

“The Economic Effects of Demographic and Educational Change”

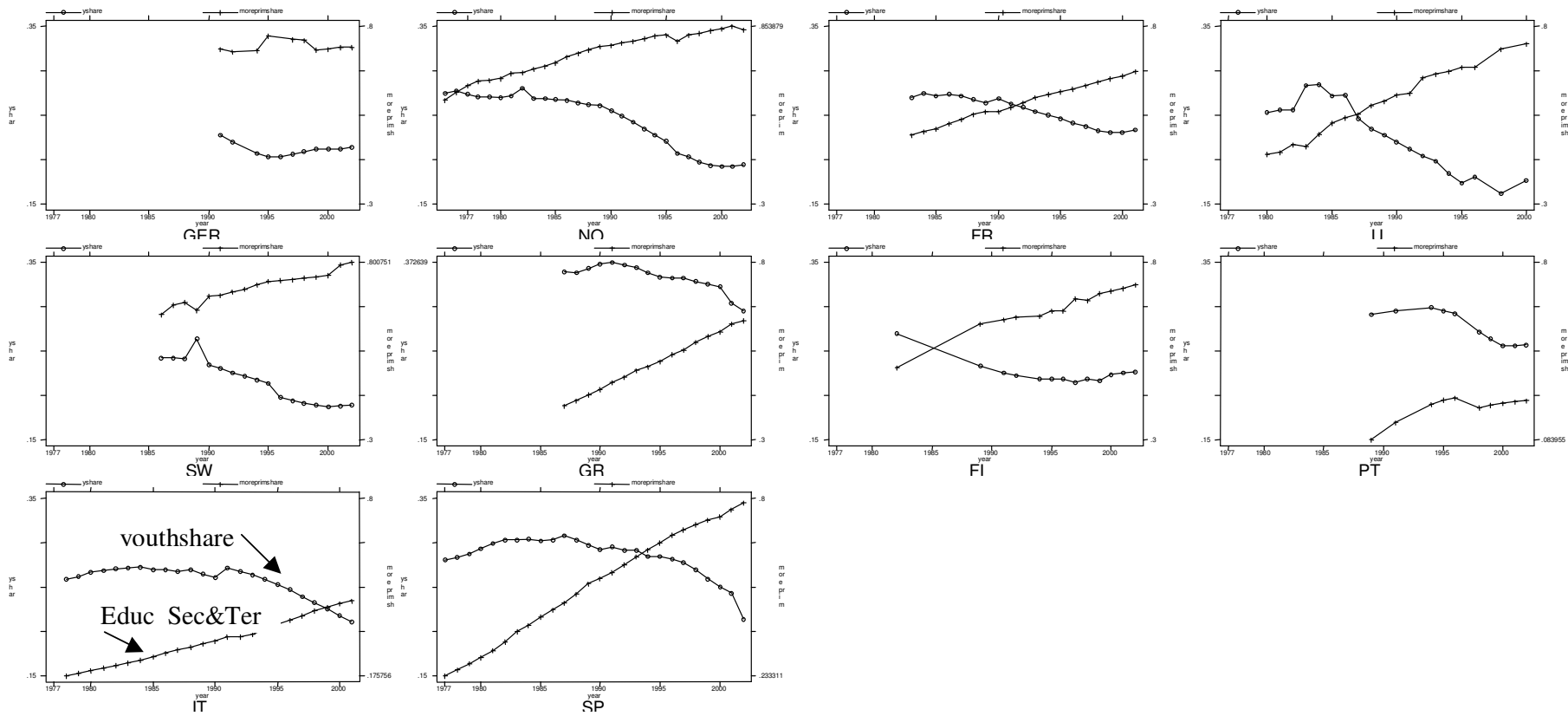
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1. Introduction
2. What do we know? Evidence from the Empirical Literature
3. The main findings of the EDWIN Project
4. Policy Implications for Europe

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1. Introduction

- Over the last decades, most European countries experienced significant shifts in the ratio of the youth population to the adult population, as well as in the share of educated people:
 - ✓ the share of young persons in the population increased during the 1970s and 1980s, while it fell steadily in the following decades;
 - ✓ generalised increase in educational levels - the number of people with secondary or higher education is growing in absolute and relative terms - and countries with low levels of education have been rapidly catching up with other countries.
- The **ageing** and **skilling** of the population, of course, affects the economy and the labour market in various ways:
 - ✓ unemployment rates for young people increased substantially and then slightly decreased, while adults' unemployment varied only marginally;
 - ✓ unemployment rates by educational levels showed significant variation: with more educated workers being less likely to be unemployed - as compared to the less educated - and with relative rates diverging over the business cycle.



Youth and Education shares

The extent to which these shocks affect labour force participation, employment and unemployment also depend - among other things - on labour market imperfections and the degree of flexibility of (real) wages:

- ✓ in **competitive labour markets**, large supply shocks - because of the higher competition - are expected to go through earnings levels altering relativities among young-adult and 'more educated-less educated' workers;
 - ✓ in **imperfectly competitive market**, where wages are set through centralised collective bargaining and other labour market institutions interact with market forces, unemployment can rise and the (un)employment-earnings trade off is likely to be less clear cut.
- The relevant **policy questions** in this context concern to what extent these shocks affect labour market outcomes and what can be done to reduce the adverse effects which may lead to increasing inequality across individuals. Typically, the effects operating *via* the labour market are:
 - ✓ changes in the **structure of wages** and the personal income distribution;
 - ✓ changes in the level and **structure of (un)employment**;
 - ✓ changes to the incentives for **human capital accumulation** and labour supply;
 - ✓ changes in **firms labour demand**, recruitment policies and organization of work.

2. What do we know? Evidence from the Empirical Literature

Empirical evidence is extensive and covers a large number of countries and time periods. While most of the studies concern the US experience, recently an increasing number of studies have investigated the evidence for European countries.

- research on the effects of demographic shocks on unemployment and earnings has mainly focused on ‘aggregate’ or ‘cohort specific’ factors: in the former case, the implicit assumption is that **individuals belonging to different cohorts (young or adult) are perfect substitutes in production**; in the latter case, some allowance is made for the fact that workers of different ages might be imperfect substitutes.
- **no allowance is generally made for the educational composition**, such that individuals belonging to the same age cohort - independently of their educational achievements – are also considered perfectly substitutable.
- Demographic changes are typically measured by changes in the share of an age group, say the young, *vis-à-vis* the whole population or, in relative terms with respect to the adult population. Similarly, changes in educational achievements concern the share of the more educated in the population, or the ratio of the more educated (secondary or tertiary) versus the less educated (primary education).

Results from the previous empirical literature are somewhat **controversial**.

- Most available evidence suggests that a large cohort size will (negatively) affect the earnings levels of the individuals (mainly of that cohort), as well as their (un)employment status (or labour force participation). The relevance of the two effects are likely to depend on a number of factors such as the functioning of the labour market, the state of the business cycle, public policies and, not least, the relevance of labour market institutions.
 - ✓ **US studies** have found that relative wage effects are more important in the adjustment process following a demographic shock, although in some cases the effects on wages can persist over time. Differences in the effects on earnings have also been shown to depend on substitutability between young and adult workers and skill levels (i.e. more educated tend to be more severely affected) as well as to the mobility decisions of individuals.
 - ✓ evidence for **European countries** has shown that unemployment and out-of-labour force, instead, are the most likely effects of a demographic shock.
- Alternatively some studies have found that, if labour markets are imperfect and there are trading externalities in firms' job posting and workers' search behaviour, a larger share of the youth population may reduce – instead of increase – unemployment and *viceversa*.

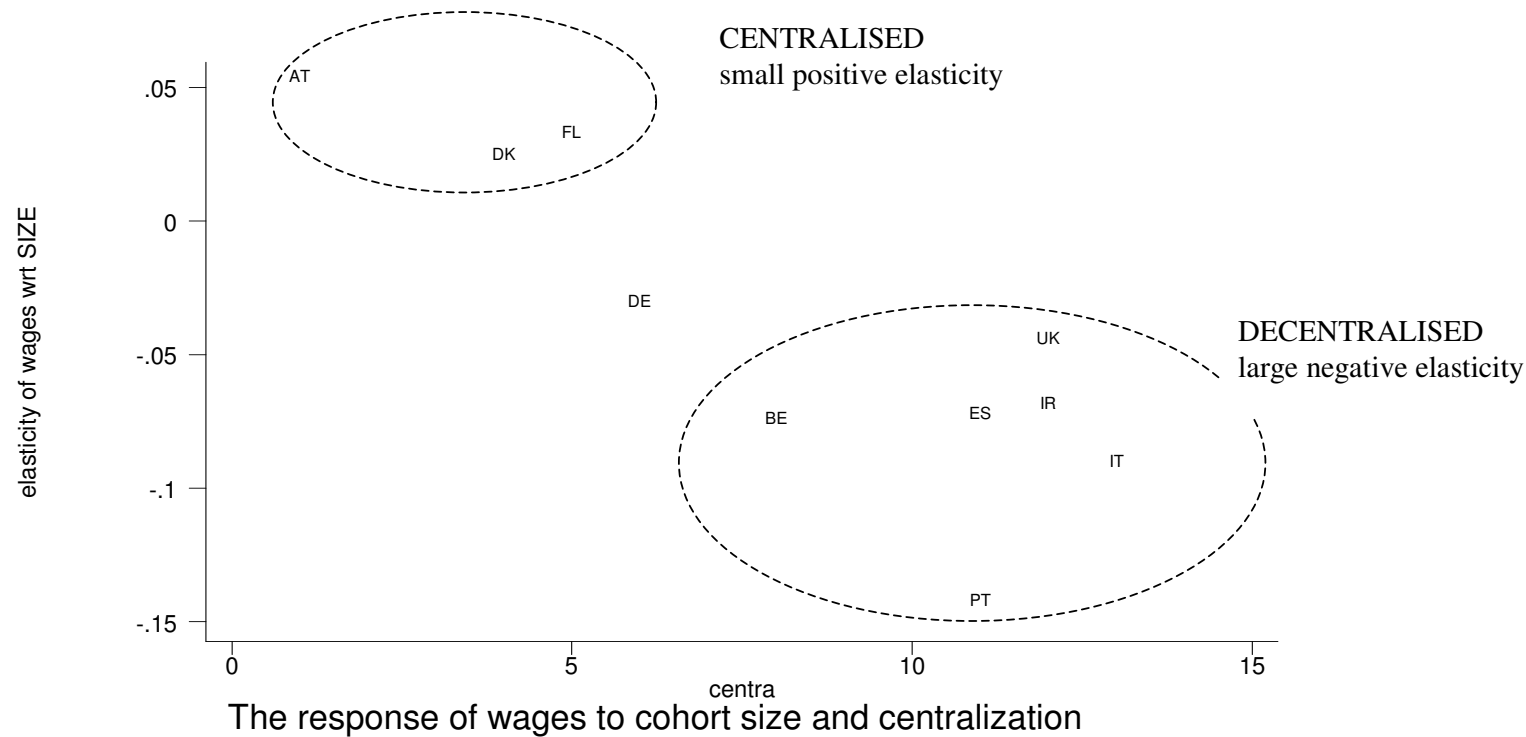
3. The main findings of the EDWIN Project

The economic effects of demographic and educational change on **earnings and unemployment** suggests that both age structure of the population and educational achievements are relevant (jointly) to explain unemployment patterns and earnings differentials in Europe.

Effects on wages

- the empirical evidence concerning the overall **effect of cohort size on European earnings** indicates a negative response but rather modest in size: *a 1 percent increase in the size of the cohort of the same education level reduces hourly earnings by 0.064 percent*. Hence (real) wages appear to be rather inflexible to changes in the demographics (and even less to changes in educational achievements)
- the effects on wages, however, **vary by education and age**: the negative effect of cohort size *is significantly larger* for the older age group and for the low education levels. Hence pressure of competition from the same age (educational) group is stronger among older (less educated) workers.
- **labour market institutions** are also important. Institutional provisions generally reduce wage inequality in the covered sector, but increase inequality in the uncovered and less protected sector. The estimated effects are stronger in Southern European

economies, where the high institutional protection granted to the covered sector is offset by the conspicuous role played by the unprotected sectors. In particular, *the responsiveness of wages to changes in cohort size is negatively related to the degree of centralization suggesting that coordination reduces wage competition between individuals within the same age group*



Effects on (un)employment

- the main findings suggest that **demographic and education changes matter for unemployment:**
 - ✓ **demographic:** a decrease in the share of young people (“baby bust”) – *ceteris paribus* - reduces the unemployment rate (i.e. the impact is stronger on the same age-cohort than on other cohorts, thus supporting the imperfect substitutability hypothesis). *The elasticity is close to one, meaning that a decrease of 1 percent in the share of young people in the population would decrease unemployment of the 15-24 cohort by an equal amount (having almost no effect on the unemployment of adults);*
 - ✓ **education:** an increase in the share of the more educated (“education boom”) *contrary to the theoretical expectations* - has a negative impact on the rate of unemployment and the impact is stronger for the more skilled. *Estimates suggest that a one percentage increase in the share of the more educated will, ceteris paribus, decrease unemployment of the more educated by approximately half percentage point.* (Note: results appear to be robust to the inclusion of demand side factors, skill-biased technological change and to the endogeneity of education);
- **Southern and Northern countries:** we find that demographic (positive) effects are stronger in Southern countries, while there is no clear pattern for education

composition. It is interesting to note that despite the higher wage elasticity detected in Southern countries, larger effect of demographic shocks are also found on unemployment. This evidence may also be explained on the basis of a “dual” system, with a protected *versus* non protected sector, the latter being more important in Southern countries.

- **labour market institutions** also influence unemployment rates in different ways: unemployment benefits are found to have a positive impact on unemployment, while bargaining coordination and employment protection reduce it.
 - ✓ When we interact institutions with demographic terms, we find that institutional changes (such as, decline in union density, lower generosity of unemployment benefits and less employment protection) had larger impact on adult unemployment.

4. Policy Implications for Europe

The above findings are highly policy-relevant.

1. the progressive **aging** and the deterioration of the age-dependency ratios in European countries are going to put enormous pressure on the performance of the labour market in European countries.

2. policy measures dealing with labour force participation, unemployment and social inclusion in the spirit of the European Employment Strategy (EES) will have to face some **inertia in the institutional setting** characterising European labour markets.

3. changes in demand due to **technology and trade** will put significant pressure on European labour markets to raise the skill level of the workforce.

We consider different types of policies and discuss them in turn:

- ✓ Policies directed at reducing unemployment and the burden of joblessness for some group of workers;
- ✓ Policies to improve the skills of the labour force and their employability;
- ✓ Policies to make the labour market (wages and employment) more flexible to shocks and local labour market conditions.

Structure of unemployment

Our results show that the changes in the age structure of the population have shifted the burden of unemployment more on **adult workers**, on **females**, and **less skilled** individuals.

- Hence, labour market policies should be targeted mainly to increase the **employability** of these types of workers, with some caveats:
 - ✓ traditional “passive” and “active” labour market policies (PALM and ALMP), did not turn out to be very effective: passive measures (unemployment benefits and other measures of income support) have been shown to increase unemployment spell duration and state dependence with adverse effects on workers employability; active measures (widely adopted in European countries to reduce unemployment) have generally proved to be very costly, in most cases only mildly effective, and when targeted to specific group can generate adverse effects on other vulnerable groups.
 - ✓ Henceforth, not too much should be expected from PALM and *ALMP* measures as a therapy for demographic and skill shocks.

Education and Skilling

- An important set of policy strategies, which have also been increasingly implemented in recent years face to skill mismatch, concerns policies directed at skilling the pool of unemployed through further (vocational) qualifications (sometime included among the ALMP).
 - ✓ These policies have also raised concerns as to the high costs of measures directed at re-training adult workers, as well as to the selection effects arising from the heterogeneity of the pool unemployed.
 - ✓ While traditionally, it was maintained that firms would not find convenient to invest in workers' human capital (unless when very firm-specific), in imperfectly competitive markets -- as it will be discussed later when reviewing training policies - - firms may have high incentives to provide workers with specific as well as general skills.
 - ✓ Hence, while publicly provided training and lifelong learning still represent a key policy for increasing employment opportunities and better jobs, also firm-provided training should be facilitated, through fiscal incentives and technical support.

(cont.) Education and Skilling

- face to the skill-biased nature of technological progress, also a more active role in the supply of education is likely to be a key policy to improve employment opportunities of those (skilled) workers entering in the labour market.
 - ✓ increasing access to secondary education, reducing the number of those who drop out of school (early) and promoting enrolment into university, can prove very effective to increase employment ratios (in the population) and reduce unemployment (in the labour force);
 - ✓ the challenges of a knowledge-based economy will require an increasing number of high skilled workers, as well as an adequate number of (high-skill) jobs posted by firms.
 - ✓ the supply of skilled work, will make it easier (through searching externalities) and more convenient (complementarities between education and firm provided training) for firms to create and fill (high-skill) jobs without too much pressure on wages.
 - ✓ The usual argument that compressed wage differentials or smaller returns to education will reduce the incentive to invest in education, does not apply here since the virtuous circle “more education - more job posting - more good jobs” is determined and sustained by the public funding of education.

Labour market flexibility

- increasing flexibility and a progressive reduction of the role of labour market institutions has received a great deal of attention among experts and policy makers.
 - ✓ As both economic analysis and empirical results have shown, some labour market institutions ‘might be not so bad after all’ if they operate in a context of “market failures” (i.e. imperfect information and missing markets).
 - ✓ institutions such as “employment protection measures”, by reducing excessive turnover, can promote firm’s provided training as well as the long run returns from a human capital investment; similarly, collective bargaining, wage centralisation and wage compression, may not be so inefficient when the State has an active role in financing of education. The cost of (increasing) inequalities, in this respect, are too often neglected.
 - ✓ results show that a clear distinction should be made between “bad” labour market institutions which distort the functioning of the market (i.e. excessively generous welfare benefits, both in terms of replacement ratios and durations; or excessively high minimum wages), and “good” labour market institutions which are designed to correct labour market failures (i.e. employment protection measures; collective bargaining and bargaining coordination).