

How do Product and Labor Market Regulations affect Aggregate Employment, Inequalities and Job Polarization? A General Equilibrium Approach

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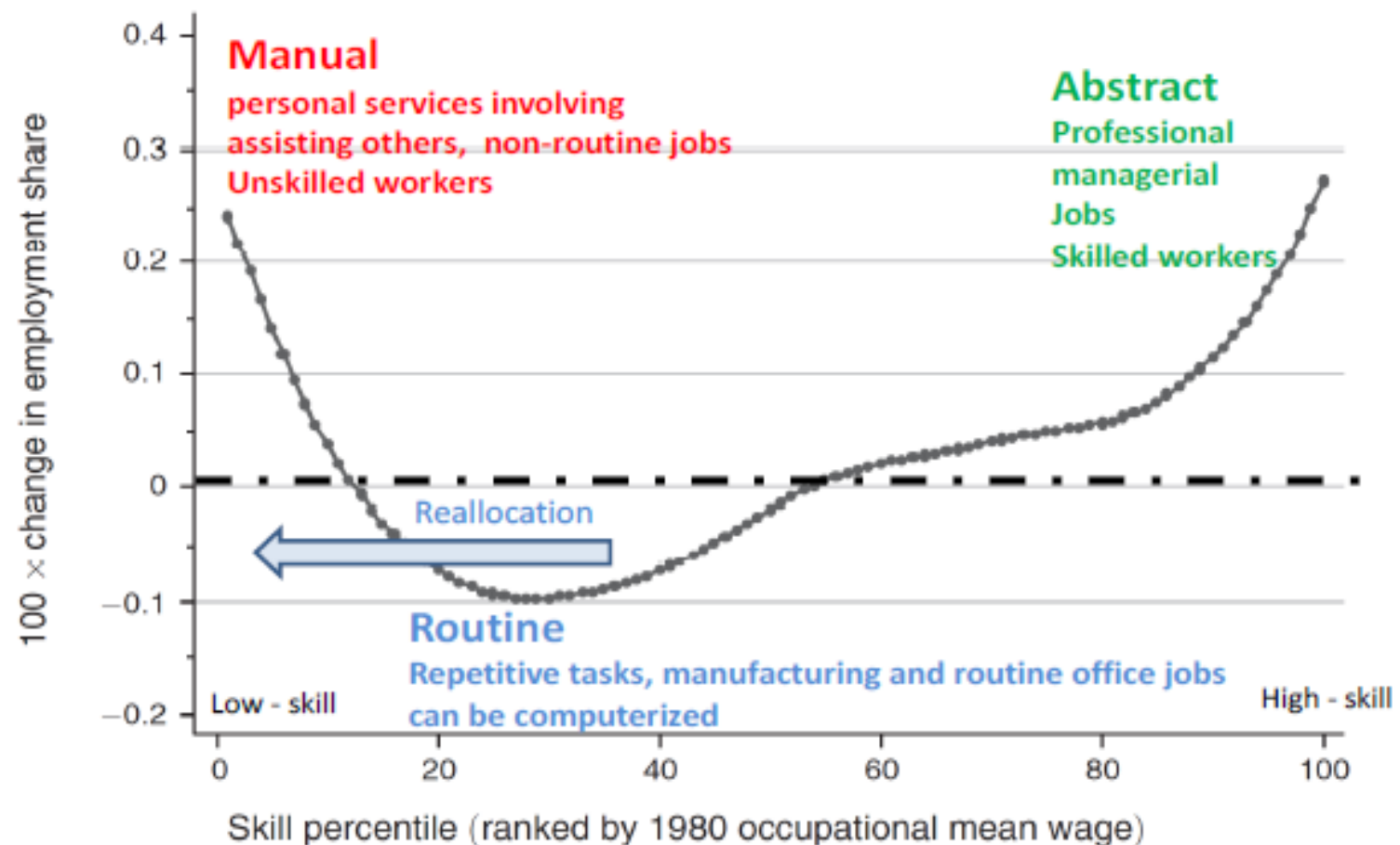
DG ECFIN's Structural Reforms Workshop "Inequality and Structural Reforms:
Methodological Concerns"

Framework : Job Polarization

- Income inequalities are the outcome of wage and employment dynamics
- Any structural reform analysis needs to take into account structural changes and their causal forces in a general equilibrium framework
- Technological progress is "labor augmenting" for some workers and "labor saving" for others (the computerized tasks).
- The demand for routine task (the "middle" class) decreases whereas that for abstract and manual tasks (the top and the lower "classes") expands. This generates "job polarization".
- In the future, our economies will continue to experience a computerization of routine tasks, implying a lengthy process of employment reallocation.
- New allocation of workers to firms and sectors will depend on these technological opportunities, **but also on the evolution of product and labour market institutions.**
- Beyond these challenges in terms of employment, job polarization potentially generates a rise in inequalities, which could eventually create an employment-equality trade-off.

Job polarization The disappearance of routine jobs relative to those at the bottom and top of the wage distribution.

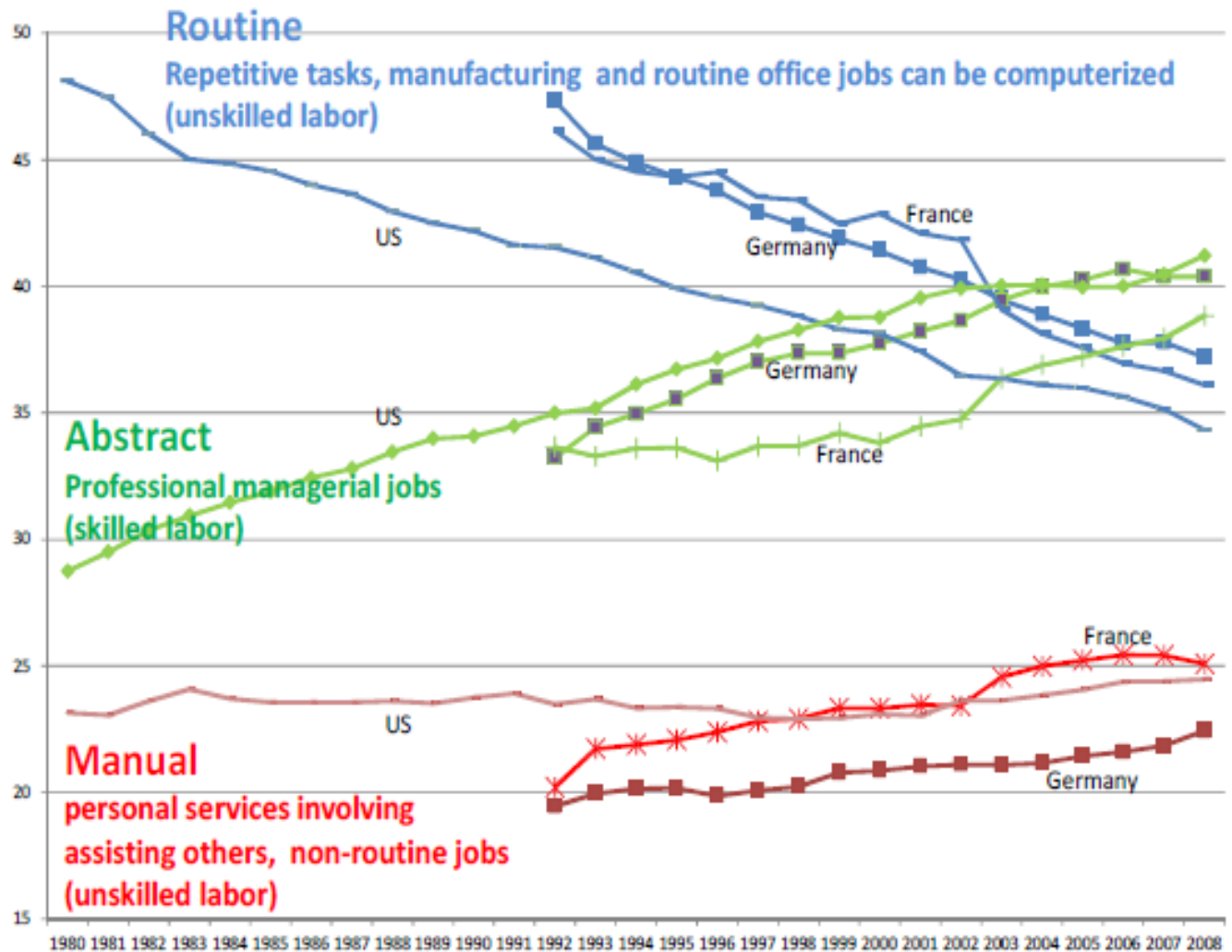
Panel A. Smoothed changes in employment by skill percentile, 1980–2005



"manual" or "service" jobs

Source : Autor and Dorn (2013)

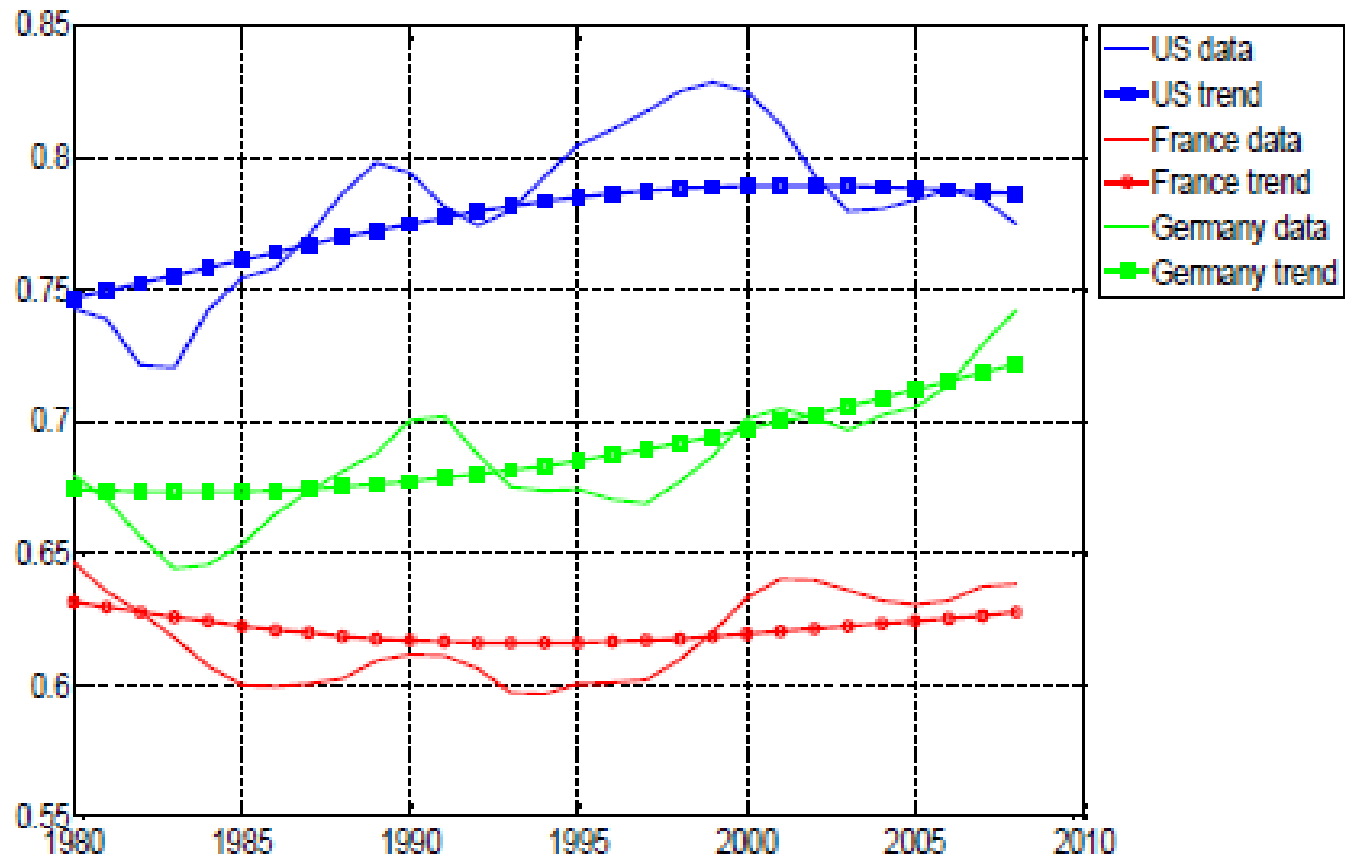
Job polarization in the data : employment shares by task



Source : OECD

Authors' calculations. Based on BLS and French LFS.

Aggregate employment rate dynamics



OCDE data. Employment rate, 18 — 64 years old

- How to reconcile the heterogeneity in the evolution of aggregate employment with the reallocation process across occupations?
- What is the respective role of
 - 1 the TBTC (Task-Biased Technological change)
 - 2 the rise of share of high skill workers in the labor supply,
 - 3 the labor market institutionsin shaping the transitional dynamics of the occupational structure of employment?
- How do labor market reallocations affect inequalities in the context of the structural change?

Theoretical model

Multi-sectorial model with search and matching frictions and endogenous occupational choices

- Exogenous trends :
 - Fall in price of *computer* capital
 - Evolution of LMIs
 - Growth in supply of skilled labor
 - US, France, Germany
- Model predictions : in each country, the dynamics of
 - Employment level, employment shares by tasks
 - Wage and income inequality, inequality in job opportunities
- Non-stationary, non-linear, general equilibrium environment
 - Some jobs exist only during the transition...
 - the non-stationarity of the structural change : a new perspective.

Evaluating (past) labor market reforms

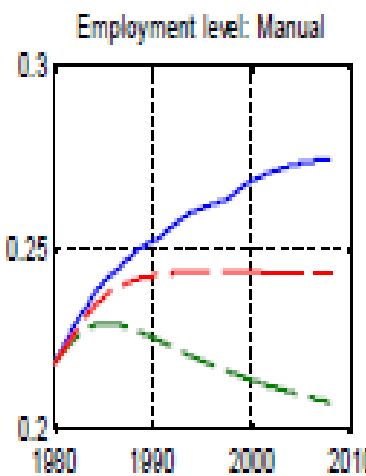
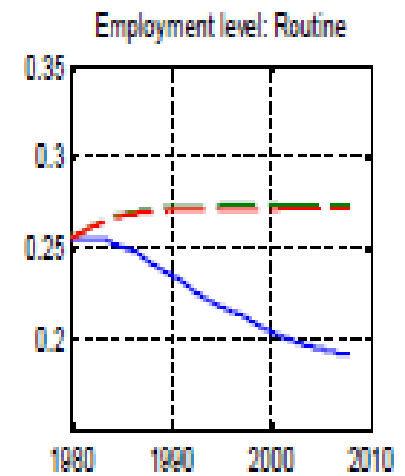
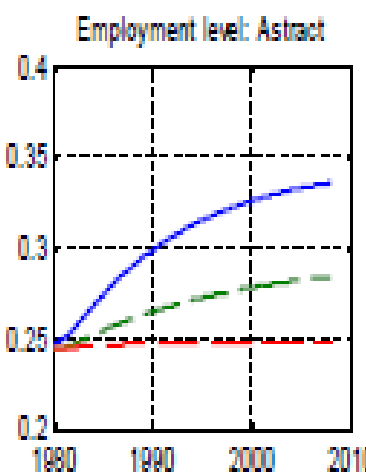
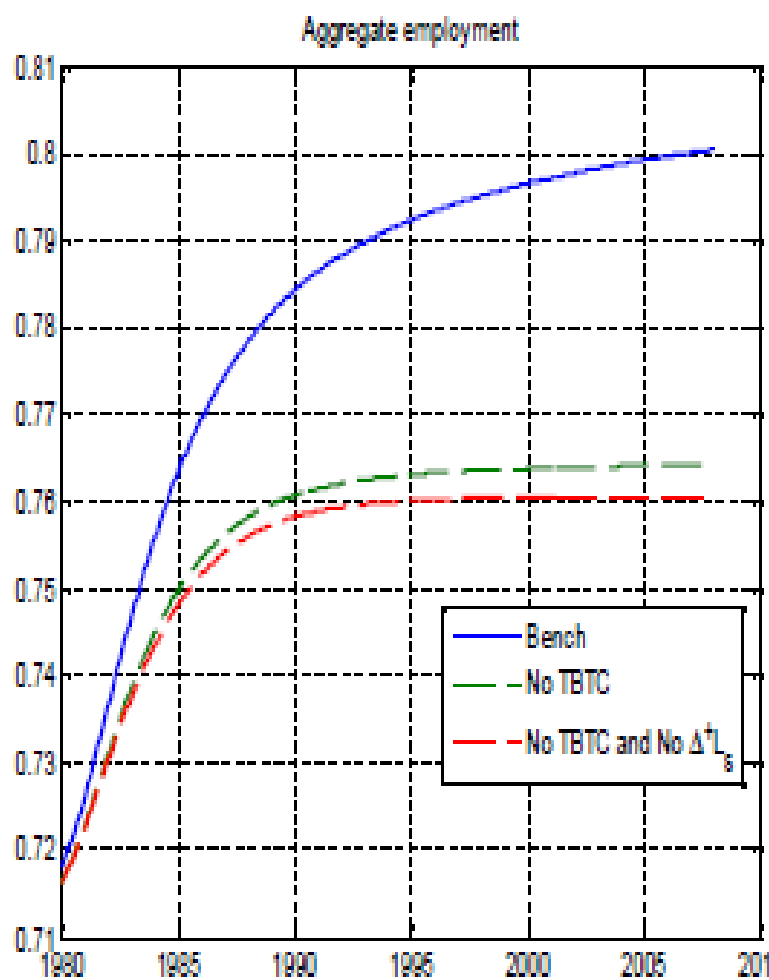
	Replacement Rate (RR)	Bargaining power	Minimum Wage (real)	Social assistance
US	low & ↓	low & ↓	low & ↓	middle & ↓
France	high & ↑	high & ↑	high & ↑	high & ↑
Germany	high & ↓	high & ↓	∄	high & ↓

Red : since the beginning of the 80s.

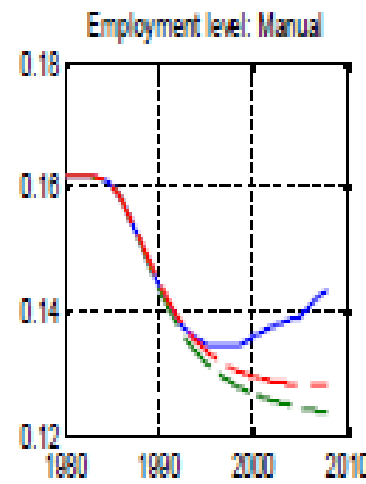
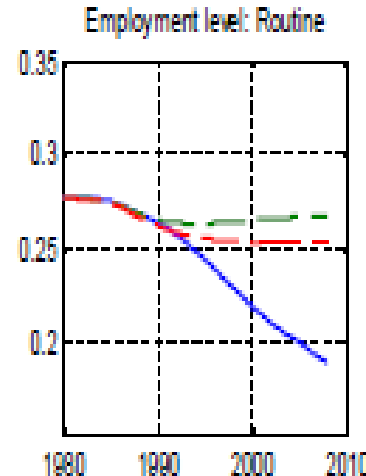
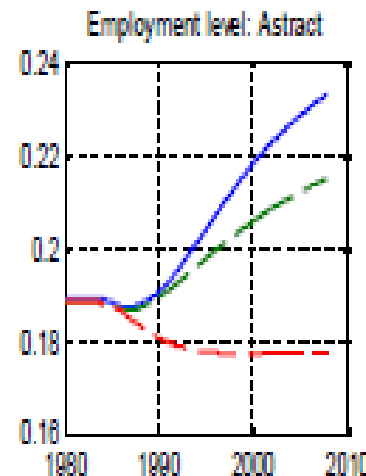
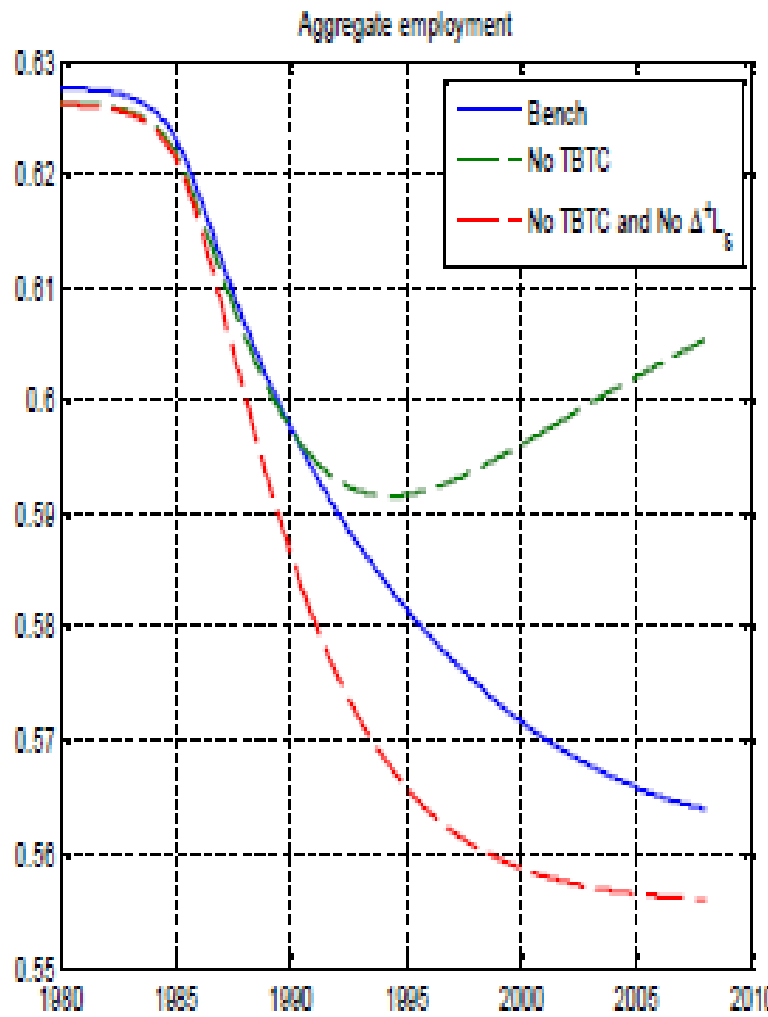
Blue : since the middle of the 90s.

- **US.** Social programmes, not conditional on a labor market activity, UB and workers' bargaining power *decline* at the beginning of the 1980s (Reagan).
- **France.** Since the mid-80s (Mitterrand), a continuous *increase* in the MW, UB and Social programs.
- **Germany.** *High and stable* UB and SP between 1980 and the mid-90s. Afterwards, these LMIs *decrease* (Kohl and Schroder)

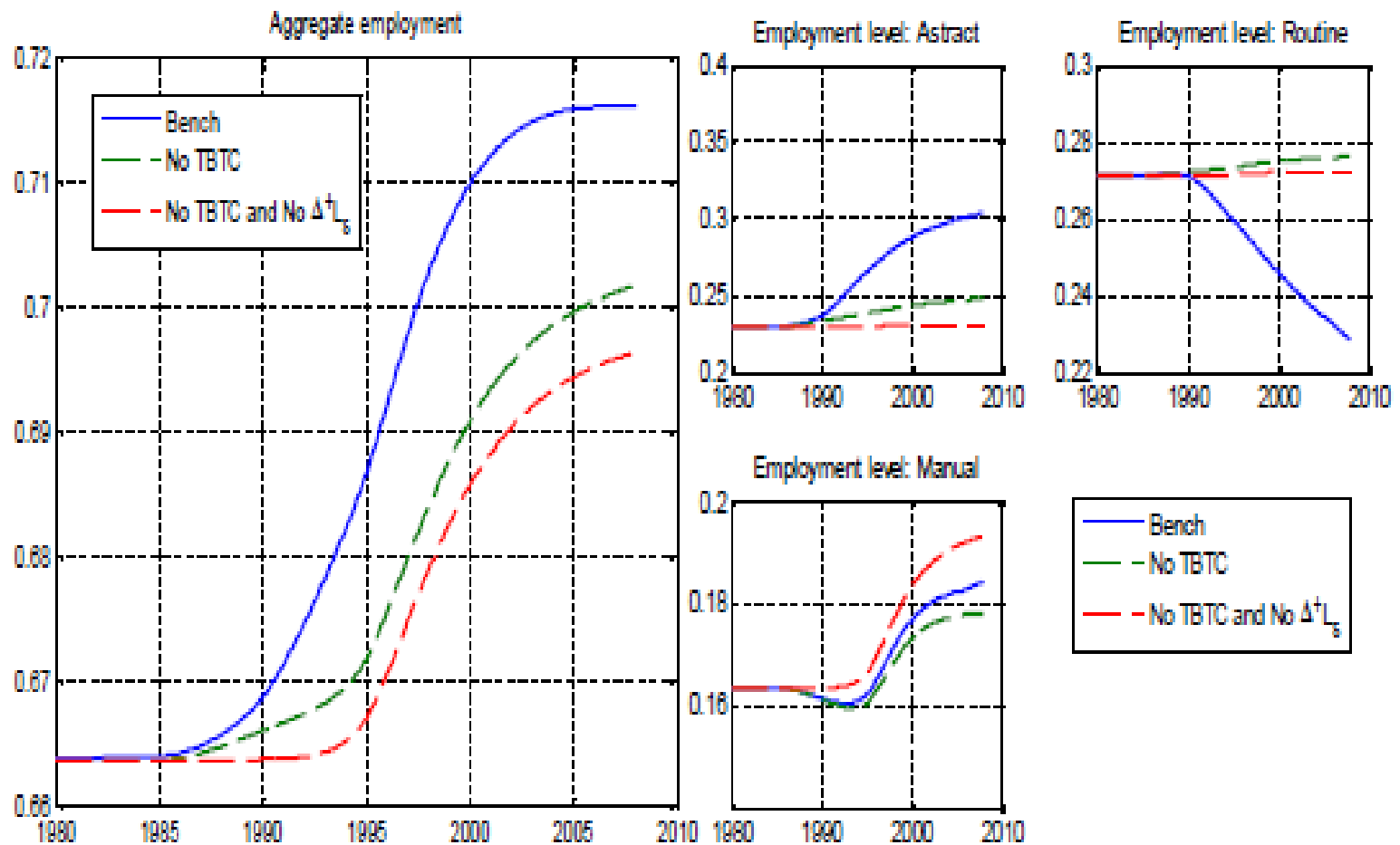
Counterfactual - TBTC/Labor supply/LMI : US



Counterfactual - TBTC/Labor supply/LMI : France



Counterfactual - TBTC/Labor supply/LMI : Germany



What do we learn ?

	red LMIs	green additional effect of Ls	blue additional effect of TBTC	total
US	+ 4 pp	+ 0.5 pp	+ 3.5 pp	+ 8 pp
France	- 7 pp	+ 5 pp	- 4 pp	- 6 pp
Germany	+ 3 pp	+ 0.5 pp	+1.5 pp	+ 5 pp

red Large effect of LMIs

green Educational attainment lowers the share of unskilled workers \Rightarrow Larger gains in France where this population is fragile, where gains are located at the top of skill distribution

blue TBTC : employment gains to skilled workers, employment gains to unskilled workers if reallocation is at work

Employment-equality trade-off

3 countries with 3 contrasting LMIs reforms

- **US** : LMIs accompany the opportunity of TC : new jobs are created at the top and the bottom of the wage distribution
⇒ large employment gains, but high wage inequalities.
- **France** : with MW, priority is given to lower wage inequalities, but, at the expense of lower job creations in manual jobs.
⇒ low employment gains and low wage inequalities.
- **Germany** : wage "moderation" and fall in social program since the middle of 90s (job creations for abstract and manual)
⇒ large employment gains, but high wage inequalities.

What about the incomes (the composition of wages, employment opportunities and welfare program) ?

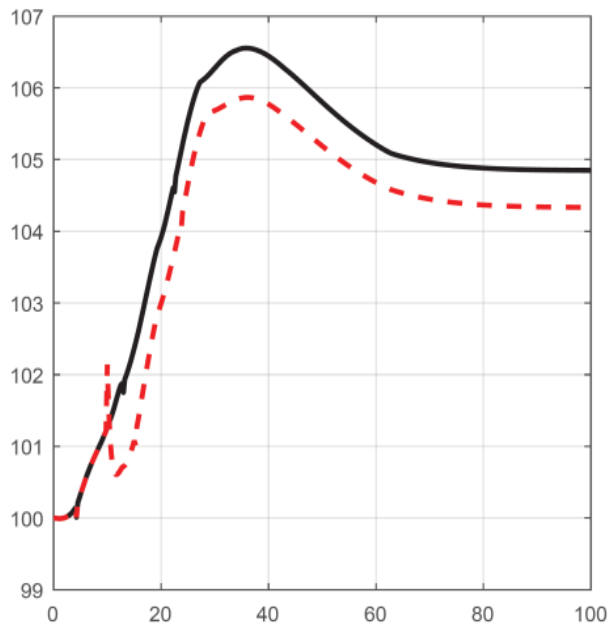
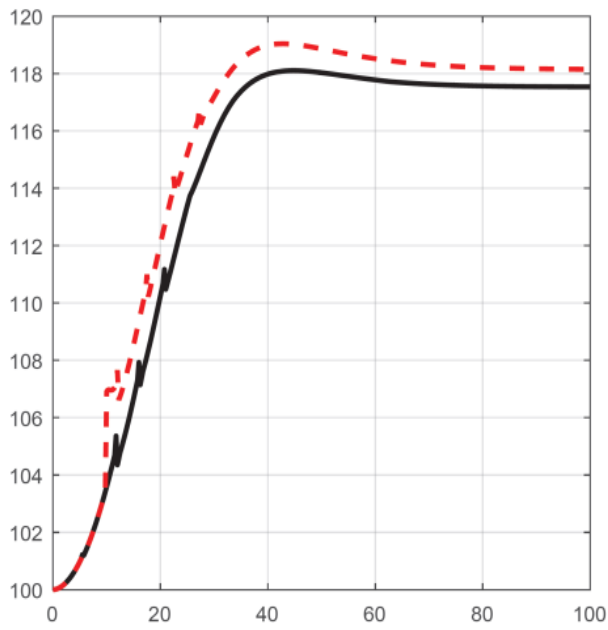
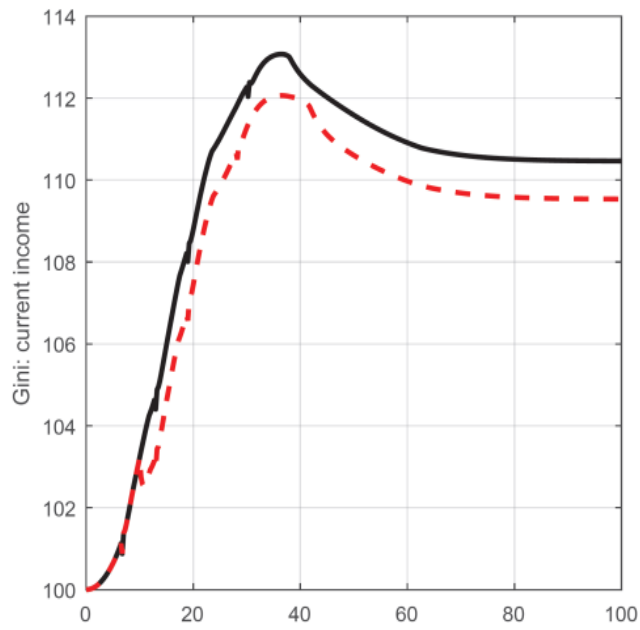
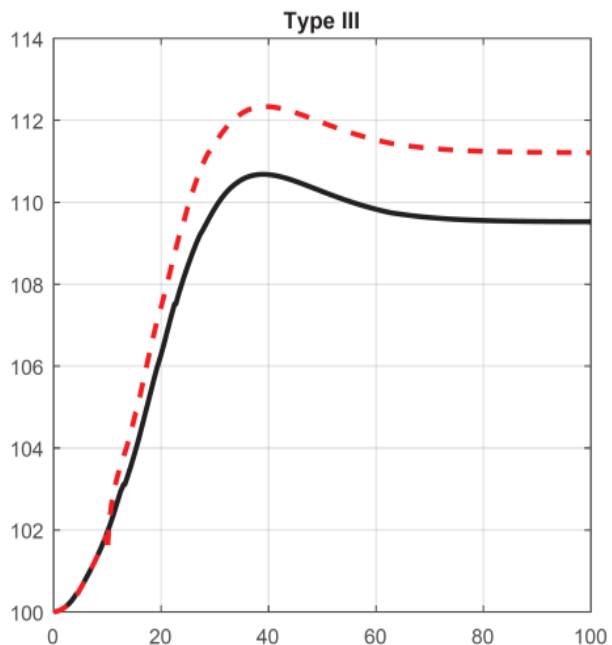
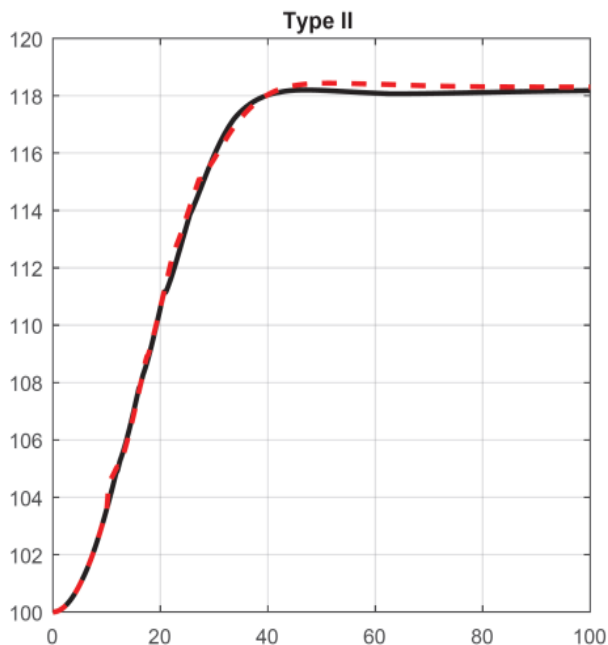
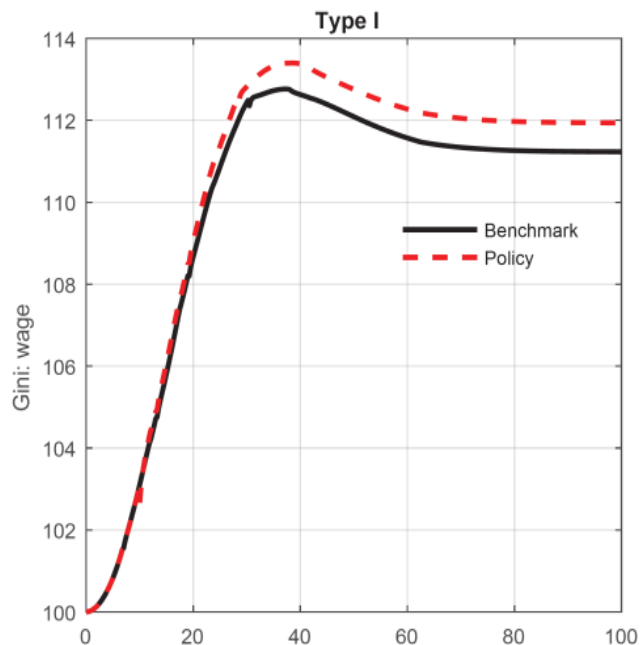
⇒ Germany is the least unequal country with the largest employment gains

Implementing new reforms

- The structural change must be accompanied by policy measures that magnify its positive impact on job creation, but at the same time, that limit inequalities.
- Any policy that aims at protecting the declining tasks is inefficient in the medium and the long run.
- By contrast, the most efficient reforms are those that favor reallocation towards the expanding activities.
- => **targeted reforms**
- These include **targeting** active labor market policy (ALMP) and payroll taxes reductions to low skilled workers, and liberalizing **the service sector**.

Reducing UB generosity

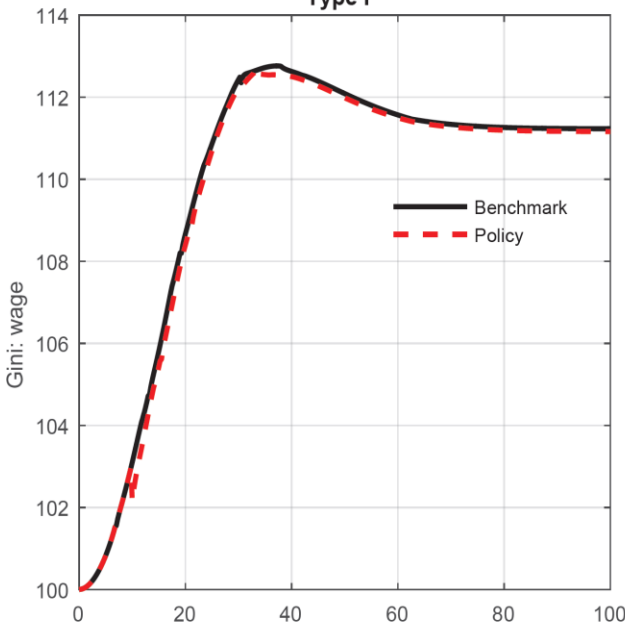
- **Wage inequality.** The impact of the UB reduction on wage inequalities depends on the existence of MW. Without MW, for low paid workers, the reduction in UB significantly reduces wages, thereby raising inequalities (for high paid workers, the share of UB in the wage is less important). Wage inequalities then rise in type I and III. In countries of type II, insiders are protected from these wage cuts through the MW and thus the wage inequalities are not affected by the reform.
- **Income inequality.** The costs for countries of type II from this neutrality on wage inequality, are the employment losses induced by the MW: given that the UB reduction does not change the labor costs at the bottom of the distribution in an economy with a MW, there is no employment gains induced by the reform in that part of the distribution, only unemployed workers who are less paid. Income inequalities increase in type II economies. This is not the case in countries where UB reduction leads to more employment at the bottom of the distribution (types I and III).



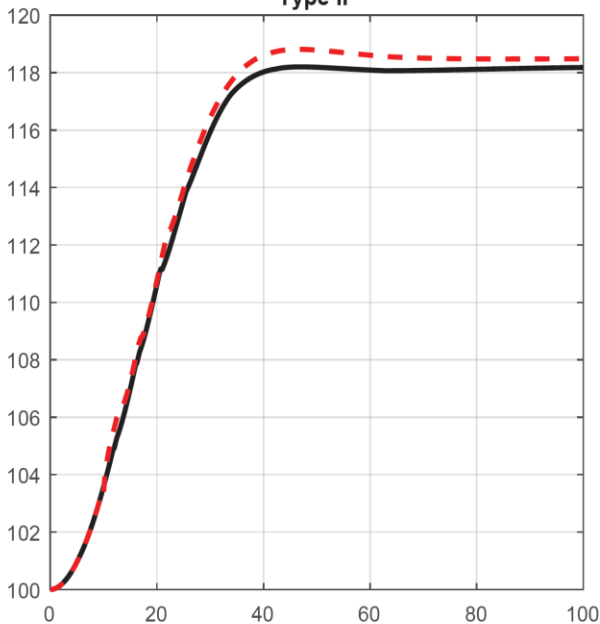
Payroll tax subsidies

- We focus on the payroll tax subsidies, targeted at low skilled workers.
- Relevant when job reallocations toward the bottom of the wage distribution
- The main impact of this policy is to increase the "employment chances" at the bottom of the distribution.
- Hence, its impact on wage inequalities is negligible.
- Concerning income inequality, this policy reduces them in all countries. This contrasts with the reduction in UB: even in countries of type II, we observe a reduction in inequalities induced by the reform. Indeed, unskilled workers enjoy higher "employment opportunities", and do not suffer from a fall in their income when they are unemployed.

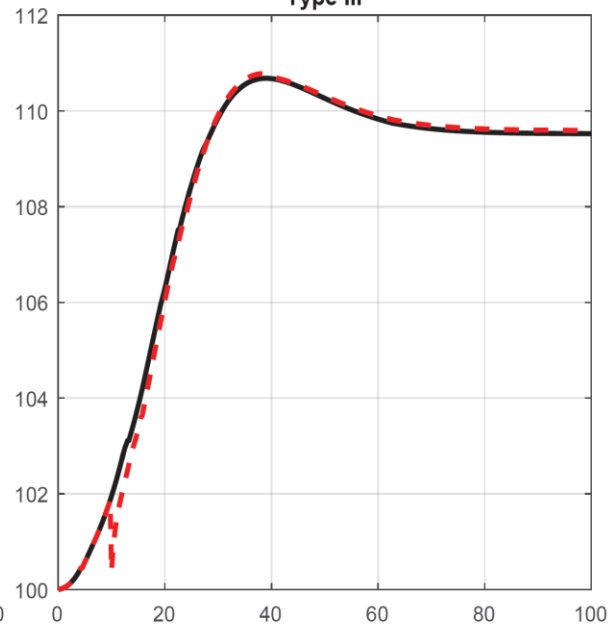
Type I



Type II

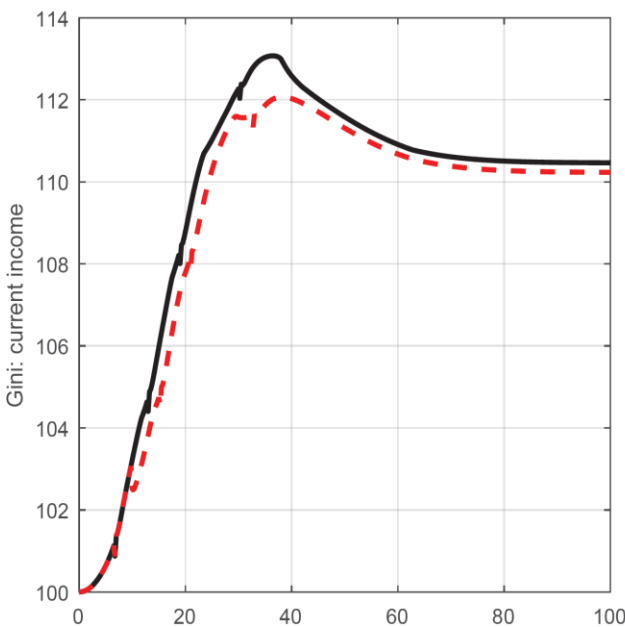


Type III

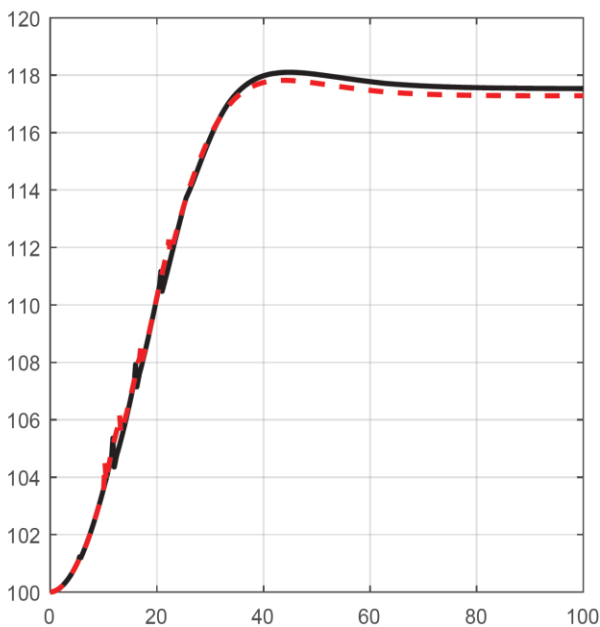


Gini: current income

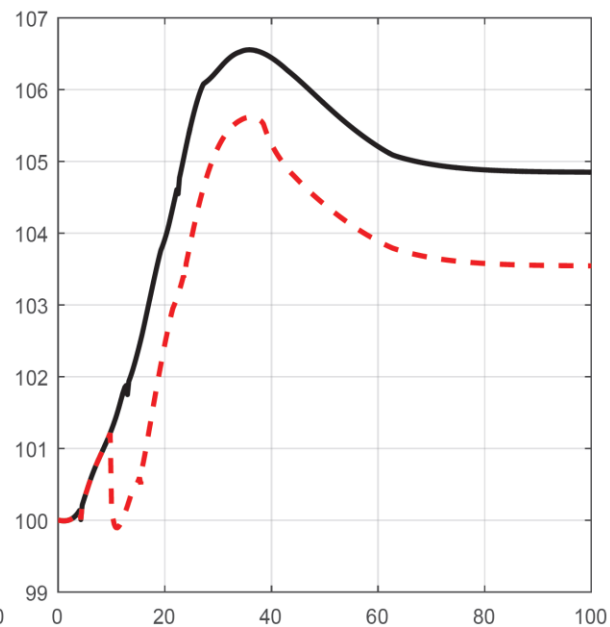
Type I



Type II

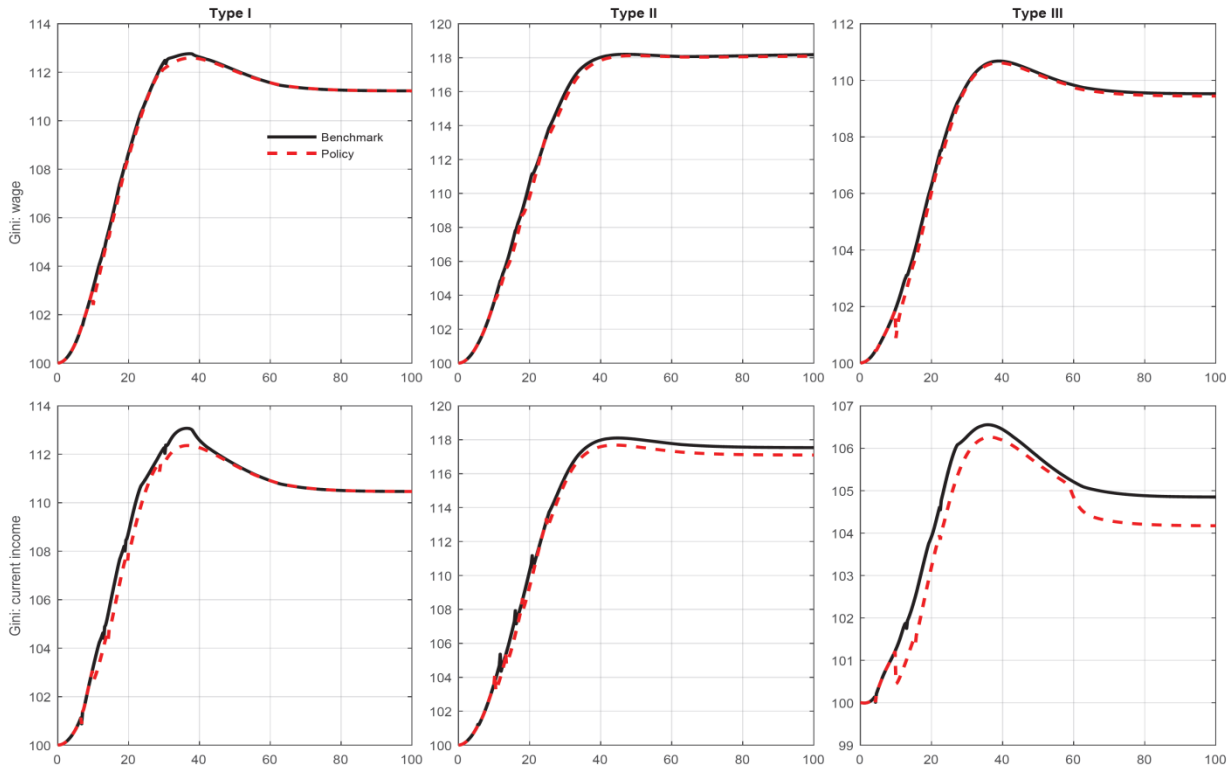


Type III



Active labor market policy

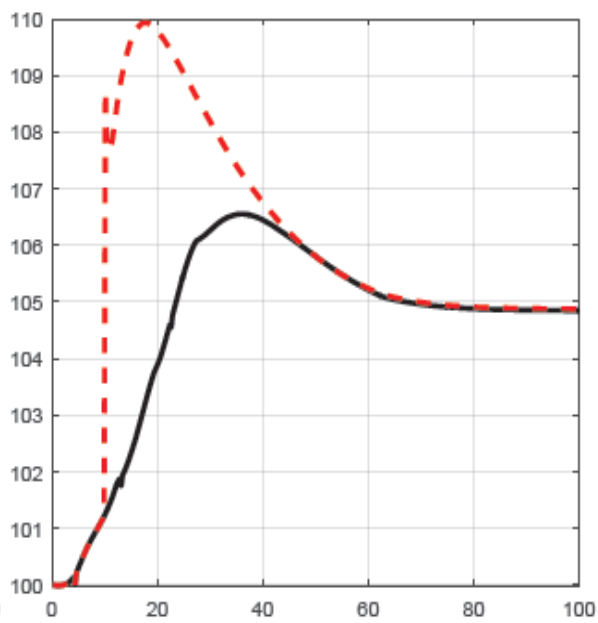
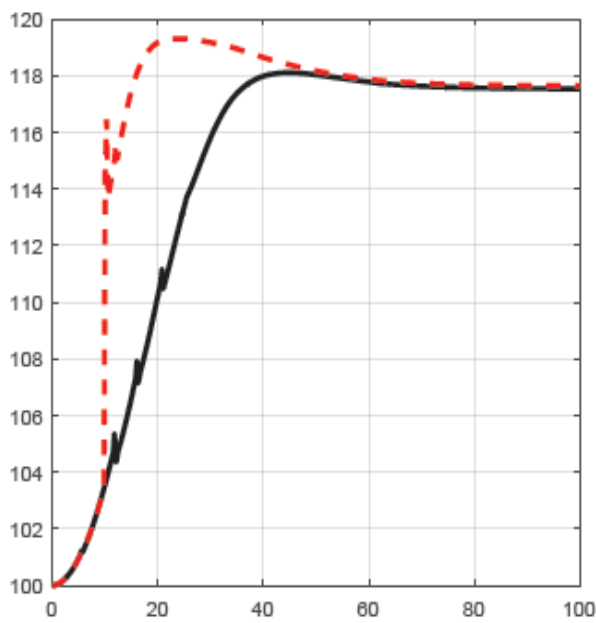
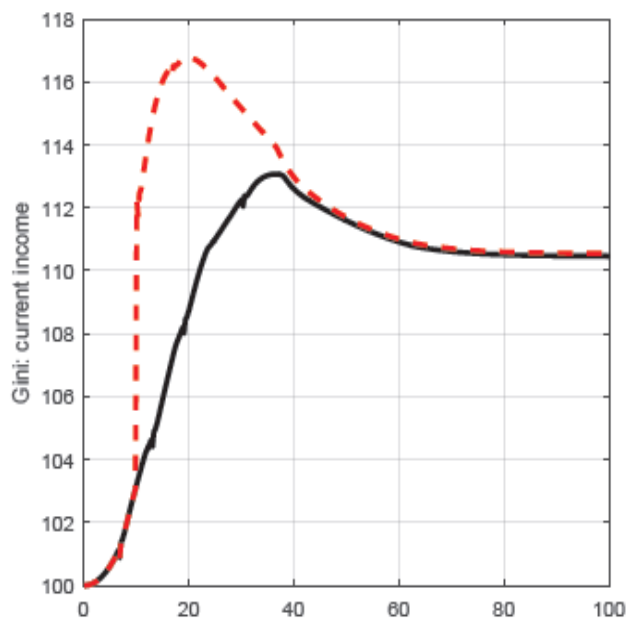
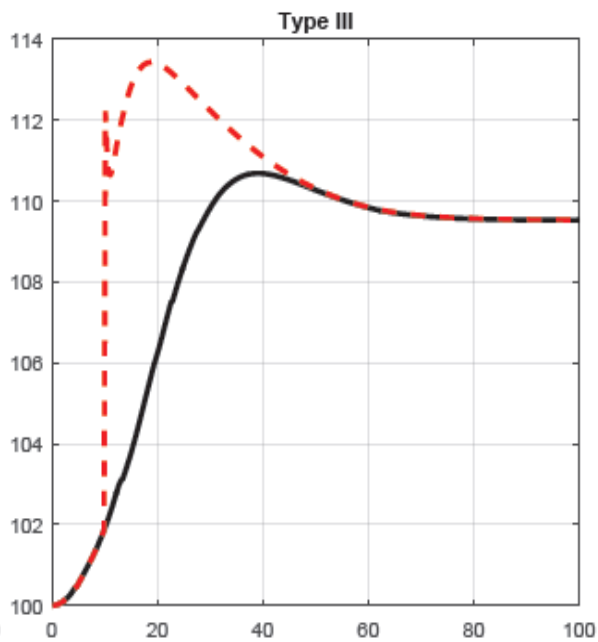
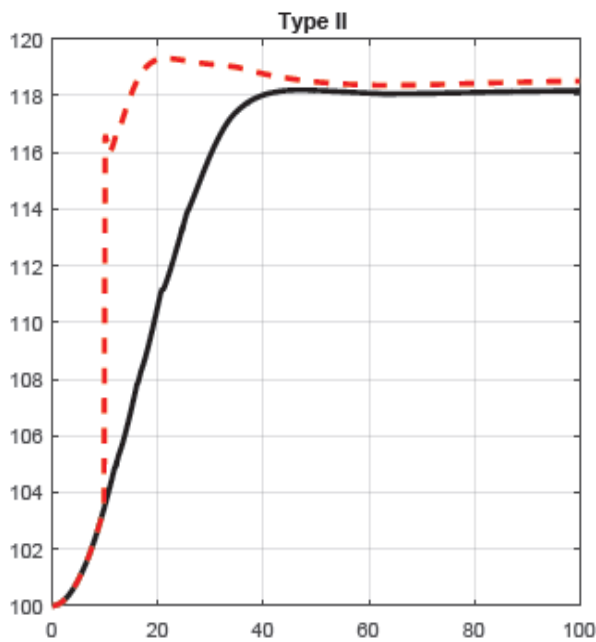
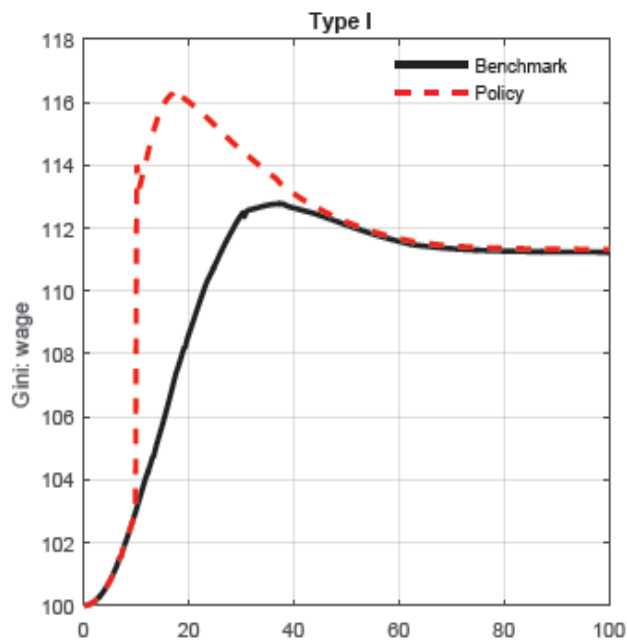
- The evaluation of an active labor market policy is the one of a subsidy on hiring costs for workers who choose to move from the routine labor market towards manual tasks.
- Relevant when reallocation unemployment is the main issue
- Impact on wage inequalities is not significant,
- Reduction in income inequalities since the cost of the reallocation is reduced by a shorter unemployment spell. This reduces the number of workers receiving low revenues, thus income inequalities decrease.



Regulating competition on the good markets

- Reducing the entry cost on the good market
- Accelerating the path of the technological progress
- The main impact of the increase in competition in the good sector is a rise in wages at the top of the distribution.
- The decline in labor demand for routine tasks is accelerated when we introduce an acceleration of the technological change after the reform (more incentives to innovate for competitive firms).
- Hence, wages of these workers decrease rapidly.
- A large amount of reallocations arrives at the same time in labor market of the service sector. This generates congestion effects.
- All these mechanisms explain the large increase in inequalities in the short run: the wages of abstract workers go up whereas the others' are compressed at the bottom.

- For the incomes inequalities, the sizeable "technological unemployment" explains the gap with the benchmark .
- In type II economies, the overshooting phenomenon of the long run value of inequality measures, observed in countries of types I and III, is dampened.
- This comes from the MW. Without any downward adjustments in the middle of the wage distribution, there is a concentration of the wage distribution at this MW and thus inequalities are contained at the bottom.
- In other countries, jobs of the middle class are destroyed less rapidly, at the price of wage cuts: wages inequalities increase.
- The counterpart of these wage adjustments, is that countries of type II will achieve a large growth of income inequalities, because a large number of individuals are rapidly excluded from routine tasks, at a time when the development of services is slow.

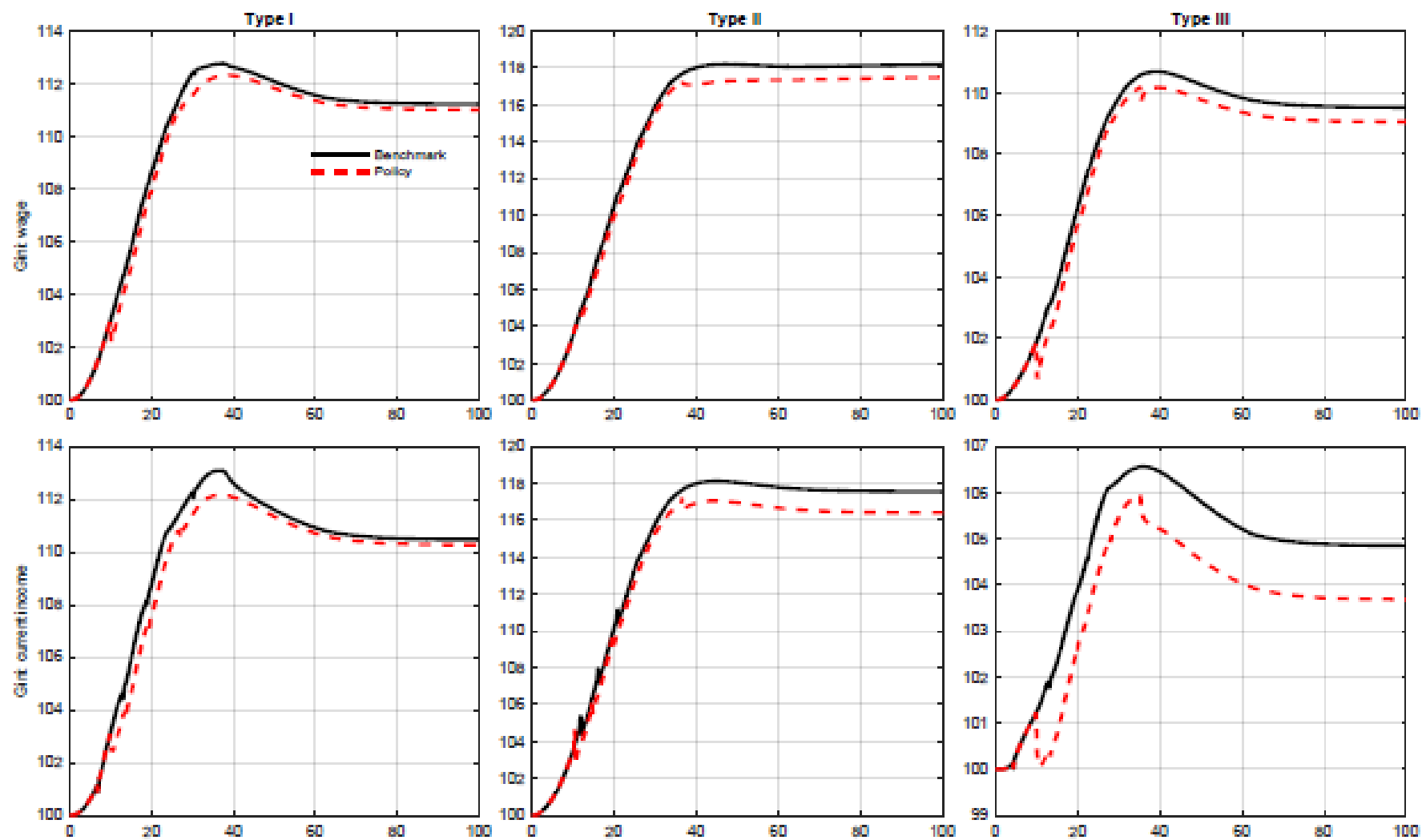


Increasing competition on the service markets

- The main impact of the increase in competition in the service sector is a rise in wages at the bottom of the distribution: hence more competition in the service sector leads to reduced wage inequalities .
- Indeed, a market product regulation promoting the competition, and targeted on this sector, allows firms to benefit from a supply shock, in addition to the additional demand generated by the technological change. This boosts labor demand and thus wages in the service sector.
- In countries of type II, this policy leads to an exit out of the MW trap.
- The resulting effect of these wage increases in the service is a larger reallocation of the low productive workers on this market:

- Beyond these effects on wages, this policy also increases "employment opportunities": less individuals receive only an UB.
- This phenomenon is at work in all countries, and to a larger extent in the country where the labor market at the bottom of the distribution is initially distorted (Type II economies).
- Accompanying TBTC with this targeted PMR significantly reduces income inequalities by raising the gains at the bottom of the distribution.

FIGURE – Inequalities after a reduction in entry costs in services

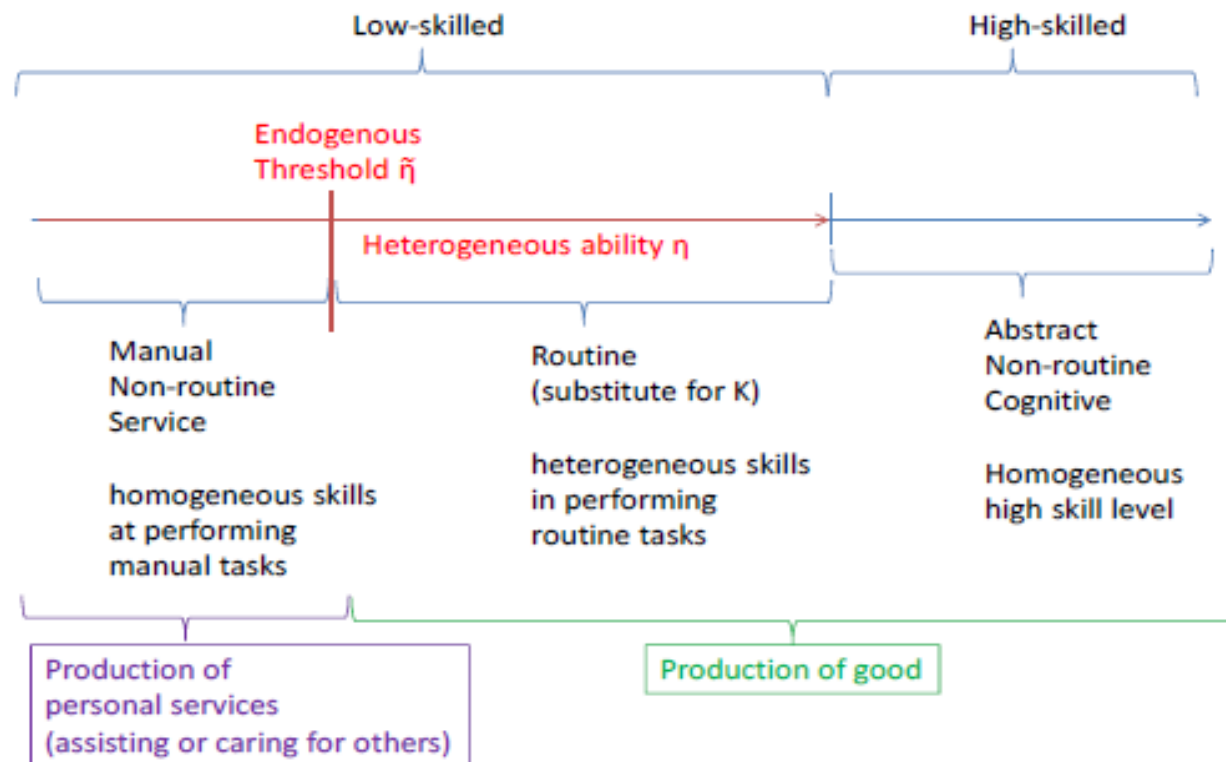


Question

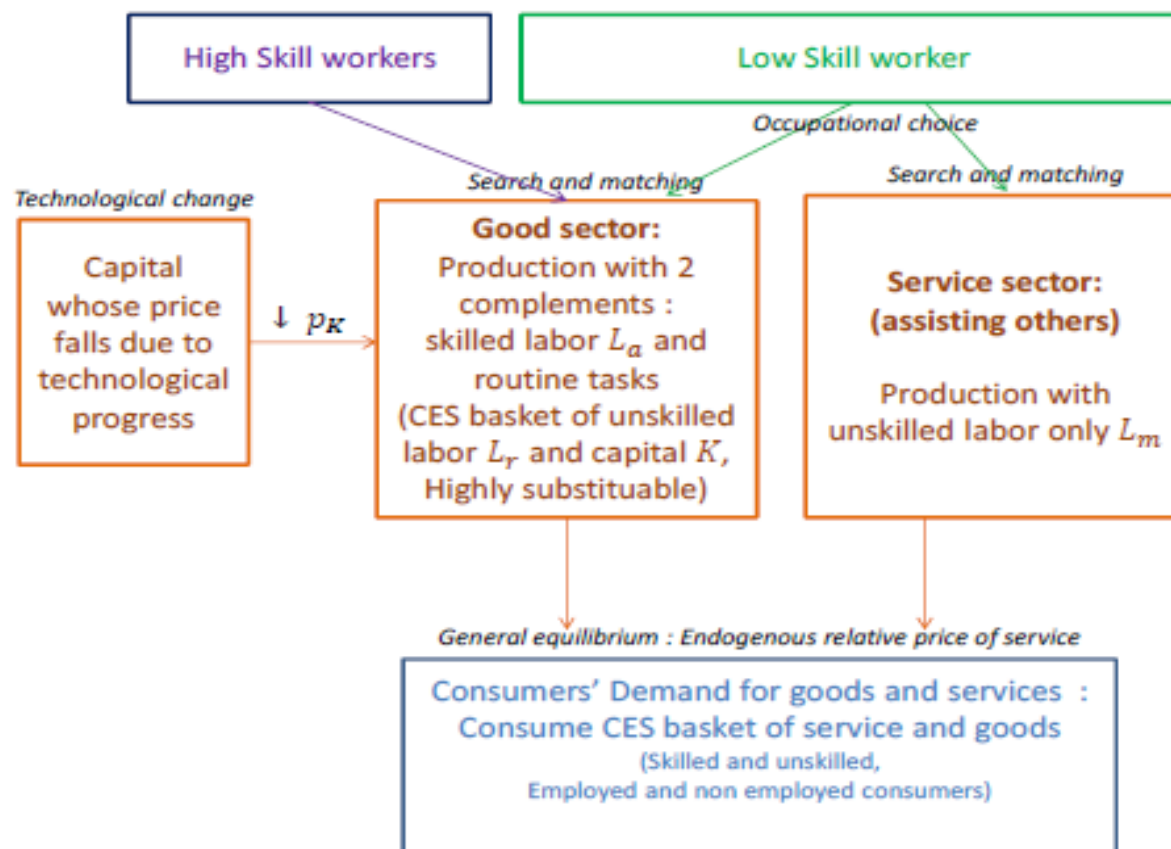
At the end of the 70s, new technologies transform the production process : how countries have used these new opportunities ?

- A multi-sectorial search and matching model with endogenous occupational choice
- in a context of biased technological change.
- stress the interaction between labor market institutions (LMIs) and aggregate employment, job polarization and inequalities
- US, France and Germany : representative of alternative institutional settings, having the potential to induce divergent time-paths in the evolution of labor market outcomes during the process of technological transition.

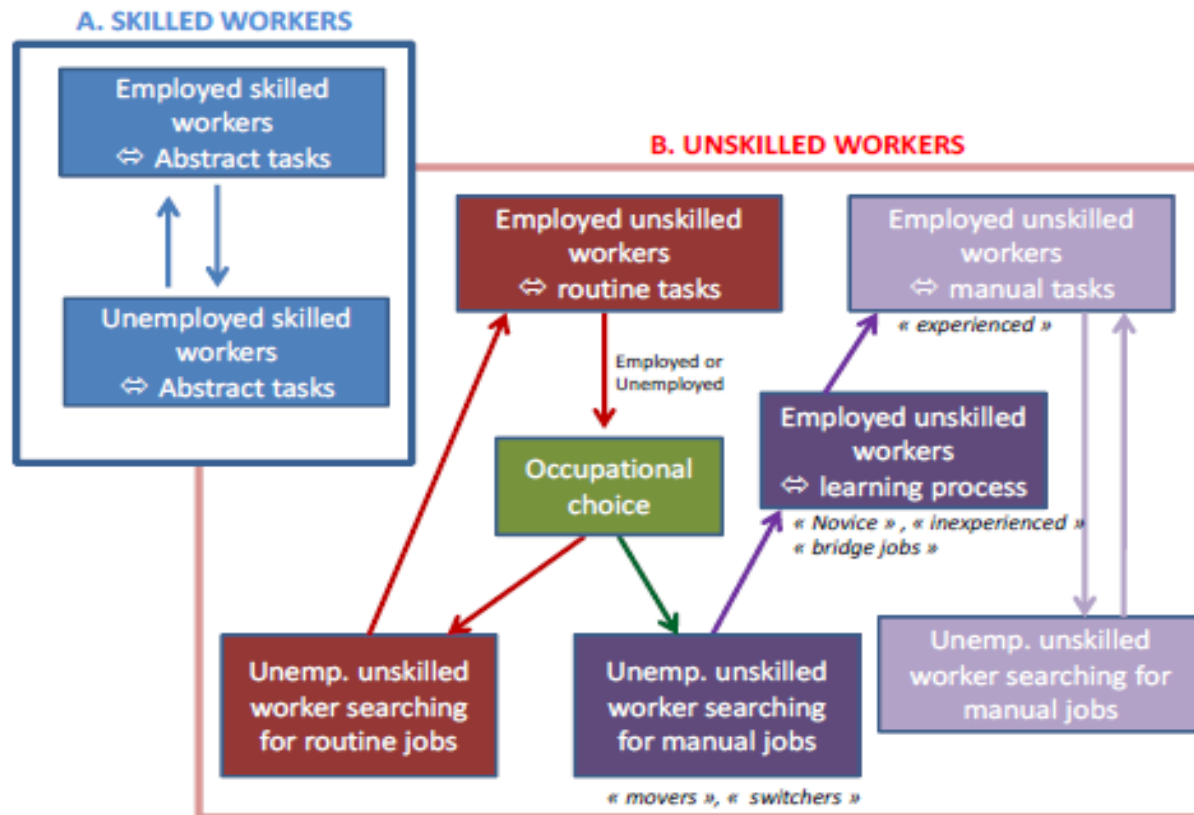
A two-sector GE model with heterogenous workers



Building blocks of the model



Labor market stocks and flows



Computerization

- The supply shock : a fall in the price of *computer capital*.
 - New technologies require more "Abstract tasks".
 - But TBTC reduces the demand for "Routine tasks" (computerized)
 - Routine workers may move to "Manual tasks" (unskilled)
- The feed back : a demand shock for the other sector
 - Workers (richer and more numerous) consume more.
 - More "services" = larger demand for "Manual tasks" workers.

Model as in Autor and Dorn (2013)