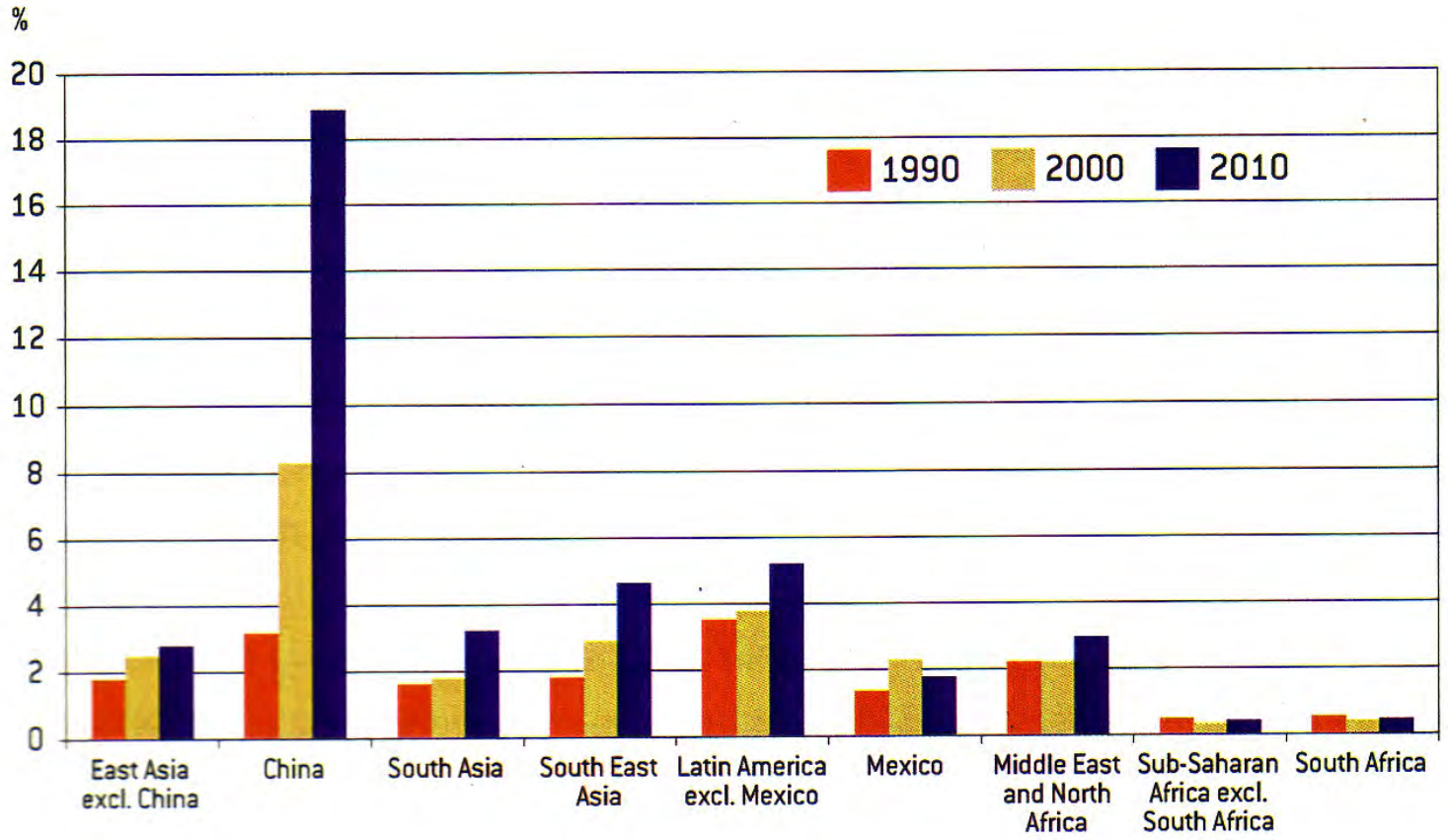
Le monde hyperindustriel et ses territoires

Pierre Veltz IHEDATE février 2015

Le contexte (1)
Industrialisation du monde

Figure 6: Share of major emerging regions in world manufacturing employment (in percentage of world manufacturing)



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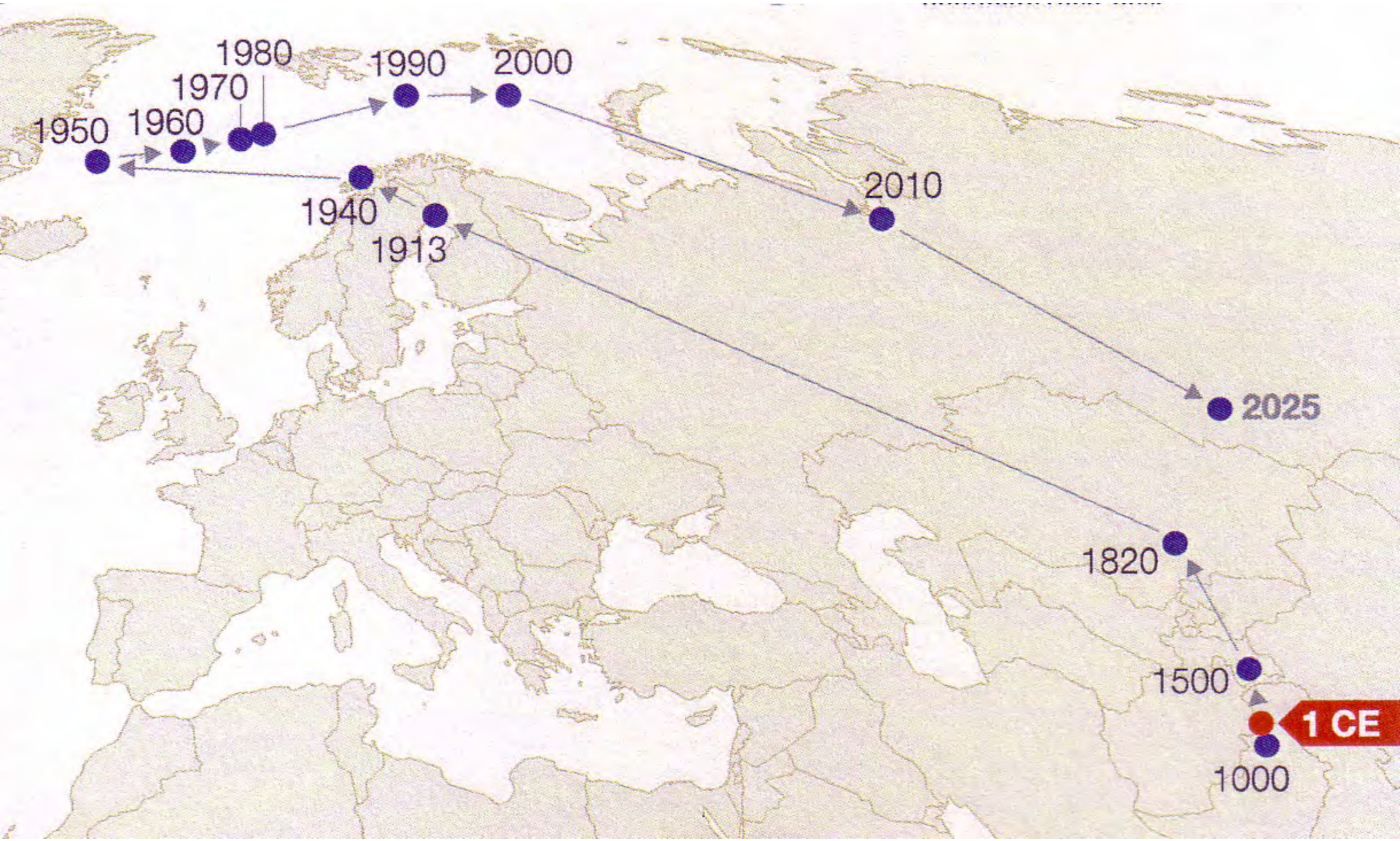

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L ’industrie : les troupes de choc de l ’économie mondiale

En 2010, 328 millions sur 6,9 milliards, dont 40% en Chine

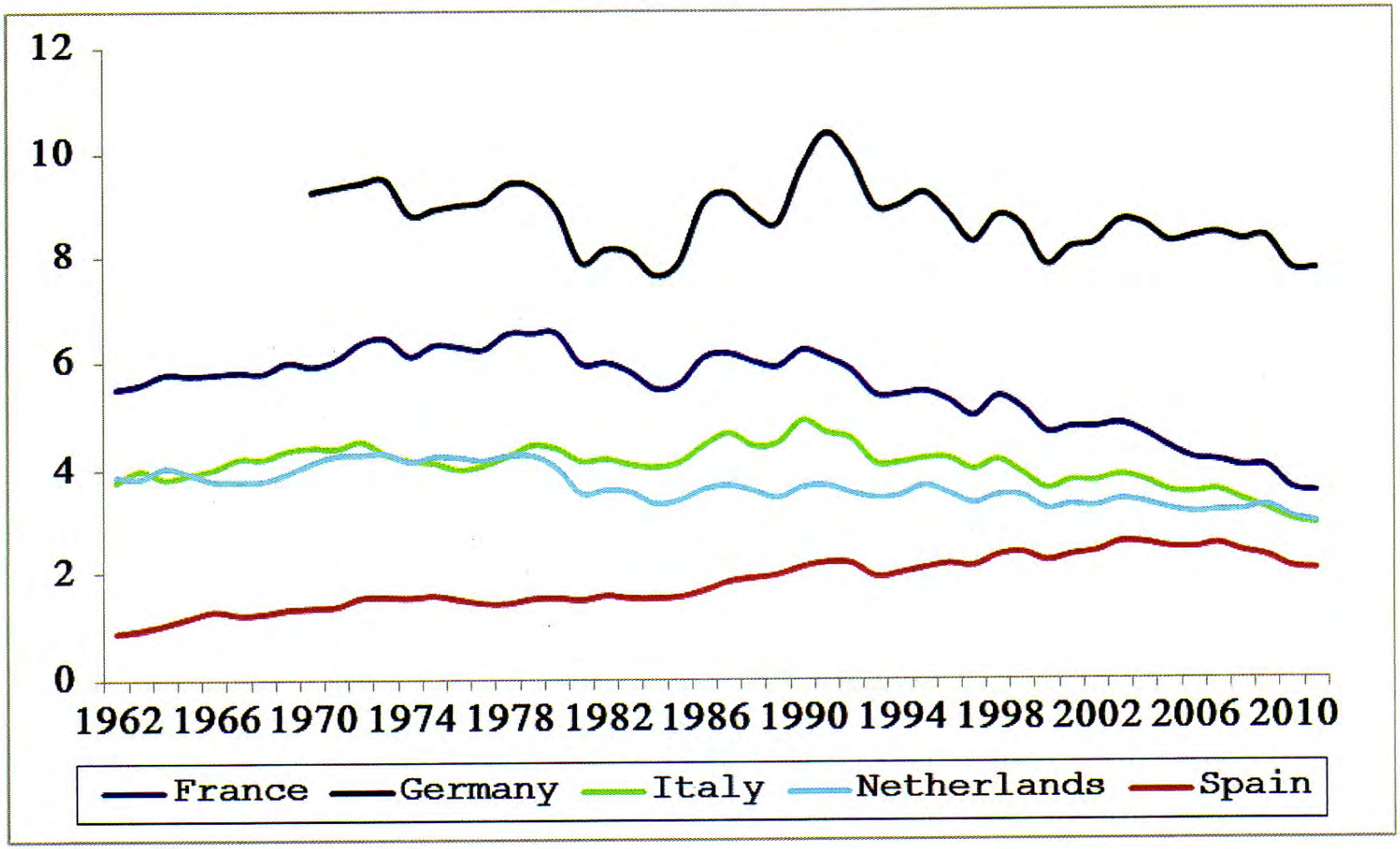
En 1800	4,7	
En 1900	2,8	
En 1990	4,6	
En 2000	4,6	
En 2010	4,8	(10% emploi)

De 1800 à 2010	Prod ind	+ 2,6
	prod tot	+ 2,0
	pop	+ 0,9

Part de la prod manuf mondiale

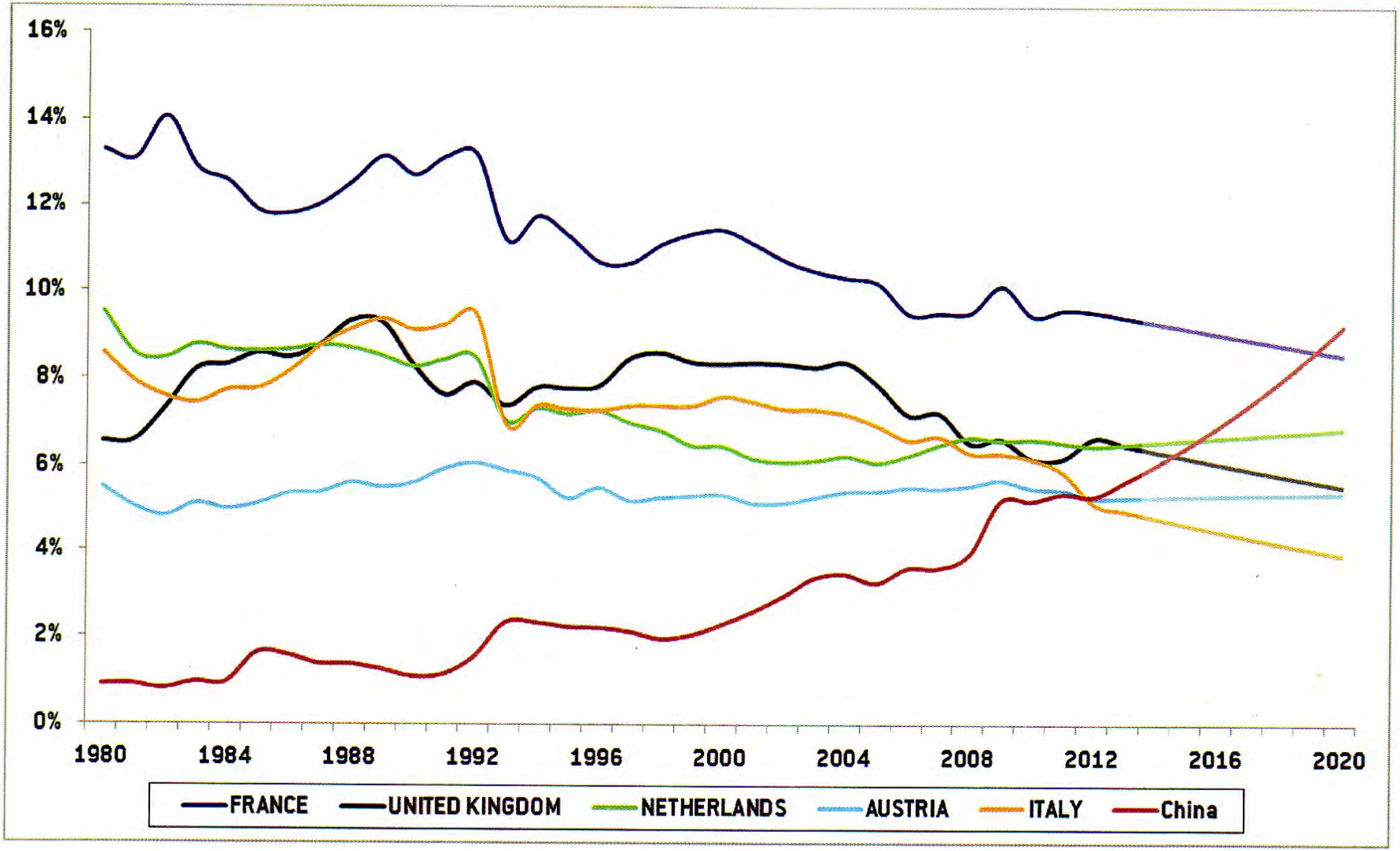
	Pays dév.	Chine Inde reste
1800	29	71
1900	87	13
1980	73	27
2000	66	34
2010	59	41

Figure 4: Share of world trade of the top five euro-area economies, %



Source: World Bank, Bruegel calculations.

Figure 15: German export destinations, % of total exports

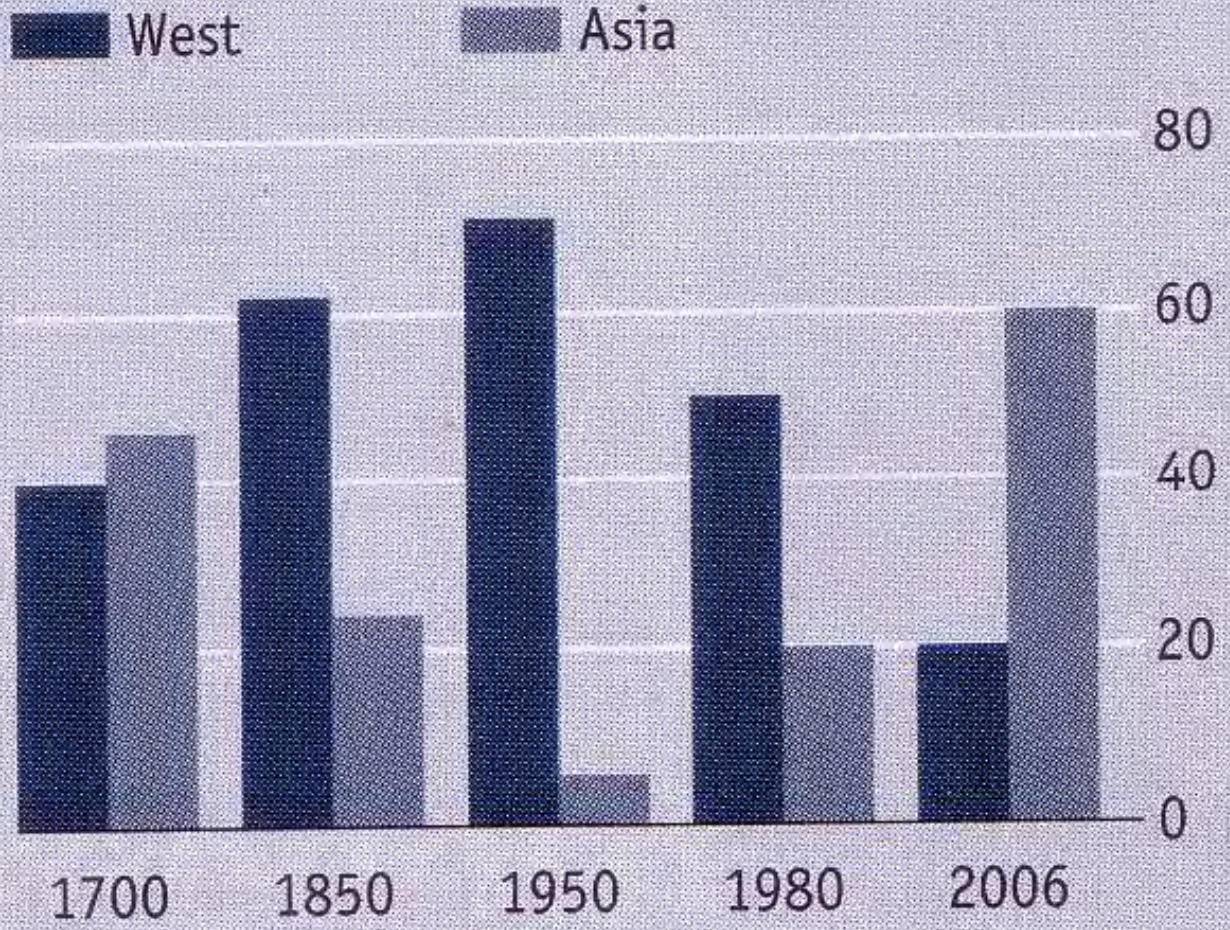


Source: Bruegel calculations based on IMF DOTS.

3

Asia's return

Middle-class population as % of world total



Source: Surjit Bhalla, *"The Middle Class Kingdoms of India and China"* (forthcoming)

Le contexte (2)
Mondialisation de l’industrie

Pierre Veltz IHEDATE février 2015

Mondialisation fin XIX ème (inter-national)

Repli national années 20 - années 80

Mondialisation transnationale (FMN)

Mondialisation à « haute résolution »

- dégroupage
- global value chain
- « commerce des tâches » vs « commerce des biens »

L’industrie (77% du commerce international et 70% de la R&D)

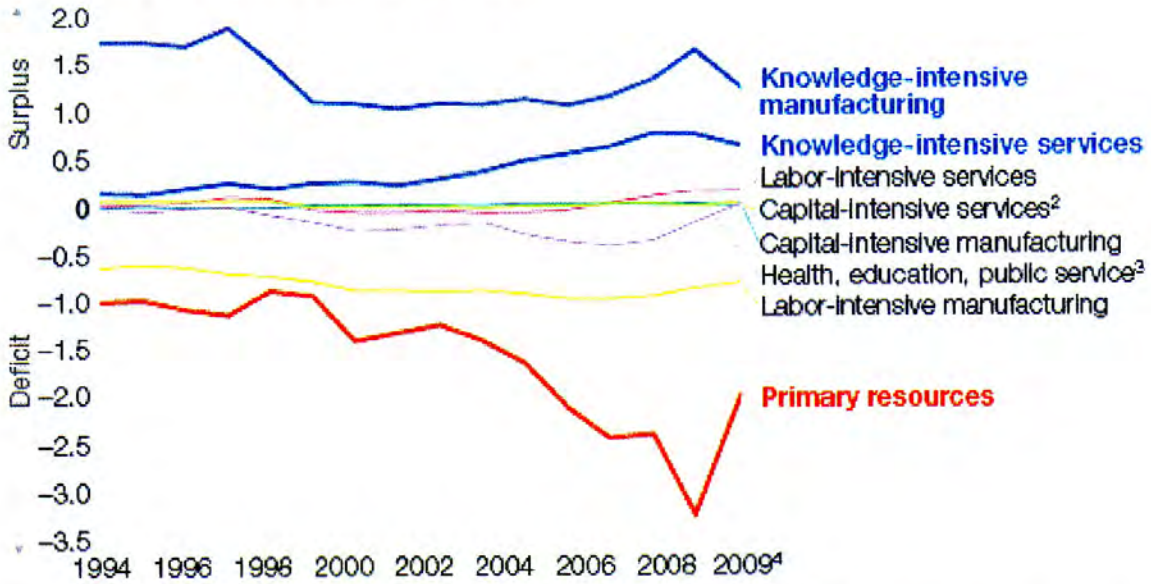
Innovation globale/marchés régionaux (chimie, transports, machines..)	**34** % VA	**30** % Emploi
Regional processing (plastique, caoutchouc, boissons, imprimerie..)	**28**	**37**
Énergie et commodités à fort contenu en ressources primaires (bois, pétrole, papier..)	**22**	**13**
Technologies globales (ordinateurs, semi-conducteurs, médical..)	**9**	**8**
Intensif en main d’œuvre	**7**	**12**

Made in monde

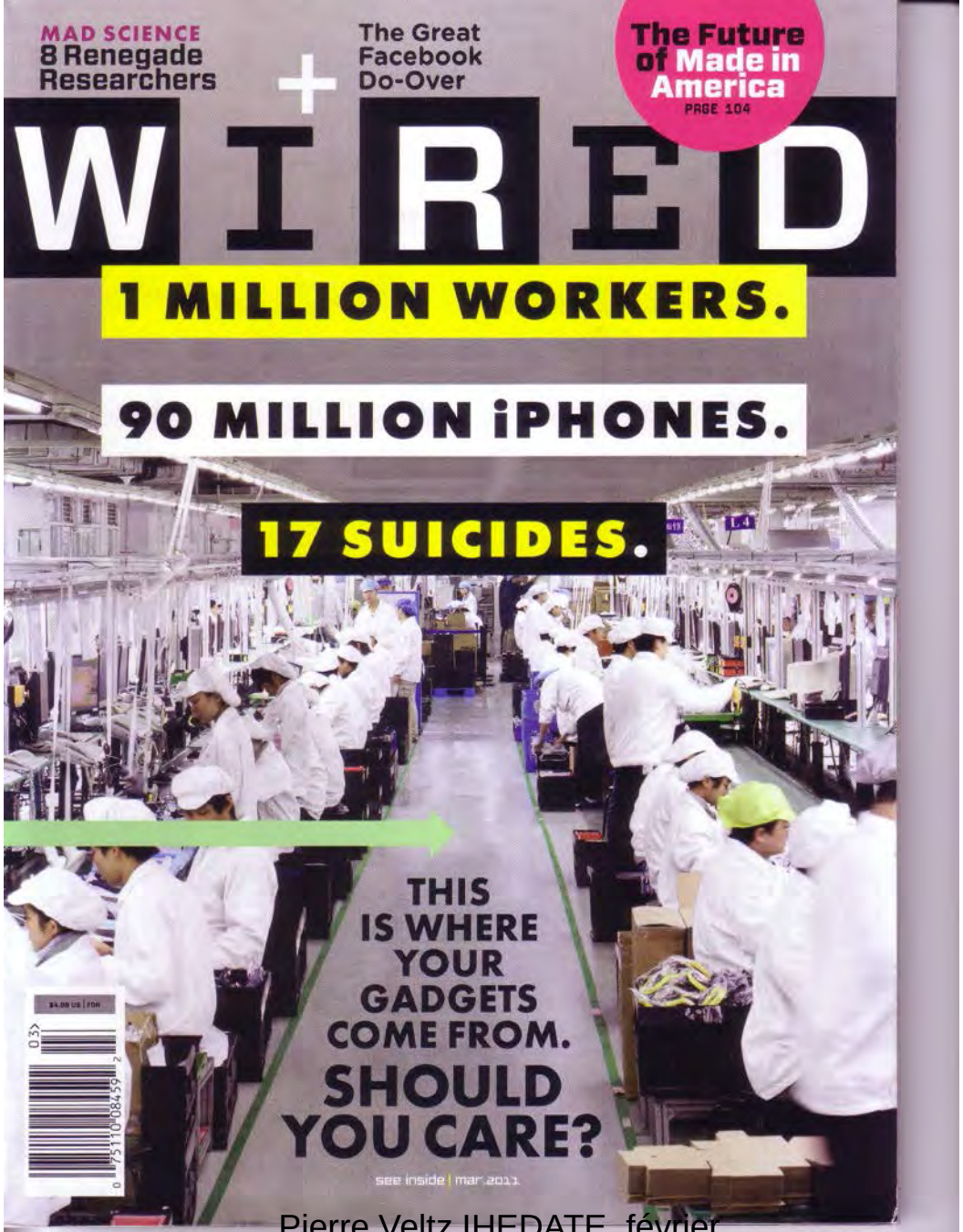
Les échanges de biens intensifs en techno restent positifs et progressent 1,3 fois plus vite que les autres

Over the last 15 years, many mature economies have experienced trade deficits in primary resources that have canceled out trade surpluses from knowledge-intensive goods and services.

Net exports of mature economies,[1] % of GDP



[1]United States, Japan, and EU-15 countries excluding Luxembourg: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, and United Kingdom; services exports do not include Belgium and Denmark, because historical data are unavailable.
[2]Excludes trade in utilities for Japan.
[3]Majority of trade for health and education services is accounted for as travel and therefore is included in labor-intensive services.
[4]Latest available data.
Source: Organisation for Economic Co-operation and Development (OECD); McKinsey Global Institute analysis


MAD SCIENCE
8 Renegade Researchers
+
The Great Facebook Do-Over
The Future of Made in America
PAGE 104
WIRED
1 MILLION WORKERS.
90 MILLION iPHONES.
17 SUICIDES.
THIS IS WHERE YOUR GADGETS COME FROM.
SHOULD YOU CARE?
see inside | mar.2011

Des échanges bruts à la Valeur ajoutée
I-POD 2006

Emplois US **13 920**

Non US **27 500** (Chine 50%)

Salaires US **745** M$ (prod 1,5)

Non US **318** M$ (prod 90)

Chine **24**

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2015

Le contexte (3)

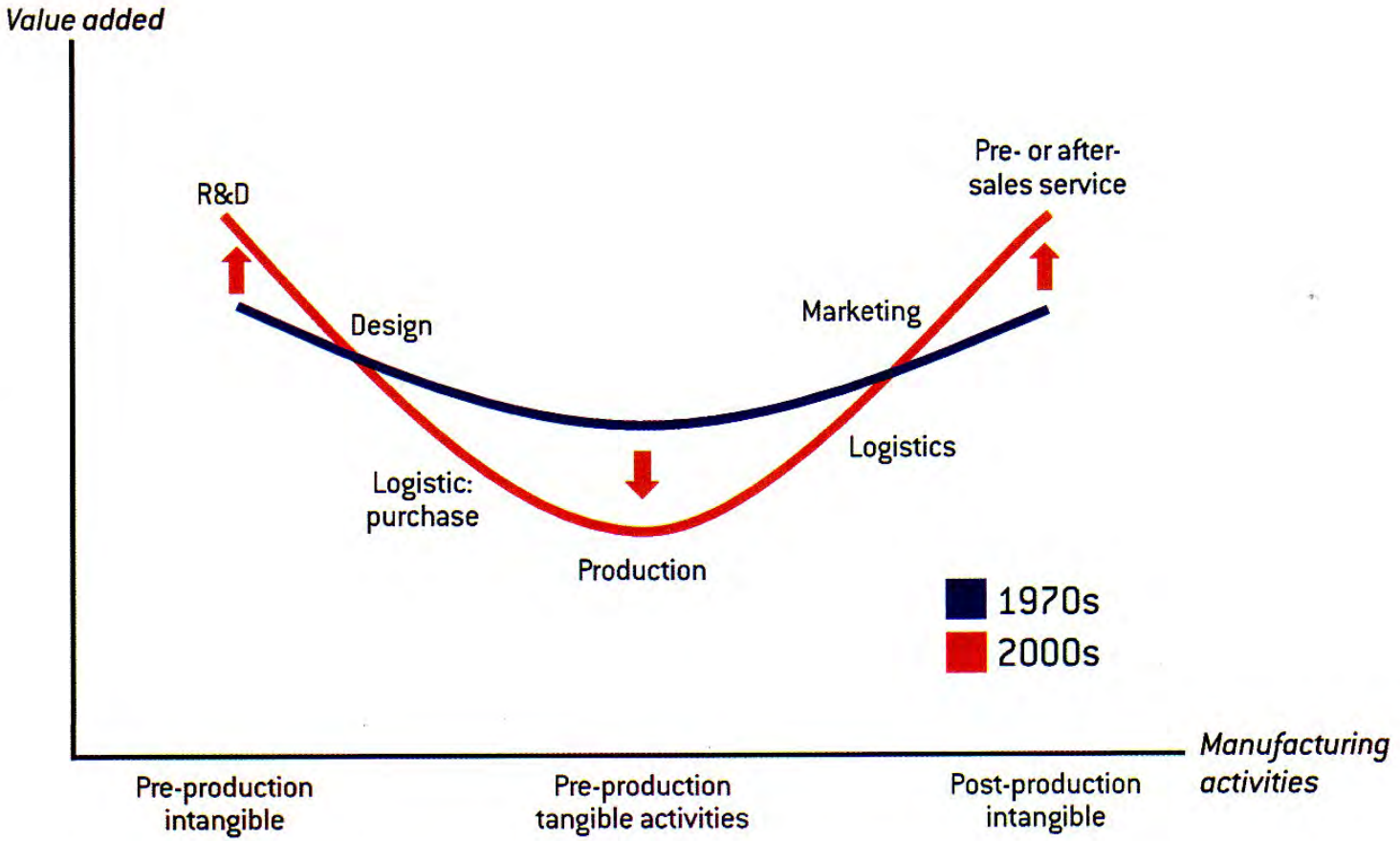
Le logiciel va manger le monde (Marc Andreesen)

informatique d’entreprise et productivité

réseaux sociaux, internet mobile

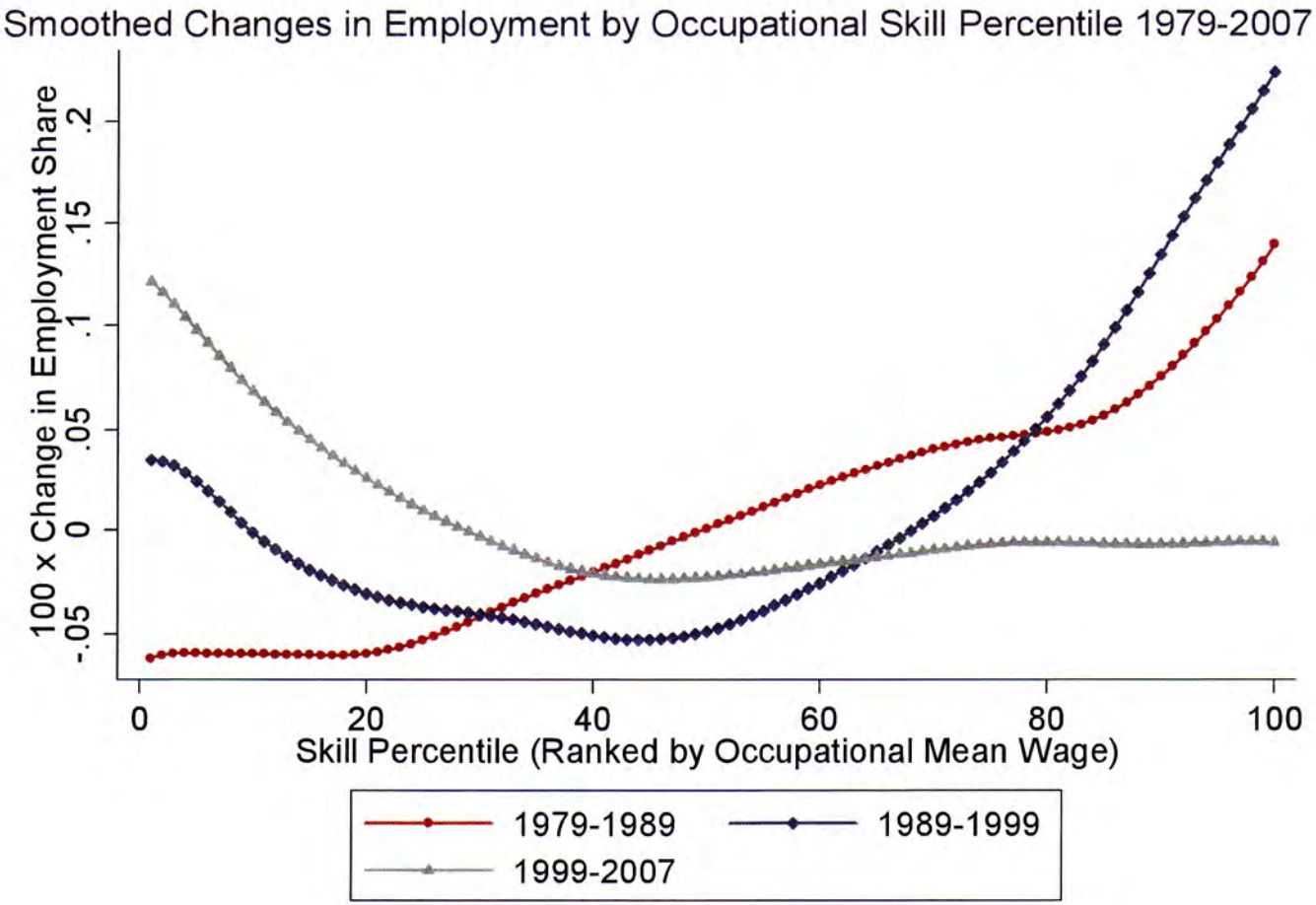
big data

Figure 16: The 'smile curve'

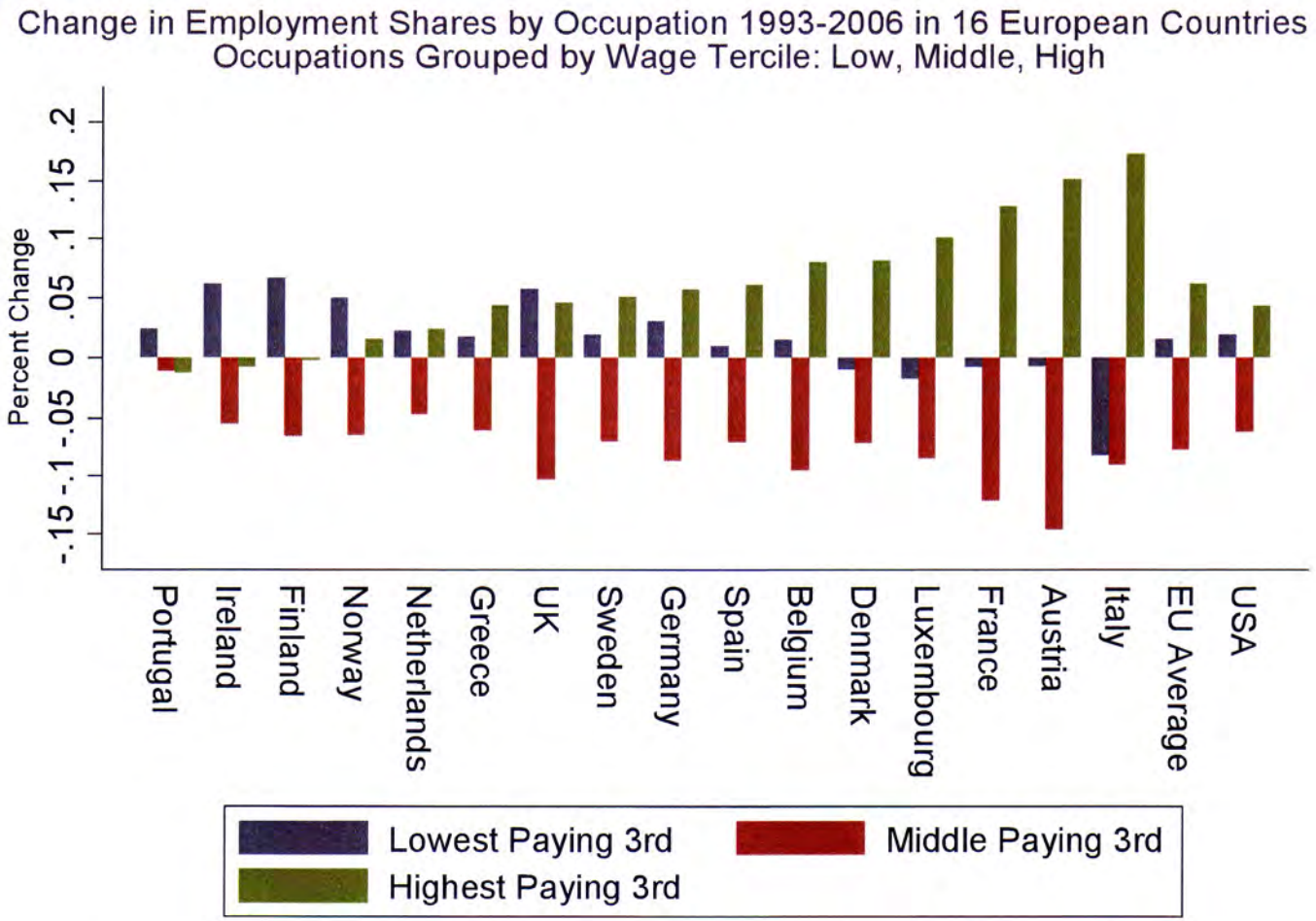


Source: Bruegel based on an OECD presentation at a Bruegel workshop, Brussels, 27 June 2013.

Figure 10

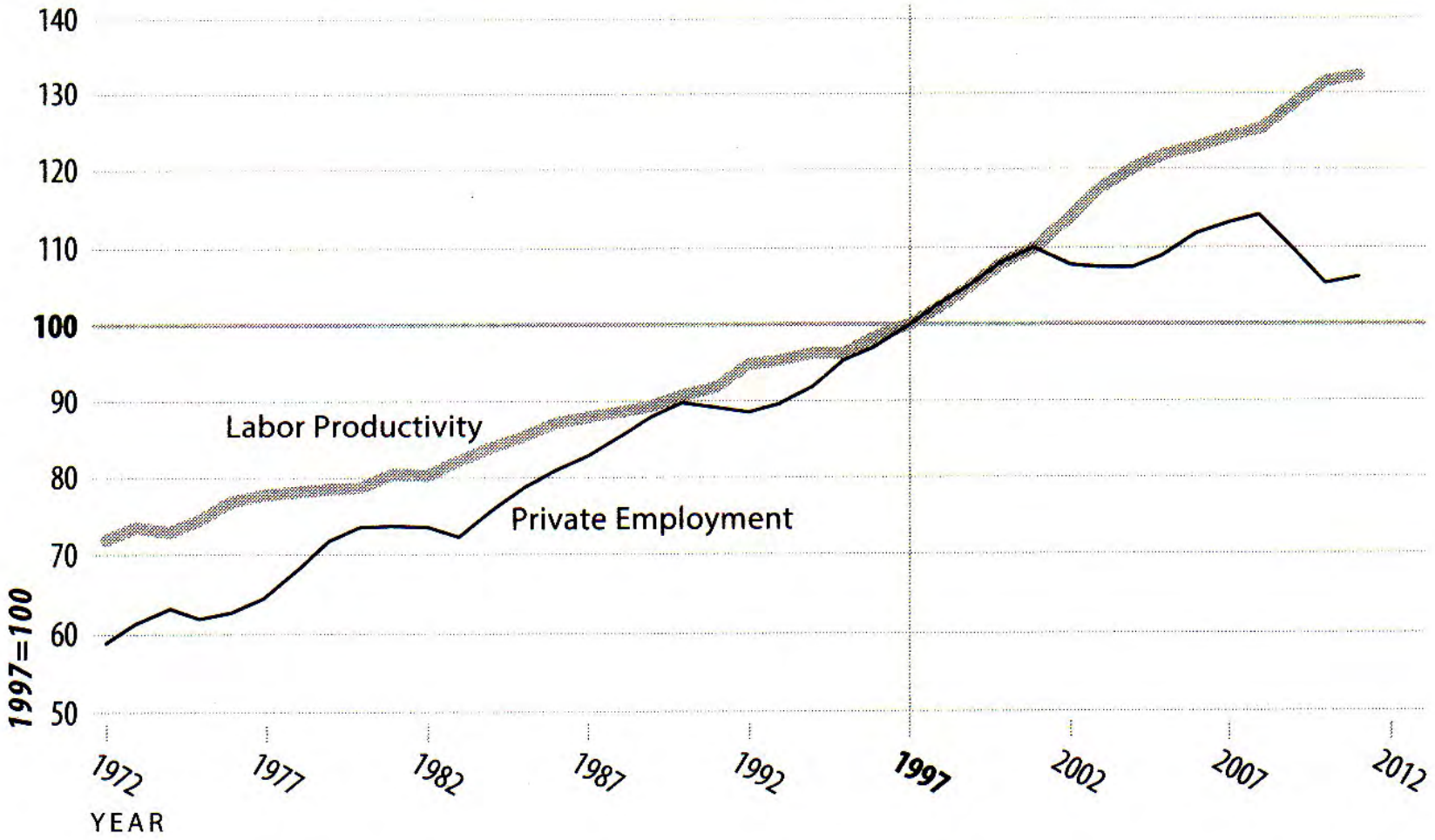


Source: Census IPUMS 5 percent samples for years 1980, 1990, and 2000, and Census American Community Survey for 2008. All occupation and earnings measures in these samples refer to prior year's employment. The figure plots log changes in employment shares by 1980 occupational skill percentile rank using a locally weighted smoothing regression (bandwidth 0.8 with 100 observations), where skill percentiles are measured as the employment-weighted percentile rank of an occupation's mean log wage in the Census IPUMS 1980 5 percent extract. Mean education in each occupation is calculated using workers' hours of annual labor supply times the Census sampling weights. Consistent occupation codes for Census years 1980, 1990, and 2000, and 2008 are from Autor and Dorn (2009a).



Source: Data on EU employment are from from Goos, Manning and Salomons, 2009a. US data are from the May/ORG CPS files for earnings years 1993-2006. The data include all persons ages 16-64 who reported having worked last year, excluding those employed by the military and in agricultural occupations. Occupations are first converted from their respective scheme into 326 occupation groups consistent over the given time period. These occupations are then grouped into three broad categories by wage level.

FIGURE 11.1 Labor Productivity and Private Employment



Source:

Hybridation

biens /service

numérique / manufacturier

marchand/non marchand

science / technologie / industrie

Hybridation

Synchronisme technologique

diffusion en couches/ pôles et réseaux

Pierre Veltz IHEDATE février 2015

Hybridation

Synchronisme technologique

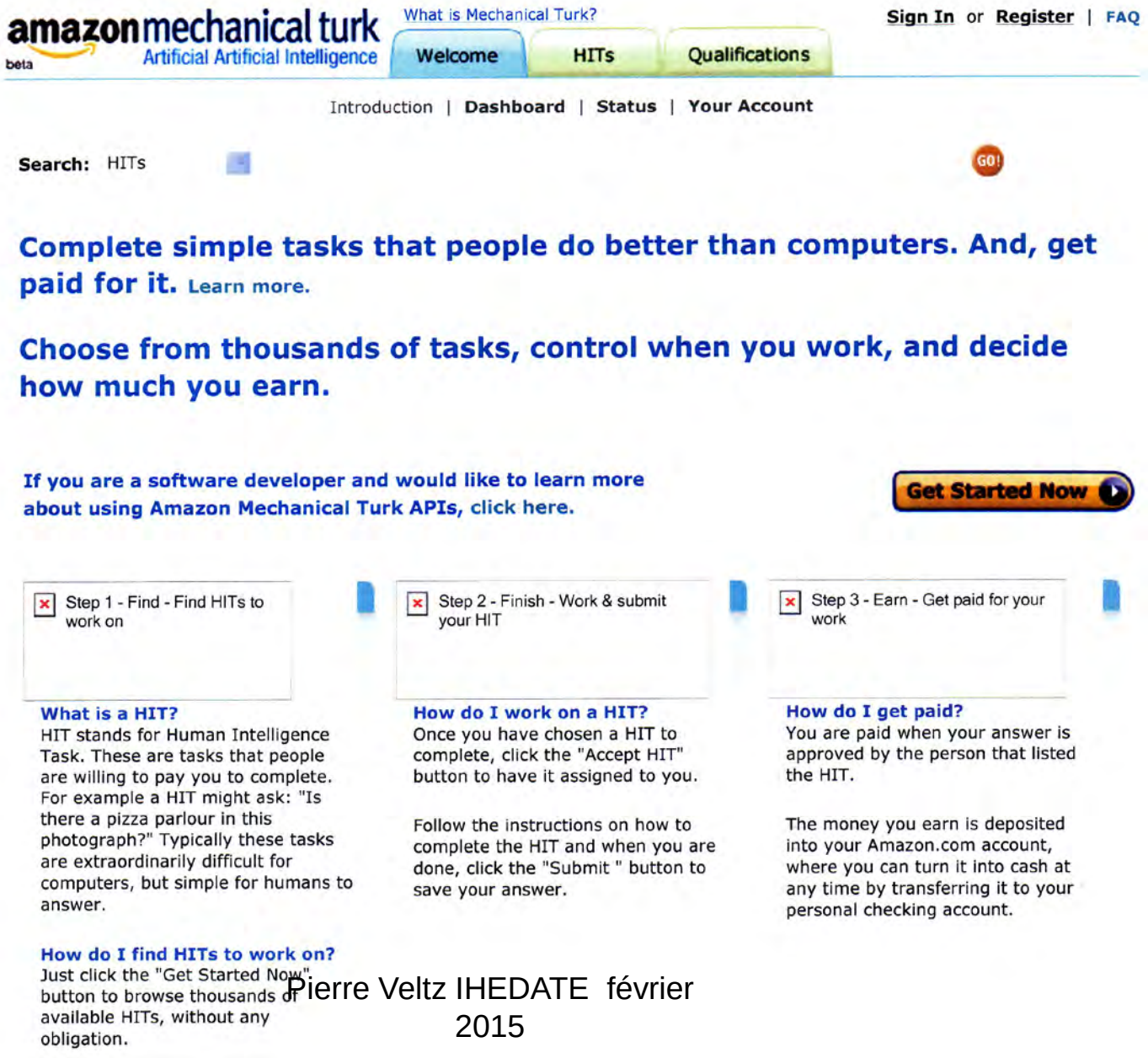
Organisation ouvertes

de la firme hiérarchique à la firme réseau

… aux réseaux ouverts

(cloud, crowd…)

Virtualisation / organisations ouvertes



Hybridation

Synchronisme technologique

Organisations ouvertes

Innovation ouverte et écosystèmes

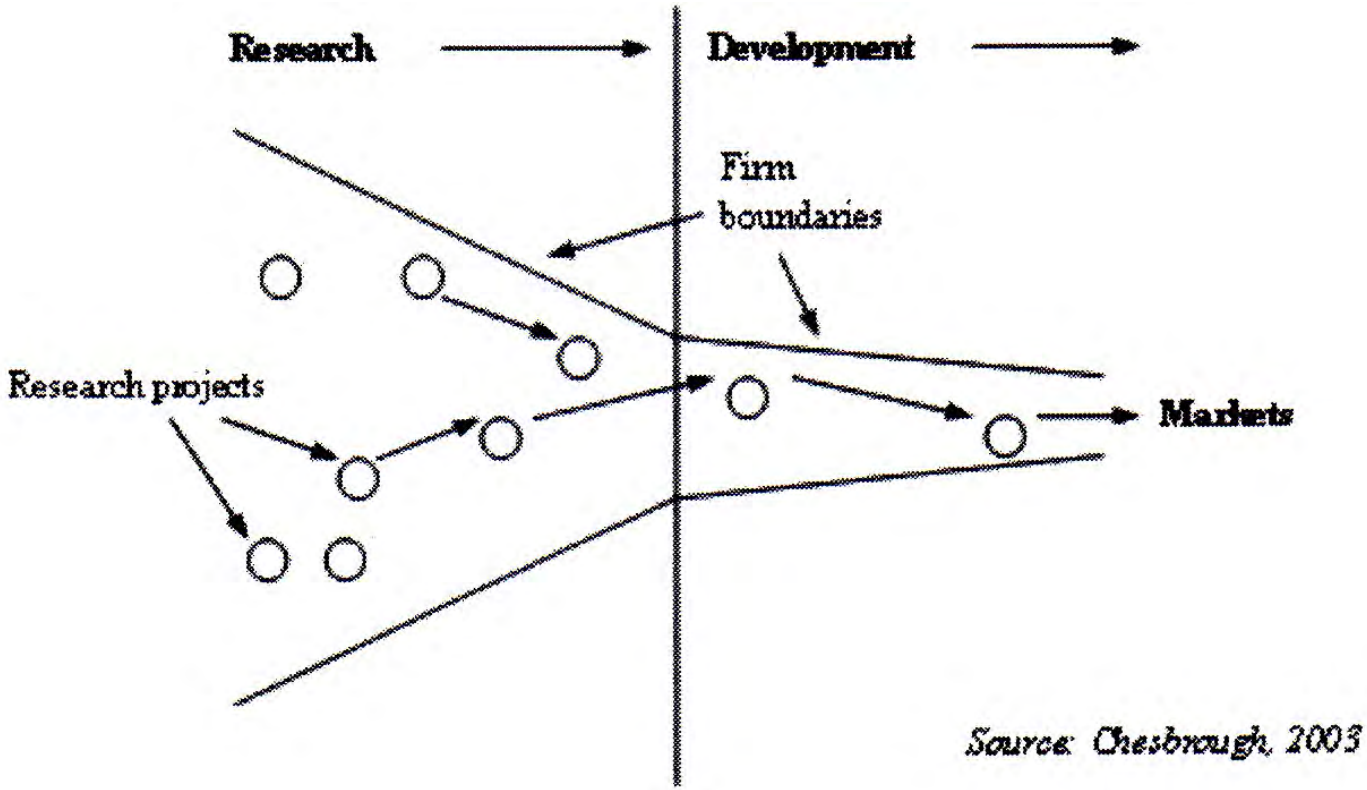


Figure 1 Closed innovation

Innovation ouverte / écosystèmes

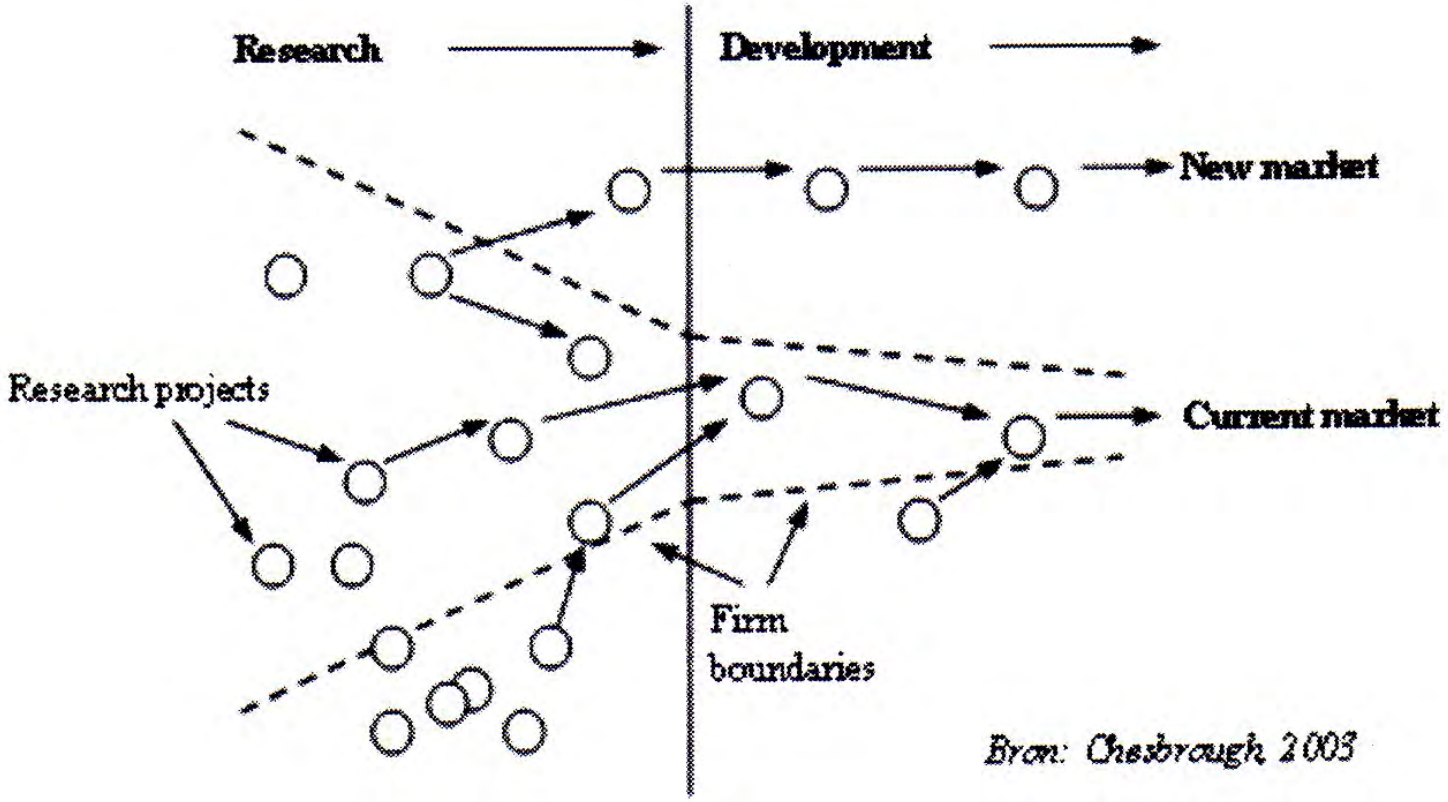
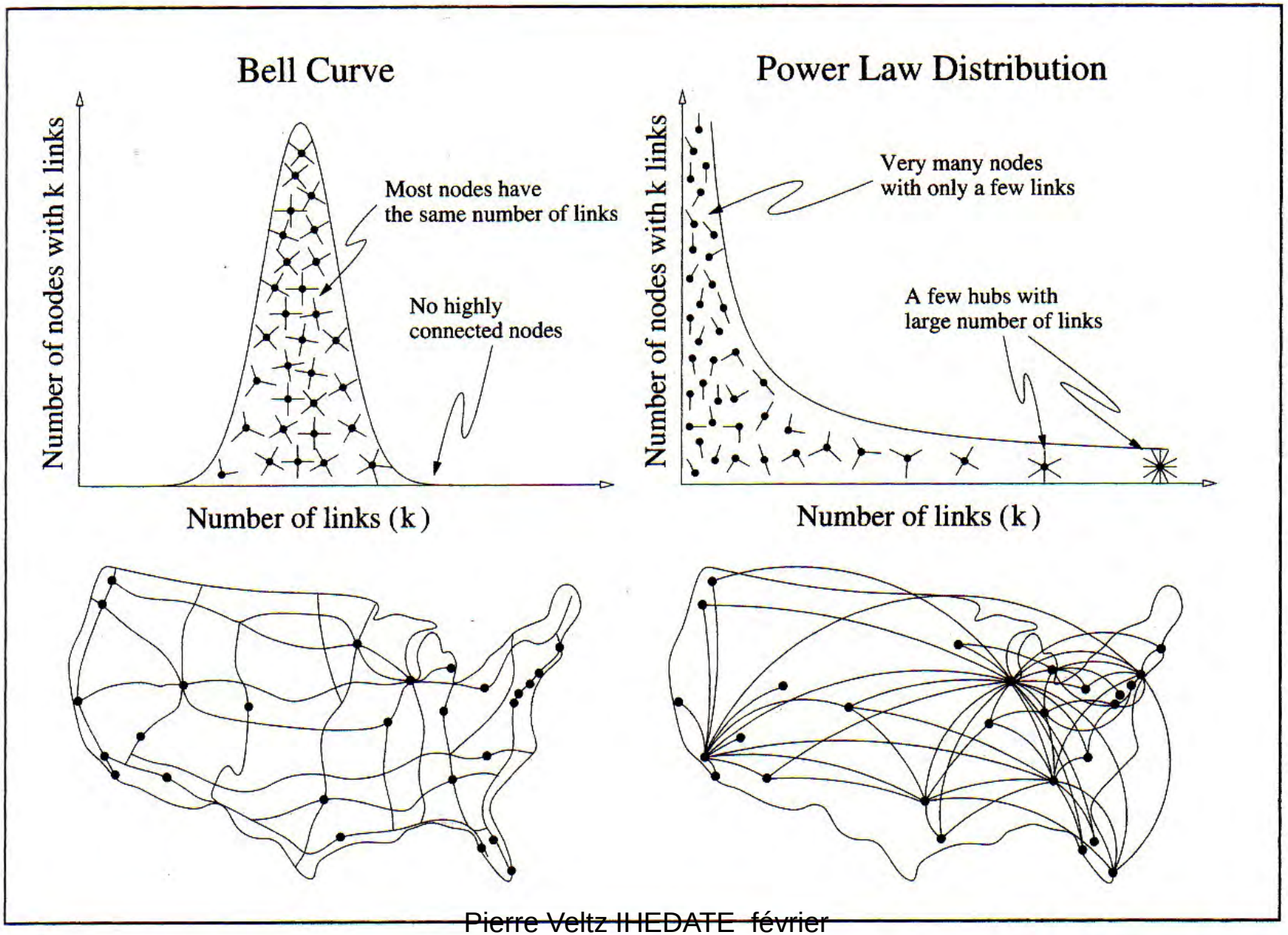


Figure 2 Open innovation

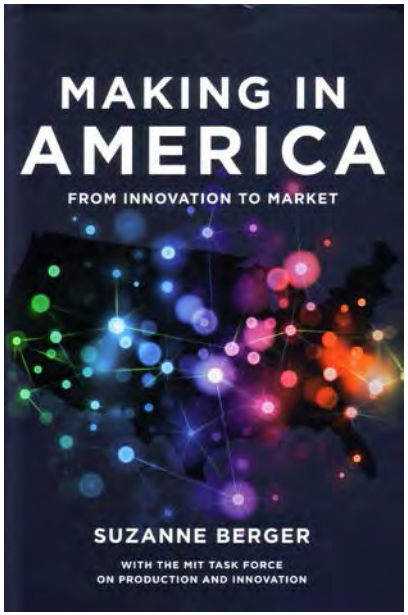
Polarisations

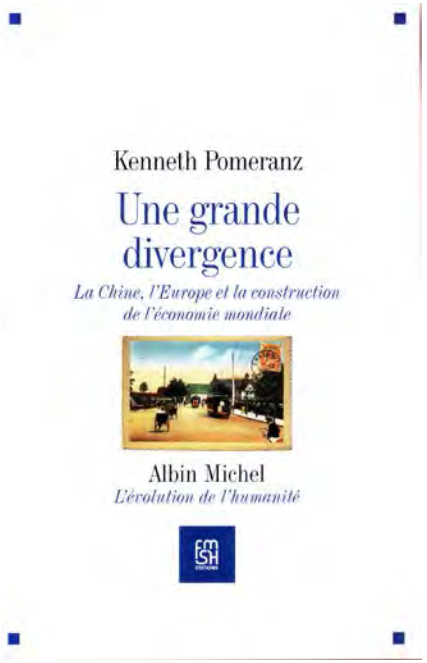
Externalités d’agglomération
Externalités de réseau

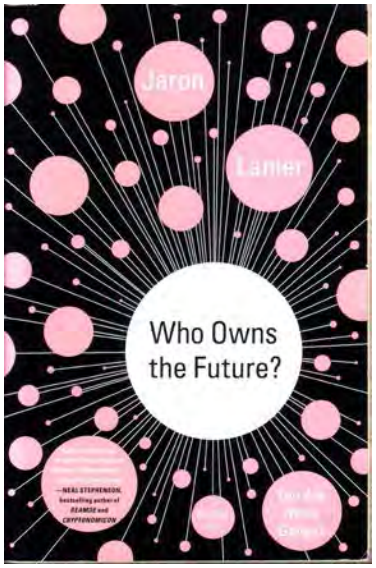
Winner take all ?

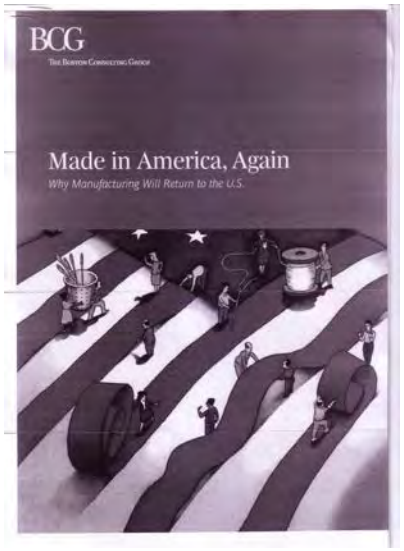

Bell Curve
Number of nodes with k links
Most nodes have
the same number of links
No highly
connected nodes
Number of links (k)
Power Law Distribution
Number of nodes with k links
Very many nodes
with only a few links
A few hubs with
large number of links
Number of links (k)

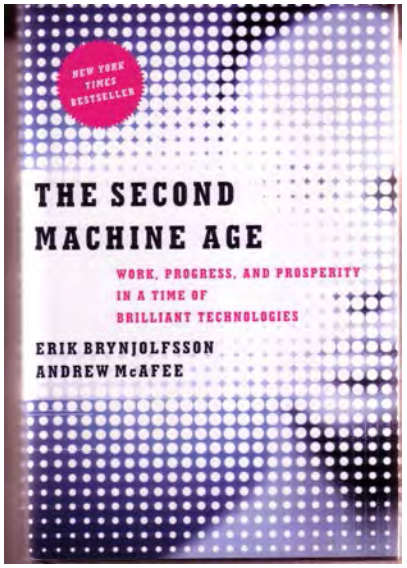
Merci pour votre attention











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Pour les territoires locaux ?

Plus de risques
Plus d’opportunités

Pour les territoires locaux ?

Plus de risques
Plus d'opportunités

Les territoires (infra nationaux) retrouvent un rôle central comme support de performance collective

Le monde hyperindustriel (1)

Convergence industrie/services(/numérique)

Le monde hyperindustriel (2)

Du « transactionnel » au « relationnel »

Une phase transitoire

7.10. Ford V-8 Engine Assembly, River Rouge Factory, 1930s. (Henry Ford Museum, The Institute. Neg. No. 833-68057-105.)

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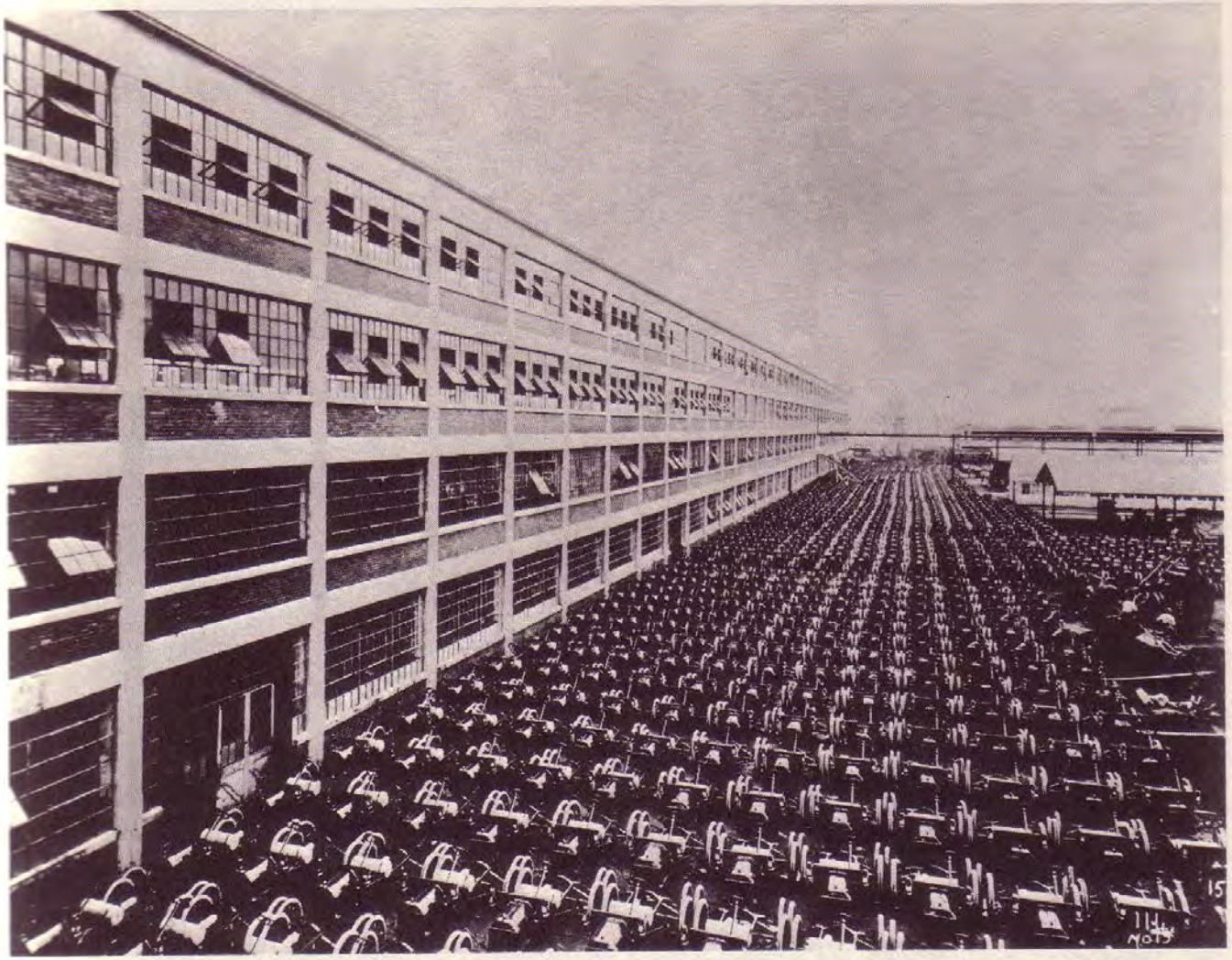

FIGURE 0.1. A Day's Output of Ford Model T's, Highland Park Factory, 1915. (Henry Ford Museum, The Edison Institute. Neg. No. 6-716.)

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Le monde hyperindustriel (2)

Du « transactionnel » au « relationnel »

L'efficacité taylorienne (routines et division du travail)
fonctionne bien dans la production de masse
en environnement stable

Pour l'innovation, la qualité, la réactivité, la fiabilité, l'efficacité
Dépend surtout de la qualité de la coopération entre les acteurs
(dans l'entreprise, mais aussi clients, fournisseurs, usagers, environnement)

Le monde hyperindustriel (2)

Du « transactionnel » au « relationnel »

Rôle crucial des « écosystèmes », *pas uniquement high tech*

Le monde hyperindustriel (3)

Rôle central du capital humain

Le monde hyperindustriel (3)

Rôle central du capital humain

Formation, formation, formation !!

Le monde hyperindustriel (3)

Rôle central du capital humain

Formation

Attraction des talents, corrélation forte entre dynamisme économique et qualité résidentielle

Atouts et handicaps d’une ville moyenne

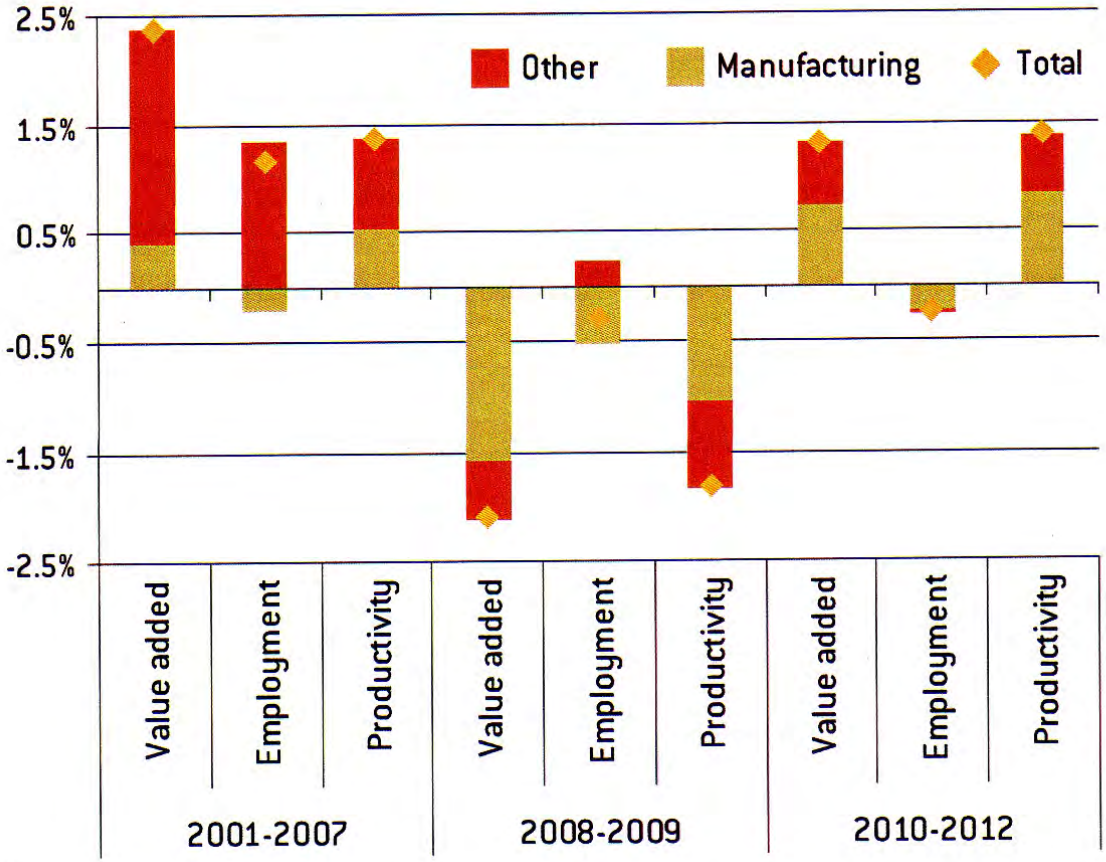
Pas de déterminisme, pas de taille optimale

Spécialisation/différenciation

Animation partenariale mixte

Challenge / Ouverture et réseaux

Figure 2: Manufacturing and total EU economy growth rates



Source: Bruegel based on Eurostat. Note: Growth rates computed as annual average growth rates over the periods. Total (economy) excludes 'agriculture, forestry and fishing'.

Kenneth Pomeranz

Une grande divergence

La Chine, l'Europe et la construction de l'économie mondiale

Albin Michel

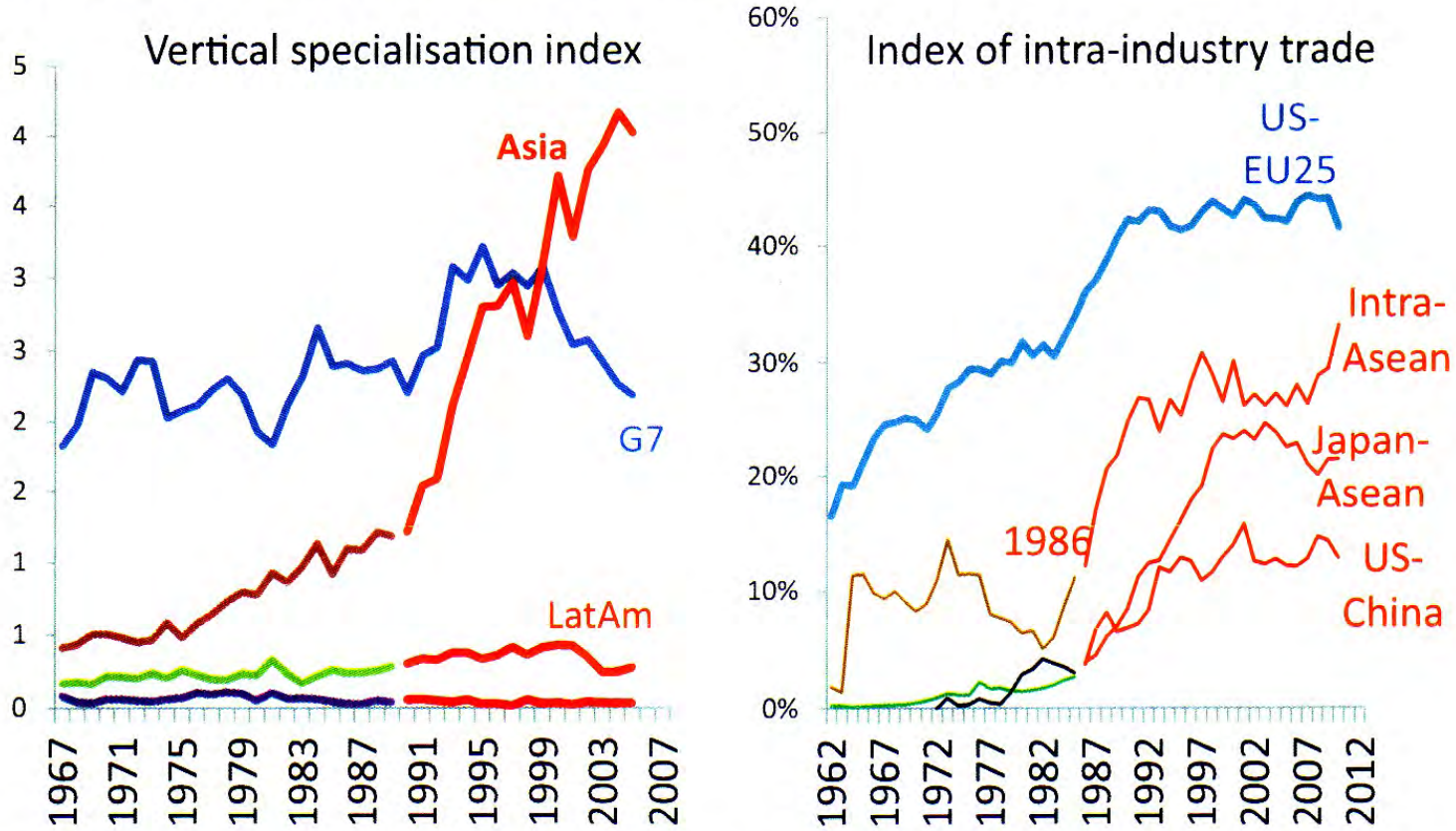
L'évolution de l'humanité

FMSH EDITIONS

Pierre Veltz IHEDATE février 2015

DECEMBER 2012

Figure 4 Indirect measures of supply-chain trade from 1960s

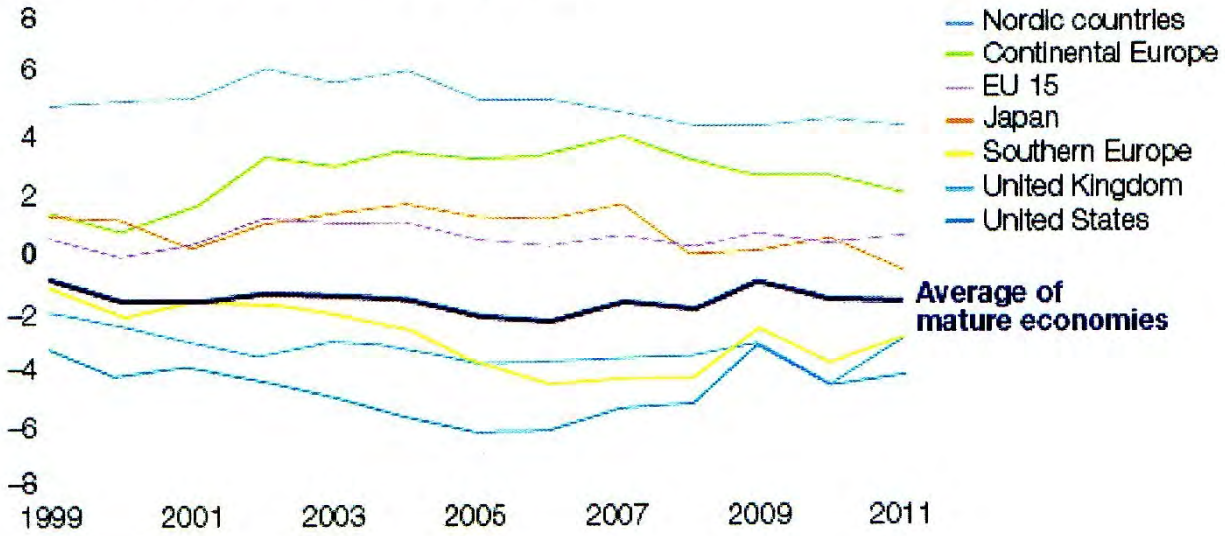


Source: Left: Amador and Cabral (2006); right: Brülhart (2009); adapted from Baldwin and Lopez-Gonzales (2012).

Source: Baldwin WTO 2.0, CEPR, Policy insight 64, dec 2012

Average net exports of mature economies remained relatively stable over the past decade, though individual countries showed significant variations.

Net exports of mature economies,[1] % of GDP



[1]Nordic countries: Denmark, Finland, Sweden; Continental Europe: Austria, Belgium, France, Germany, Luxembourg, and Netherlands; EU 15: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and United Kingdom; Southern Europe: Greece, Italy, Portugal, and Spain.
Source: Organisation for Economic Co-operation and Development (OECD); McKinsey Global Institute analysis

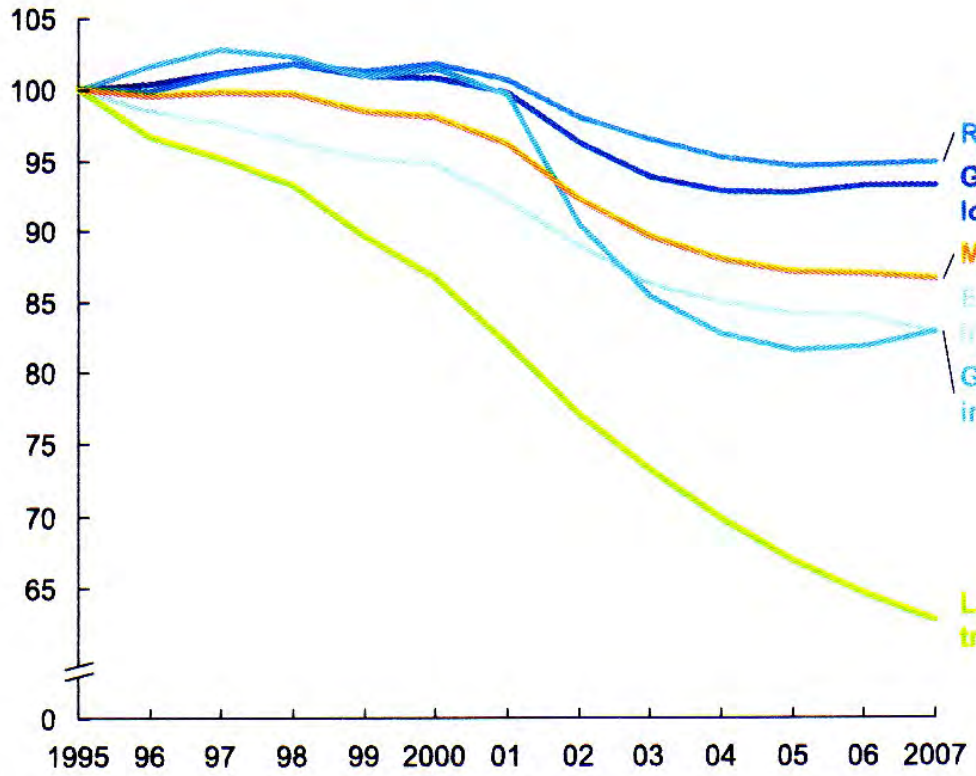
mckinsey.com/insights/mgi/research/.../six_myths_about_trade?p=2

Exhibit E4

Manufacturing employment in advanced economies has declined across all groups but has fallen most in the labor-intensive tradables group

Manufacturing employment by group in selected advanced economies, 1995–2007[1]

Index: 1995 = 100



Share of manufacturing employment %	1995	2000	2007
Regional processing	33	35	37
Global innovation for local markets	28	29	30
Energy- and resource-intensive commodities	14	14	13
Global technologies/ innovators	8	9	8
Labor-intensive tradables	16	14	12

1 Sample of 17 advanced economies: EU-15, Japan, and United States.

NOTE: Numbers may not sum due to rounding.

SOURCE: EU KLEMS; OECD; McKinsey Global Institute analysis

Synchronisme technologique
Fin des rentes géographiques

Pierre Veltz IHEDATE février 2015

Scalabilité

Pierre Veltz IHEDATE février 2015

Coûts Fixes > coûts variables

concurrence = recherche de monopole sur des niches.

Numérique, mais pas seulement

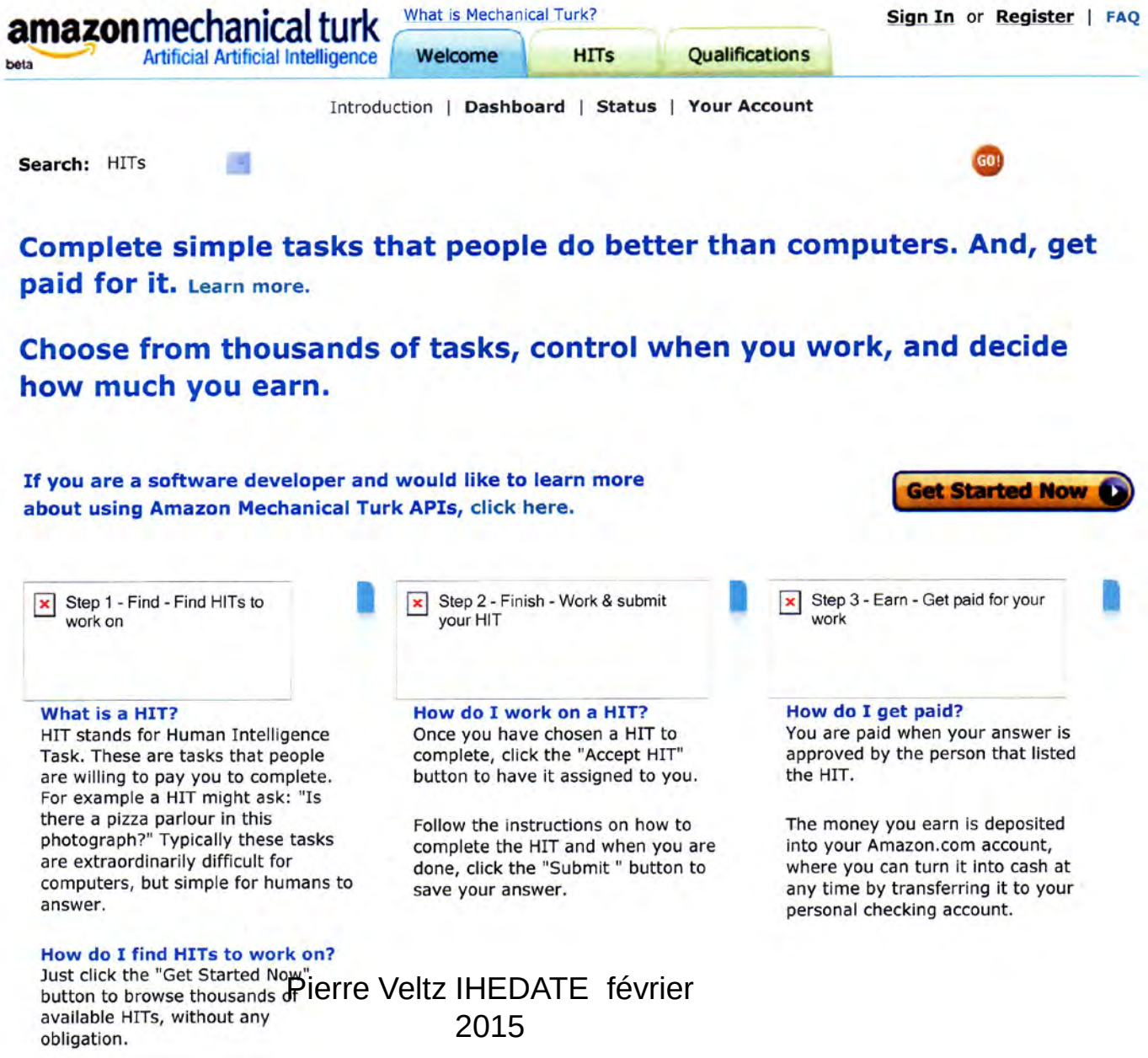
Efficience relationnelle

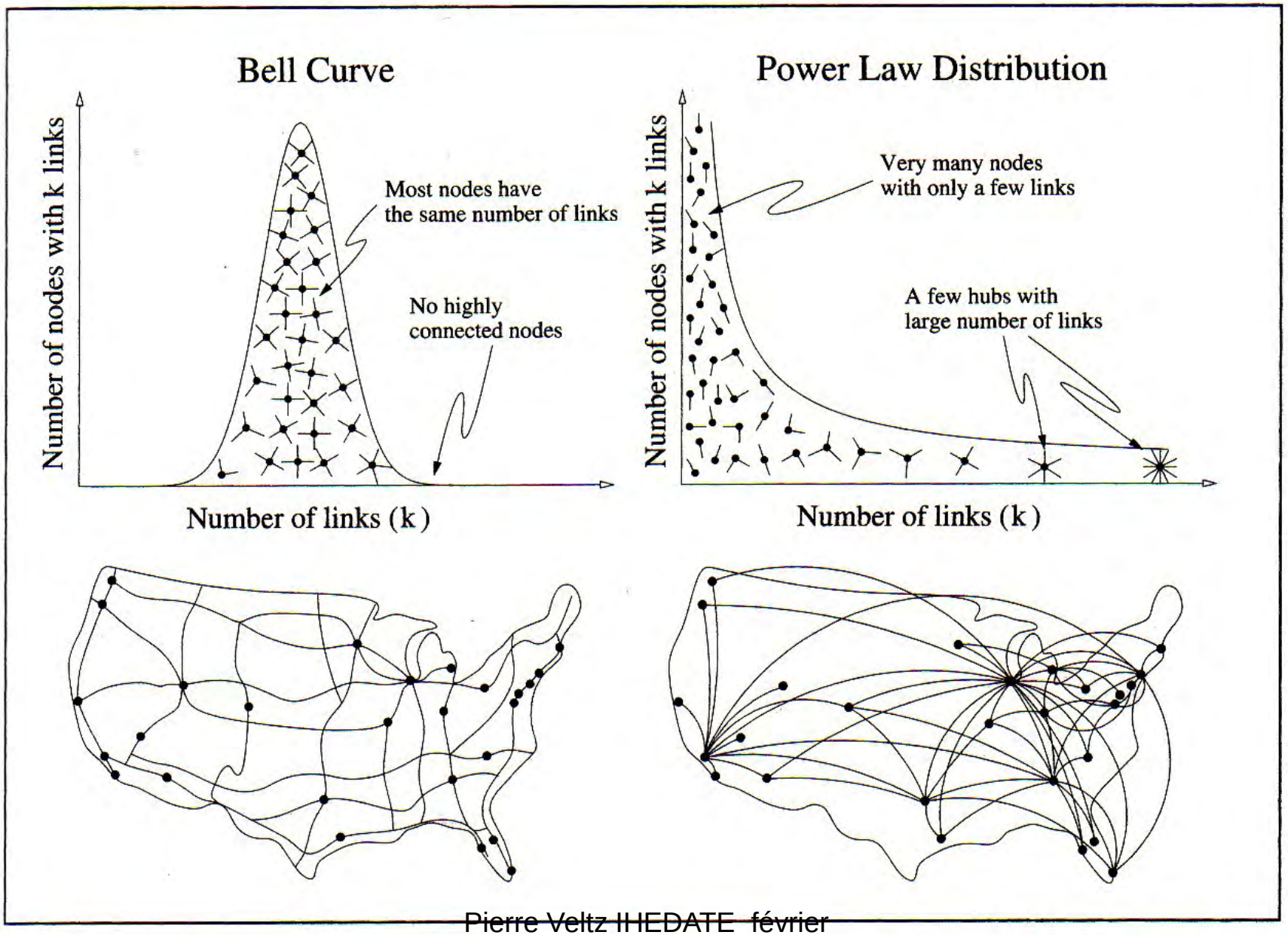
Densité et pertinence des relations entre acteurs

>> productivité des opérations

Relations avec les usages et les marchés
Pilotage des grands systèmes supports

Virtualisation / organisations ouvertes

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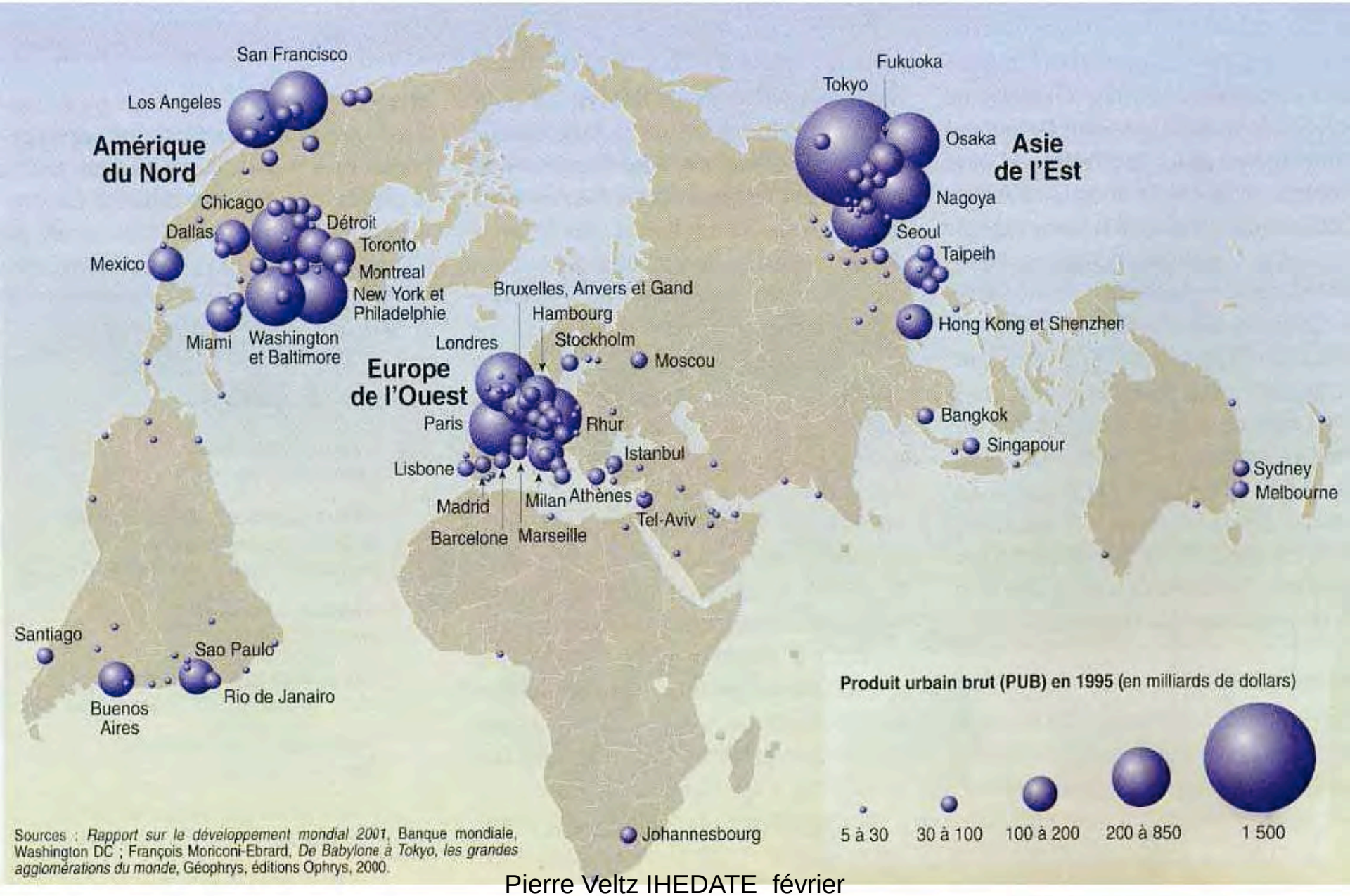
Power Law Distribution
Number of nodes with k links
Very many nodes
with only a few links
A few hubs with
large number of links
Number of links (k)

10 premières régions urbaines

6% pop mondiale

43% PIB mondial

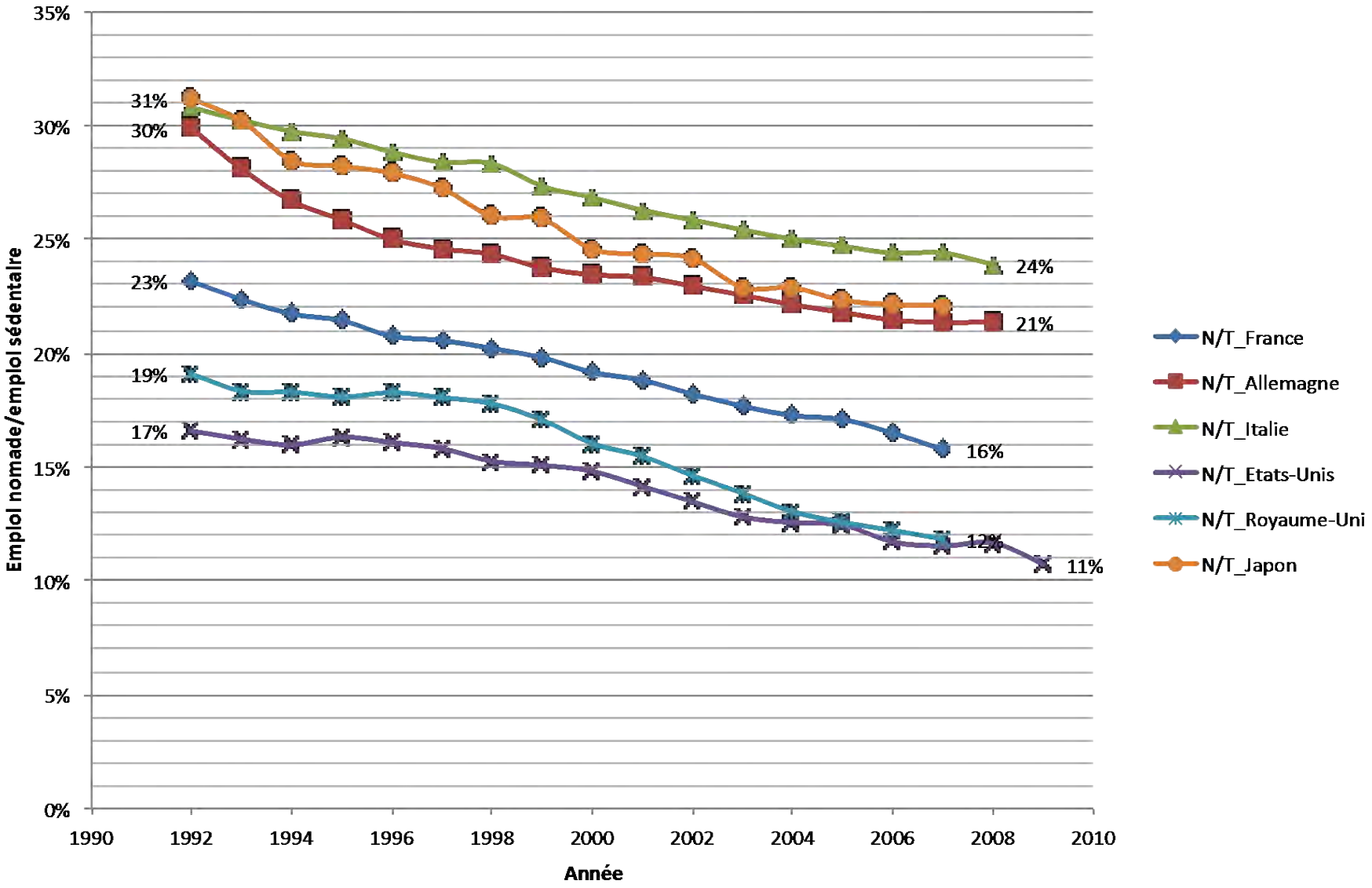
70 à 80% Science et technologie



Sources : *Rapport sur le développement mondial 2001*, Banque mondiale, Washington DC ; François Moriconi-Ebrard, *De Babylone à Tokyo, les grandes agglomérations du monde*, Géophrys, éditions Ophrys, 2000.

Enjeu : Fixer les nomades

Evolution du ratio "emploi nomade/emploi total" depuis 1992



Source : Pierre-Noël Giraud

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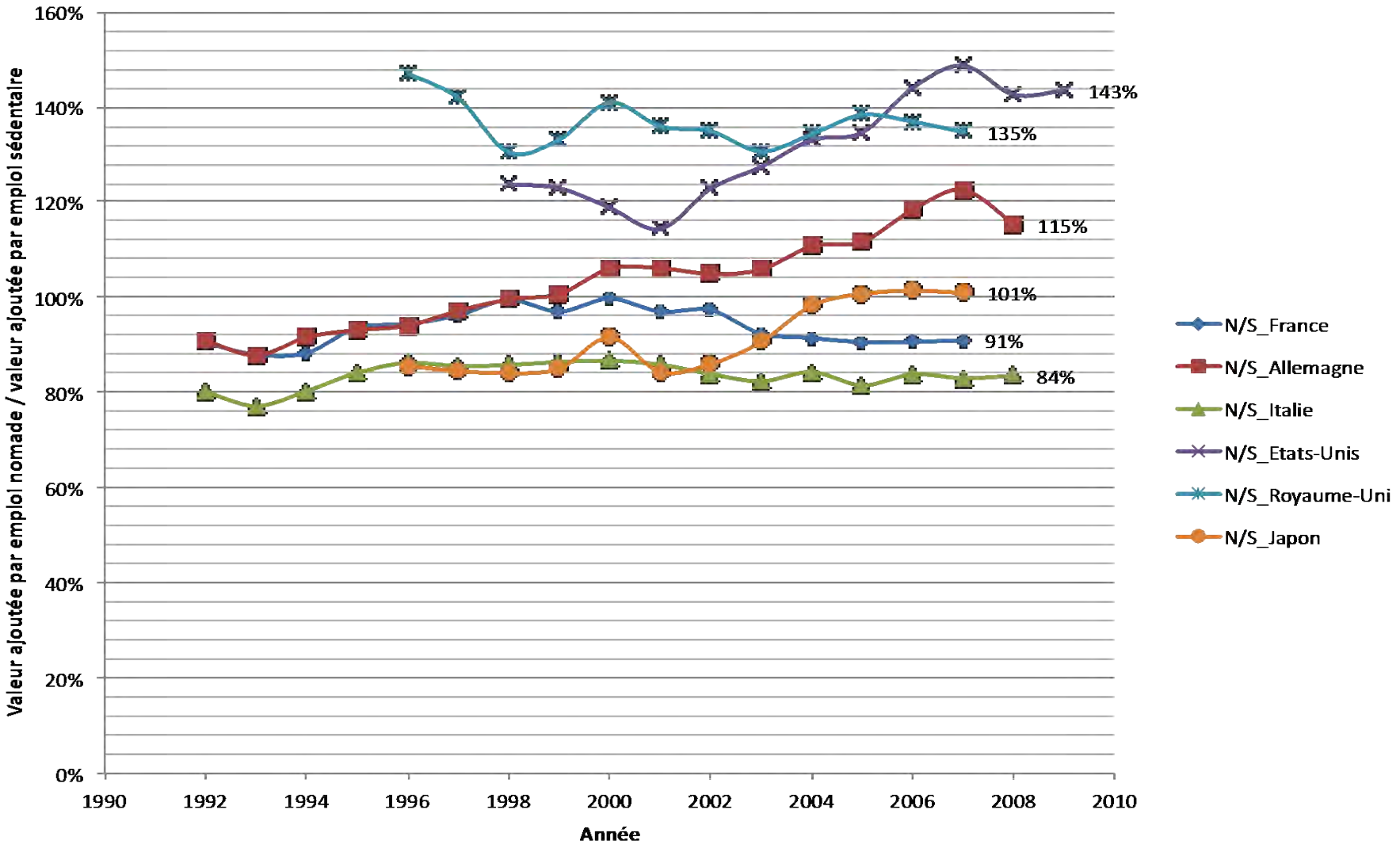
Valeur ajoutée relative par emploi depuis 1992 NOM/SED



Source : Pierre-Noël Giraud

Bipolarisation des qualifications

(Du dromadaire au chameau)

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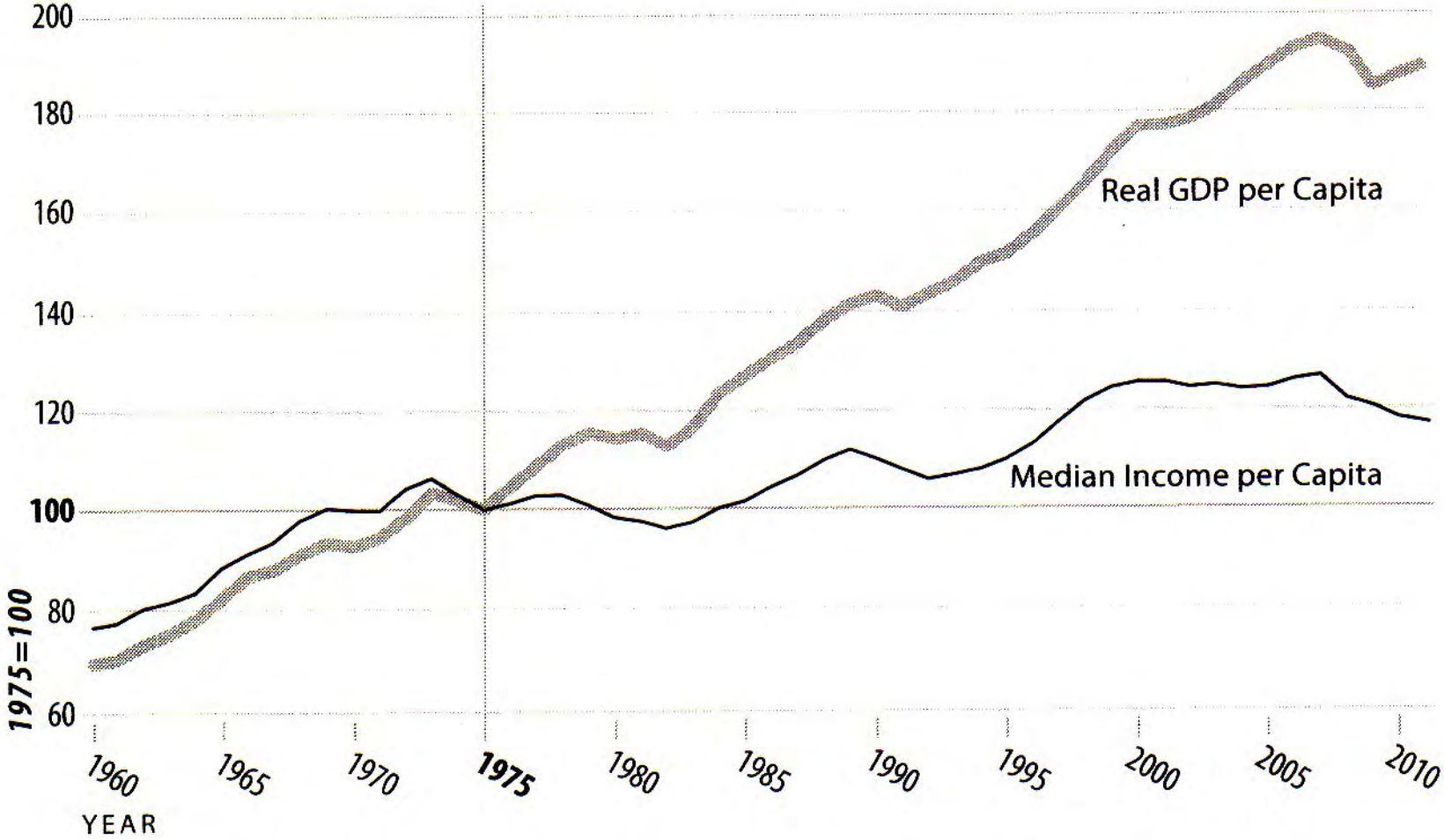
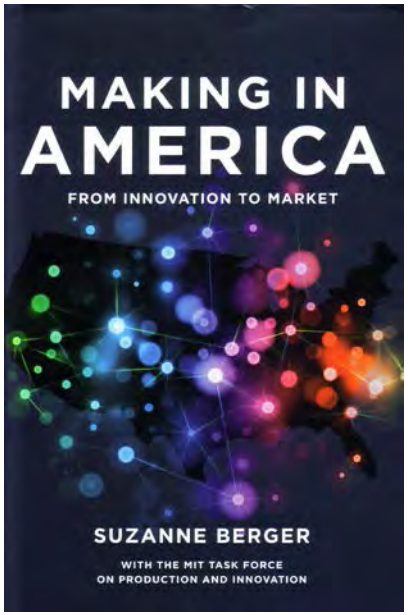
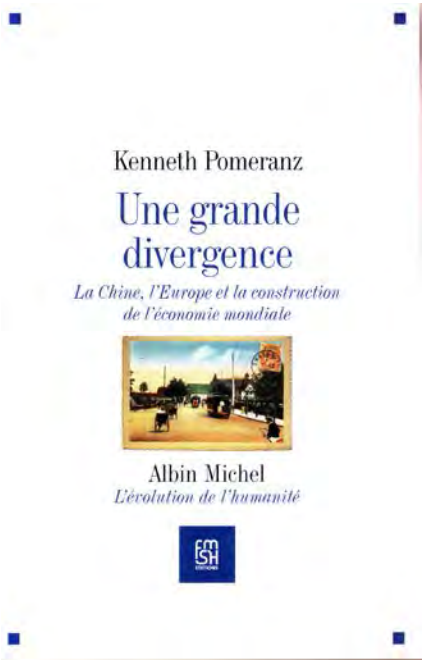
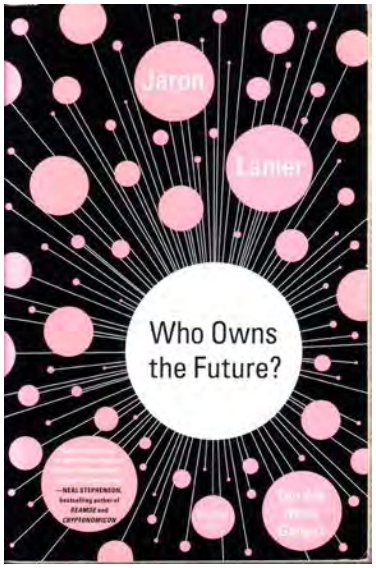
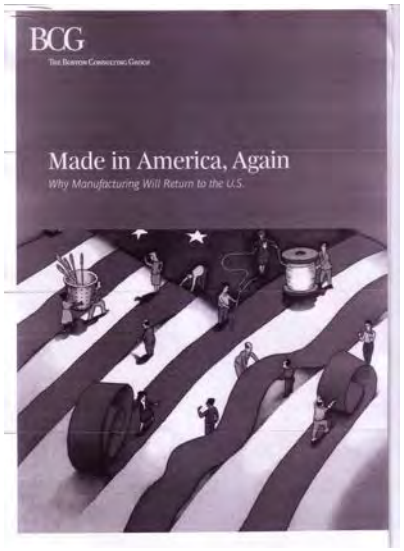
FIGURE 9.1 Real GDP vs. Median Income per Capita

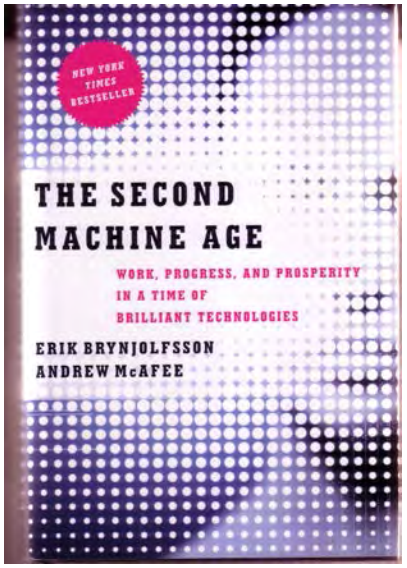












Pierre Veltz IHEDATE février 2015

Questions ouvertes

De l’entreprise au nuage

Production distribuée, makers, longue traîne de l ’offre…?

Sécession fiscale, prédation

The mass production revolution has dethroned the ruling groups of bourgeois society : the merchant, the banker, the capitalist. Symbolic of this change is the steady decay of the great merchant oligarchies : the « City » in London, « Wall Street » in NY, « State Street » in Boston. Where only twenty years ago the bright graduate of the Harvard Business School aimed at a job with a NY Stock Exchange house, he now seeks employment with a steel, oil, or automobile company. It is not only that money has become less important than industrial capacity to produce; the old financial powers have also lost control over money and credit itself, as witness the shift of the financial headquarters from Wall Street to the government Agencies in Washington and from the City to the British Treasury

Peter Drucker, 1949