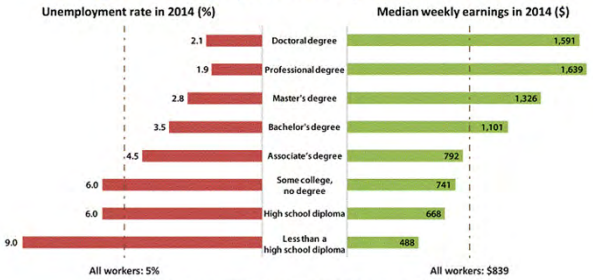
Earnings and unemployment rates by educational attainment



Note: Data are for persons age 25 and over. Earnings are for full-time wage and salary workers.
Source: Current Population Survey, U.S. Bureau of Labor Statistics, U.S. Department of Labor

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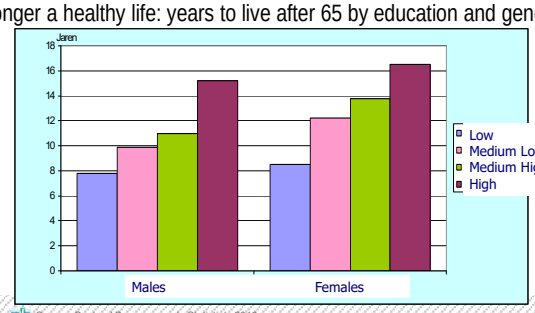
Interactions between education and health: higher educated live longer a healthy life: years to live after 65 by education and gender



Source: Centraal Bureau voor de Statistiek, 2010

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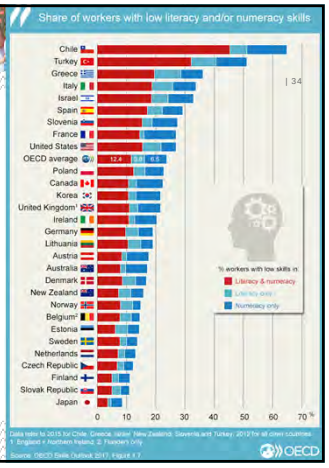
Share of workers with low literacy and / or numeracy skills varies from 10 – 60%

→ not every one can be educated to an academic level!



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Mismatch: what are we talking about?

- Over/under scholing
- Over/under qualified
- Over/under skilled
- Over/under abilities
- Objective – Subjective
- Horizontal - Vertical

Source: CEDEFOP, The skill matching Challenge - Analysing skill mismatch and policy implications
Luxembourg: EU Publications Office of the European Union, 2010


Table 1. Glossary of terms

Overeducation	A situation in which an individual has more education than the current job requires (measured in years).
Undereducation	A situation in which an individual has less education than the current job requires (measured in years).
Overqualification	A situation in which an individual has a higher qualification than the current job requires.
Underqualification	A situation in which an individual has a lower qualification than the current job requires.
Overskilling	A situation in which an individual is not able to fully utilize his or her skills and abilities in the current job.
Underskilling	A situation in which an individual lacks the skills and abilities necessary to perform on the current job to acceptable standards.
Credentialism	A situation in which the level of education required to obtain the job exceeds the level of education required to perform the job adequately. It relies upon a belief of the employer that the possession of certificates and diplomas implies higher productivity on the part of the individual.
Real overeducation	A situation in which an individual possesses more education than the current job requires and also in which current skills and abilities are overeducated.
Formal overeducation	A situation in which an individual possesses more education than the current job requires, but in which current skills and abilities are fully utilised.
Genuine overeducation	A situation in which an individual has more education than the current job requires and this state has a negative effect on the level of job satisfaction.
Apparent overeducation	A situation in which an individual has more education than the current job requires, but this does not adversely affect the level of job satisfaction.
Skill shortage	A situation in which the demand for a particular type of skill exceeds the supply of available people with that skill.
Skill surplus	A situation in which the supply of available people with a particular skill exceeds the demand for it.
Skill gap	A situation in which the level of skill of the currently employed is less than that required to perform the job adequately or the type of skill does not match the requirements of the job.
Economic skills obsolescence	A situation in which skills previously obtained in a job are no longer required or have diminished in importance.
Physical (technical) obsolescence	Physical or mental skills and abilities deteriorate due to atrophy or wear and tear.
Vertical mismatch	A situation in which the level of education or skills is less or more than the required level of education or skills.
Horizontal mismatch	A situation in which the level of education or skills matches job requirements, but the type of education or skills is inappropriate for the current job.
Subjective measures of mismatch	The mismatch estimate is obtained by self assessment in employee responses to a questionnaire.
Objective measures of mismatch	The mismatch estimate is obtained by evaluating job requirements.
The empirical mismatch method	The mismatch estimate is derived from differences in the actual education of an individual within an occupation relative to the mean or modal level of education of all people employed in that occupation (where there are no direct data on mismatch obtained from either of the above methods).
Crowding out/ bumping down	When better qualified workers are hired to do jobs that less qualified workers could also do, they are crowding out the less qualified workers from what would be their traditional employment possibilities for that level of skill. Bumping down refers to the fact that this process works from the top to the bottom and pushes the less qualified workers to even lower level jobs. At the extreme some lower level workers may lose employment altogether when crowding out occurs.

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Rapidly changing skill requirements for the 21st century

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Mismatch?

Vertical mismatch: level of education is too high (overeducation) or too low for the job

Horizontal mismatch: level of education is OK, but the type of education not

1. Do we talk about education or skills?
2. Do we talk about the short term (first job) or long term (carreer)?

But is overeducation also bad from the regional perspective?

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Automation and Robotization: how many jobs will be lost?

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How many jobs will be lost?

- Frey and Osborne (2017): 47% of total US Employment
- Deloitte (2014): 20-30 % of total Dutch jobs
- Koster and Talens (2016): 30% of total Dutch jobs
- Arntz et al. (2016): 9% of total jobs in OECD countries

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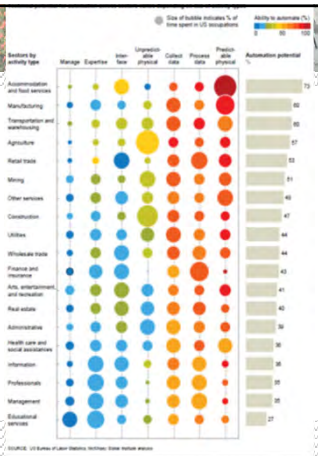
- McKinsey Global Institute (2017)
- A FUTURE THAT WORKS: AUTOMATION, EMPLOYMENT, AND PRODUCTIVITY



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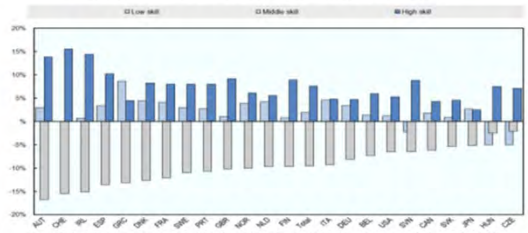
Labour Market Polarization: middle skilled jobs disappear

Figure 1.10. Change in the share of jobs by skill level

Percentage point change in the share of total employment by type of skills, 1995-2015.



Note: High skill occupations include jobs classified under the ISCO-88 major groups 1, 2, and 3. Middle skilled occupations include jobs classified under the ISCO-88 major groups 4, 7, and 8. Low-skilled occupations include jobs classified under the ISCO-88 major groups 5 and 9. For more details refer to the OECD Employment Outlook 2017.
Source: OECD Employment Outlook 2017 (OECD, 2017b).

StatLink https://doi.org/10.1787/888933824572

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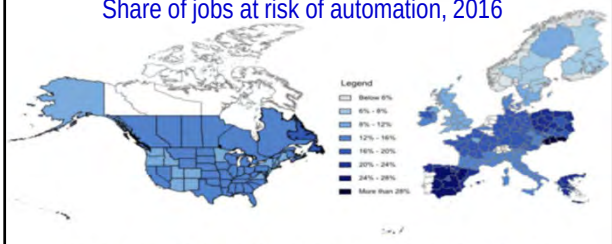
Figure 1.13. Share of jobs at risk of automation across selected North American and European TL2 regions, 2016

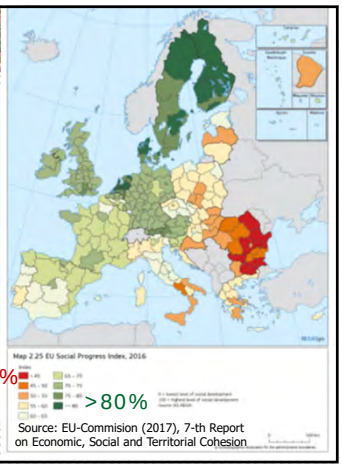
Share of jobs at risk of automation, 2016



Note: High risk of automation' refers to the share of workers whose jobs face a risk of automation of 70% or above. Data for Germany correspond to the year 2013.
Source: OECD calculations based on (Nedelkoska and Quintini, 2018) and national Labour Force Surveys (2016).

StatLink https://doi.org/10.1787/888933824629

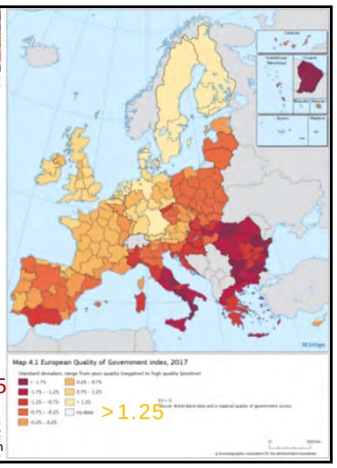
Social Progress Index 0-100: defined as a society's capacity to meet the basic human needs of its citizens, to establish the basis for people and communities
to improve and sustain their quality of life and to create the conditions for people to reach their full potential.
Economic indicators are deliberately excluded.



Source: EU-Commision (2017), 7-th Report on Economic, Social and Territorial Cohesion

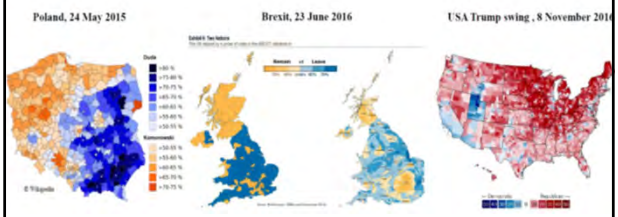
European Quality of Government Index

Quality of Governance is crucial for policy success (Rodriguez-Pose et al, 2018)



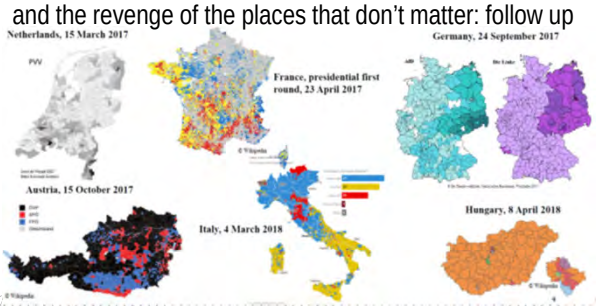
Source: EU-Commision (2017), 7-th Report on Economic, Social and Territorial Cohesion

Populism voting behavior: the geography of EU discontent and the revenge of the places that don't matter: the start



THE GEOGRAPHY OF EU DISCONTENT AND THE REVENGE OF THE PLACES THAT DON'T MATTER
Andrés Rodríguez-Pose with Lewis Dijkstra and Hugo Poelman

Populism voting behavior: the geography of EU discontent and the revenge of the places that don't matter: follow up



THE GEOGRAPHY OF EU DISCONTENT AND THE REVENGE OF THE PLACES THAT DON'T MATTER
Andrés Rodríguez-Pose with Lewis Dijkstra and Hugo Poelman

Policy problem:

- Decreasing inequalities between regions in terms of GDP:
  → lowest income regions are catching up.
- But: still increasing inequalities in terms of (un)employment rates, human capital: urban regions do better than most rural areas.
- Increasing differences in personal income. Elephant curve: the top 1% rich people and the poor benefit most. Medium squeezed.
- Human capital is rather sticky; high educated are most mobile and move to (big) cities for jobs, but also for amenities. Mostly: jobs follow people.
- Medium skilled jobs disappear due to automation/robotization. Low educated, low skilled are in trouble. Problem of dropouts (NEET) and limitations of (life long) educating.

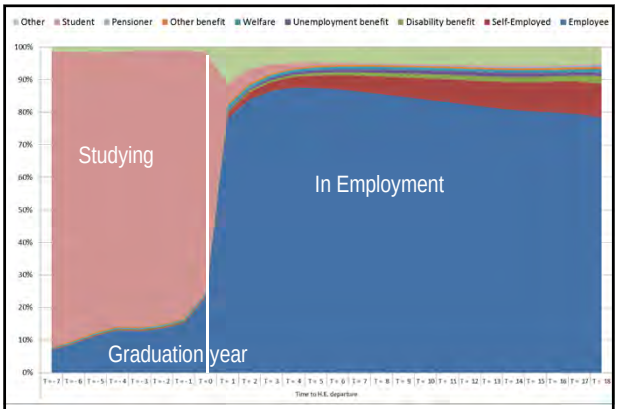
Policy options:

- Regional level, place based policies on innovation etc.?
- People oriented policies: investment in education and/or (21st century) skills training?
- Job creation for low skilled? Direct or indirect as spill-overs from high skilled jobs?
- Re-organisation of the work organisation: job carving?
- Influencing the spatial re-allocation of human capital?
- Detection of promising or risky carreer patterns?
- Introduction of an (unconditional) Basic Income?

Exploring three policy options: (Dutch case studies)

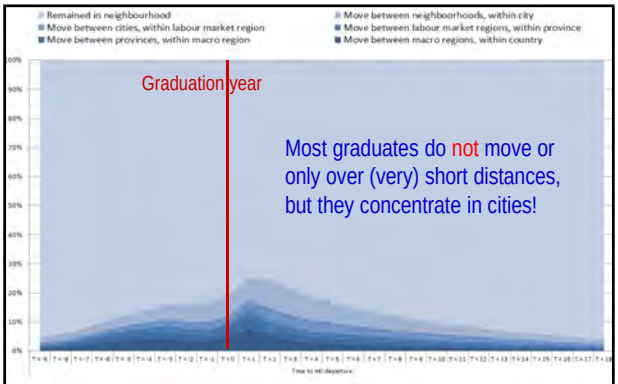
1. Influencing the stock of human capital, migration
2. Maximizing spill-over effects of high educated on low educated / low skilled
3. Career intervention: identifying succeful and risky career patterns

Analysing Graduate Migration Behaviour in the Netherlands using longitudinal (max. 25 years) register micro data (Viktor Venhorst et al)



Graduates and the transition into the labour market

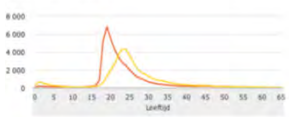
Verhorst, V.A., S. Koster, J. van Dijk (2013) Geslaagd in de Stad, RUG/FRW, Groningen.



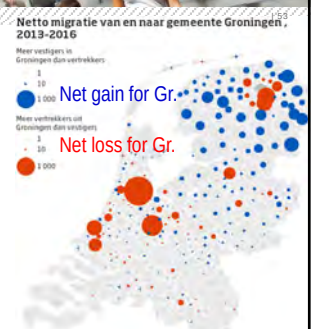
Graduates by spatial mobility, movers and non-movers

Verhorst, V.A., S. Koster, J. van Dijk (2013) Geslaagd in de Stad, RUG/FRW, Groningen.

Migration patterns to / from city of Groningen

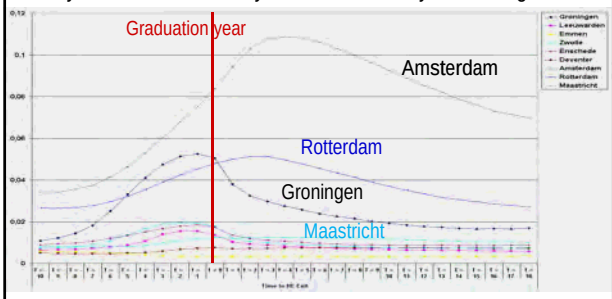


Migration by age



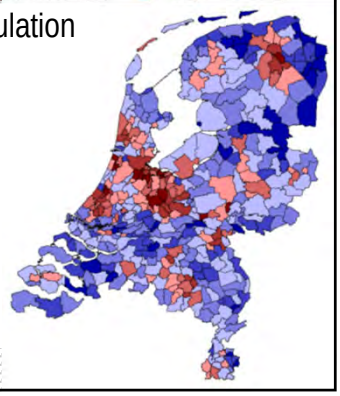
The escalator-model → redistribution of human capital mainly within, but also between regions!

Mobility of students from 10 years before till 18 years after graduation



Bron: Venhorst, V.A., Koster, S. en Van Dijk, J. (2013), Geslaagd in de Stad.

Education index population 15-64 year



Darkred: > 2,4

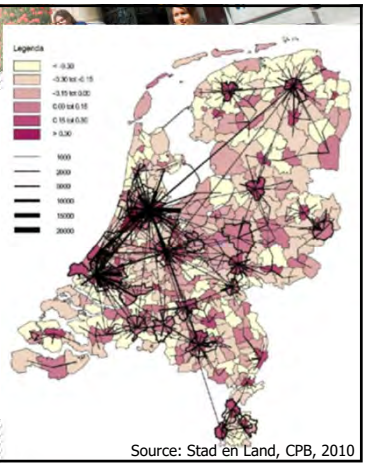
Darkblue < 1,6

Source: Pau/Louter, 2010

Index 1-5

Commuting distances increase, especially for higher educated

New working arrangements: change form daily face-to-face contact to a frequency 1-2 times per week
→ ICT Broadband!



Source: Stad en Land, CPB, 2010

Brain drain / brain gain: conclusions

- The region looses, the city wins and in the end Amsterdam most
- Mobility high around the graduation date. Limited policy intervention window. Many stay put when they have a family.
- Periphery doesn't loose automatically the best students, except for economists and lawyers. Is this a problem? Brain drain or clean export product? Migration is paying-off (not only in terms of higher wages / better jobs), but not for all (self-selection)
- Job opportunities (also for partners!) are more important for keeping graduates than residential amenities, but preferences change over time with family formation.

RUG4

Human Capital Externalities: Effects for Low Educated Workers and Low Skilled Jobs

Jouke van Dijk (joint work with with Lourens Broersma and Arjen Edzes)

Published in Regional Studies, 2016

Relevant externalities and related literature

- Regional or firm level externalities to education:
  Private vs. social rate of return to education / Rauch (1993) Blundell et al. (1999) Moretti (2004a) Canton (2009)
- Urban level externalities of education:
  Urban Wage Premium / Moretti (2004b) Heuerman et al (2010)
- Production vs. consumption externalities to education:
  Learning spill-overs vs. expenditure spill-overs / Lucas (1988) vs. Sassen (2001)
- Spill-overs from high to low skilled at the regional level:
  Multiplier effects / Moretti (2012); Van Dijk (2016, 2018)
- Proximity of low and high skilled at the firm level:
  Learning spill-overs / Lucas (1988); Horndal effect / Malmberg et al. (2008)

Methodology (1)

$$\log\left(w_{i,f,r,t}\right)=\alpha+X_{i,f,r,t}\beta+Y_{f,r,t}\gamma+Z_{r,t}\delta+\varepsilon_{i,f,r,t}$$

1. $w_{i,f,r,t}$ is the hourly wage rate of individual *i*, working in firm *f*, which is located in region *r*, at time *t*.
2. *X* is a vector of employee characteristics, like:
   - gender
   - working hours
   - human capital (HC) → private rate of return to education
3. *Y* is a vector of firm characteristics, like:
   - industry
   - size
   - Human Capital firm level→ production externalities → social rate of return
   - Distribution low vs. high skilled → production externalities → social rate of return
   - McDonalds type of firm (mostly low skilled) versus Microsoft type of firm high skilled

Methodology (2)

4. *Z* is the vector of regional characteristics, like
   - Urbanisation, Unemployment
   - Human Capital of persons working in region outside firm
     → production externality, part of social rate of return to education
   - Human Capital of persons living in region
     → consumption externality part of social rate of return to education
5. The residuals are represented by ε, α represents the intercept (including fixed effects), β, γ and δ are effect parameters.
6. We can distinguish between educational level of the workers and the skill level of jobs

Data

- Matched Employer-Employee dataset over 1995-2007. Source: Dutch Ministry of Social Affairs, Working Conditions Survey (WCS)
- Sample of firms in which a stratified sample of employees is drawn, each annual wave approx. 27.000 employees in approx. 2.000 firms
- No panel, but a repeated cross-section
- Rich set of background characteristics of individual employees and firms (gender, working hours, wages, work experience, education, occupational skills, industry, firm size, firm location)
- WCS is based on work location (2-dgit zip-code, 90 small regions). WCS is augmented with data on HC of workers living in these 2-digit zip-codes. Latter yields consumption externalities

Results: Human Capital Externalities: all employees

	Dependent variable	Log of hourly wage rate				
	Model	1	2	3	4	5
Level of education	Education level of individual	0.078**	0.077**	0.078**	0.078**	0.077**
	Average Education level in region	0.003**			0.003**	
	Average Education workers in firm		0.009**			0.009**
	Average Education regional workers excl. firm		-8.7E-04			-0.001
	Average Educat. region inhabitants 15-64			0.016**	0.015**	0.014**
Properties workers	Experience	0.044**	0.044**	0.044**	0.044**	0.044**
	Experience squared	-7.1E-04**	-7.1E-04**	-7.0E-04**	-7.0E-04**	-7.1E-04**
	Female	-0.068**	-0.068**	-0.068**	-0.068**	-0.068**
	Part-time	0.195**	0.193**	0.195**	0.195**	0.193**
Properties region	Population density	2.1E-05**	2.1E-05**	1.9E-05**	1.8E-05**	1.9E-05**
	Regional unemployment	-0.512**	-0.523**	-0.521**	-0.516**	-0.526**
	Number of variables	38	39	38	39	40
	Number of observations	368,541	368,439	368,541	368,541	368,439
	Goodness of fit LR test vs OLS	65,490	64,514	65,038	65,032	64,057

All specifications include also the following control variables: industry dummies, firm size dummies, year fixed effect dummies. ** significant at the 1% level

Conclusion for the analysis on all employees

- Human capital (HC) stock is years of education
- Private net rate of return to education: 7.8%
- Social net rate of return to education: 2.3% of which:

  - production externalities of education at the firm level: 0.9%
  - production externalities of education in the region: 0.0%
  - consumption externalities of education in the region: 1.4%

Results: Human Capital Externalities: low educated / low skilled

	Dependent variable: log of hourly wage rate	employees with low education		employees on low skilled jobs	
	Variables	coefficient	coefficient	coefficient	coefficient
Level of education	Education of individual	0.035**	0.035**	0.034**	0.035**
	Average education workers in firm	0.019**	0.025**	0.013**	0.002
	Average education regional workers excl. in firm	-0.001	-0.001	-0.003	-0.003*
	Average education regional inhabitants aged 15-64	0.012*	0.012**	0.021**	0.019**
Properties workers	Experience	0.046**	0.046**	0.045**	0.045**
	Experience squared	-7.4E-04**	-7.4E-04**	-7.5E-04**	-7.5E-04**
	Female	-0.051**	-0.050**	-0.014**	-0.013**
	Part-time	0.206**	0.205**	0.176**	0.174**
Properties region	Population density	1.4E-05**	1.5E-05 **	1.7E-05**	1.6E-05**
	Regional unemployment	-0.377**	-0.392**	-0.509**	-0.470**
Distribution education at firm-level	low and high educated workers		0.040**		
	low vs. high plus scientifically skilled jobs				-0.073**
	Number of variables	40	41	40	41
	Number of observations	188,532	188,532	131,773	131,773
	Goodness of fit LR test vs OLS	33,357	33,328	24,699	24172

All specifications include also the following control variables: industry dummies, firm size dummies, year fixed effect dummies. ** significant at the 1% level

Conclusion for the analysis for low educated, low skilled jobs

- Private net rate of return to education for low educated / low skilled jobs substantially lower: 3.5% instead of 7.8% for all employees
- For low educated the Social net rate of return is: 3.7%
  - production externalities at the firm: 2.5% (0.9% for all)
  - production externalities in the region: 0.0% (0.0% for all)
  - consumption externalities in the region: 1.2% (1.4% for all
  - Negative effect of distribution of education within Microsoft type firm of -4.0% (but higher main effect!)
- For low skilled jobs the Social net rate of return is: 1.6%
  - production externalities at the firm: 0.0%
  - production externalities in the region: -0.3%
  - consumption externalities in the region: 1.9%
  - But large positive effect of distribution of education within Microsoft type firm of 7.3%!

Overall conclusions effect of Human Capital Externalities

- An additional year of schooling increases the wage rate of average employees with 7.8% and for low educated / low skilled with 3.5%
  → improve position low skilled by increase in individual education
- Social returns HCE's are about 2.3% for all employees, for low educated 3.7% but for low skilled only 1.6%.
- At the regional level consumption spill overs are significant and more or less equal for all employees and low educated, but higher for low skilled.
- Production/learning spill overs are not significant at the regional level, but take place at the firm level. Highest effects for low educated workers
- Those with low skilled jobs in firms with many high skilled jobs realize a substantial higher wage: → proximity to many high skilled improves position of workers on low skilled jobs. For low educated workers the opposite is true, but the effect is smaller and compensated by a higher main effect.

Analyzing carreer paths by means of ***sequence analysis***

Publication: Middeldorp, Marten, Arjen J.E. Edzes and Jouke van Dijk (2019). 'Smooth Transition? Upper-Secondary General versus Vocational Education and the Transition from School to Work'. *European Sociological Review.* Accepted for publication October 18, 2018.

Types of Active Labour Market Policies

Pro-market employment orientation	Investment in human capital: *None*	*Weak*	*Strong*
Weak	(Passive benefits) Basic income?	Occupation Job creation schemes in the public sector Training programmes unrelated to employment	(Basic education)
Strong	Incentive reinforcement Tax credits, in work benefits Time limits on benefit receipt Benefit reductions Benefits conditionality	Employment assistance Placement services Job subsidies Counselling Job search programmes	Upskilling Job-related vocational training

Source: Bon

Succes of Active Labour Market Policies is very limited!

Table 2. Division of instruments by client typology

	Distance to regular jobs: NO			YES: *Bridgeable*		YES: *Non-bridgeable*
Problems	No jobs	No motivation	No match	Skills shortage / wrong skills Need for re-integration	Able to work but low productivity	Not bridgeable
Instru-ments	Employment creation Job Carving	Control Incentives and sanctions	Information Counselling Mediation	Training Education	Wage subsidy Workplace adjustment	Sheltered employment Benefits

Source: Sol *et al.*, 2010.

Need for identification of succesful career interventions!

Basic income?

Research questions

"How can we identify typical carreer patterns in relate this to personal and regional characteristics?

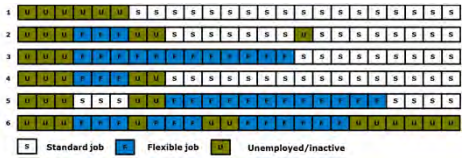
Approach

- Longitudinal data and sequence analysis to create and analyse career sequences from the onset of unemployment
- Estimation of the effect of local labour market opportunities and human capital on the probability of following particular pathways

Aim

- To identify labour market trajectories that account for all states experienced during the first three years after the onset of unemployment
- To explore and describe e.g. resilient after-unemployment trajectories; school-to-work transition; migration / commuting patterns of higher educated graduates
- To analyze and compare effects of local labour market opportunities and human capital on career resilience to unemployment

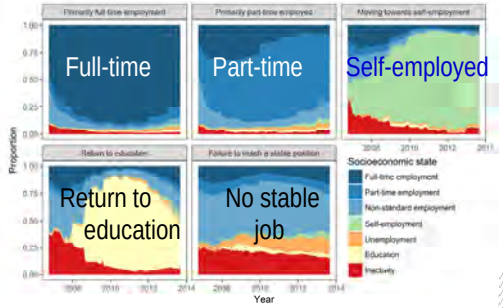
Identifying career trajectories: detailed monthly data



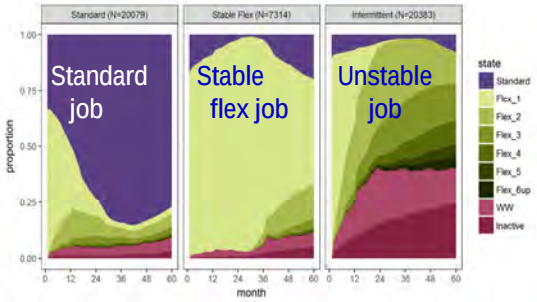
› How similar are the sequences of individuals?

- Calculate metric distances between each pair of sequences
- Result: distance matrix for each pair of sequences

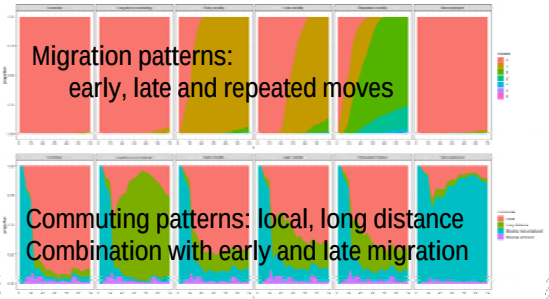
Career trajectories: school to work transitions



Career trajectories after becoming unemployed



Career trajectories: Spatial Mobility of Higher Education Graduates and Jobs



Next step: explain the career trajectories

- Multinomial logistic regression, average marginal effects
- Dependent variable: trajectory entered
- Explanatory variables:
- Local labour market opportunities: job access, unemployment
- Human capital: education, experience, last wage
- Controls: sex, age, migrant, household, child, last working time
- Fixed effects: time, region

Conclusions and Policy Implications for individuals:

- Human capital is a crucial success factor in economic performance for individuals, firms and regions and also in social and health issues. Education is not the same as (21st century) skills. Policy options are limited by low spatial mobility of human capital and restrictions in learning capacity. Changing the work organization (job carving) is an alternative option, but requires action of the firm. Basic income?
- Low skilled can benefit from spill-overs of high skilled. Policy options are limited by lack of insights in the type of spill-over mechanism via consumption at the regional and productivity/learning at the firm level.
- Career patterns vary with personal and regional circumstances and are path dependent. Policy options are limited by lack of insight in successful paths and successful interventions. Analysis of register data + sequence analysis might help + Quality of Governance

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Conclusions and Policy Implications for regions:

- Higher educated graduates are the most spatially mobile group in the labour market, especially in the years before and after graduation. But: also most of them stay in the home region. It leads to a redistribution of human capital within regions, but also between regions; impacts on inequality is unclear: complex processes
- If they leave: brain drain or clean export product? Higher education institutes (HEI's), like universities are boosters of the regional economy, even if graduates leave the region after study
- If they stay: underutilization of human capital investment beneficial for the region and low educated due to positive production and consumption externalities, entrepreneurship, quality of governance
- Policy implication: stimulate private and public investment in education because it is always beneficial both for individuals and regions in terms of economic performance, but also in terms of well-being.

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Thank you for your attention

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Human Capital, Regional Economic Development and Inequality

Jouke van Dijk

Professor of Regional Labour Market Analysis, University of Groningen, Faculty of Spatial Sciences, Department Economic Geography

Lecture Workshop on New Economic Geography and Regional Economics at Zhejiang University, Hangzhou, China, May 29, 2019.

Email: Jouke.van.dijk@rug.nl

Website: www.joukevandijk.nl

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John Maynard Keynes prediction in 1930

In the summer of 1930, at the start of the Great Depression, John Maynard Keynes gave a speech in Madrid entitled «Economic Possibilities for our Grandchildren». He stated that, over time, humankind was solving its economic problems thanks to the process of capital accumulation. He predicted that the standard of living in progressive countries would, in one hundred years, be between four and eight times higher than it was in 1930, and that the standard working week would be fifteen hours. An important societal problem foreseen in Keynes' prediction would be how to spend leisure time (Keynes, 1963).

→ We still have a problem of unemployment and social exclusion