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Dimensions of Inequality in the EU
Dimensionen der Ungleichheit in der EU

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Comment on “Inequality and Growth: Goal Conflict or Necessary Prerequisite”

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The Focus of the Paper and the Surrounding

The paper by Professor García-Peñalosa presents the connection of inequality and growth in a variety of primarily supply sided growth models, of a neoclassical flavour which are considered relevant for industrialised countries. The term neoclassical flavour has to be qualified as the models feature substantial extensions and progress compared to neoclassical textbook models of undergraduate courses.

The extensions are made with respect to the use of more flexible production functions (CES instead of Cobb-Douglas), which allow factor income distributions beyond the fixed factor shares implied by the constant return to scale Cobb Douglas, and they feature imperfect information leading to capital market imperfections, which allow human capital investments to depend on the distribution of income. One of the models discussed however goes even further beyond the neoclassical standard; Benabou (2005) describes the joint determination of institutions, human capital accumulation and inequality.

To focus the paper on modern supply side models of a neoclassical flavour seems necessary for the literature even within this family of models is vast. However there are models which are left out of the discussion and for sake of a wider scope of literature to be mentioned, I want to add some references pointing to other model families.

One could widen the scope in time going back in the history of economics to the works of Joan Robinson, or even further to the classics like Ricardo or Marx¹. For distribution and growth were seen to be the most relevant issues of economic research by that time. Distribution in this context usually meant functional distribution, which was to some extent equated with income distribution between the members of different classes (i.e. workers, landowners, capitalists). By the time

¹ A useful first overview on various historical strands of growth theory can be found at the History of Economic Thought - Page <http://cepa.newschool.edu/het/essays.htm> #macro

of the classics workers where poor compared to members of other classes therefore. These classic models where implicit models of personal income distribution.

Another extension would cover models dealing with demand side aspects of economic growth, either in a Keynesian, Post Keynesian or Schumpeterian style.

In post Keynesian growth theories², the key mechanism linking distribution and growth lies in different saving propensities of (poor)workers and (rich) capitalists, or in the difference of saving behaviour of households and firms. Firms are considered to be entities following their own goals not necessary maximization the utility of the owner(s). If there is full utilization of capacity in the long run, capital accumulation and therefore growth should be higher if savings are higher. Given the amount of resources available, savings are higher if profits as higher, either because capitalists are richer and therefore save more, or because firms can finance higher investment from retained profits.

In models of the richer Kaldor type discussed in Stockhammer (1999), variable capacity utilization drives the link from wages to profits. On the one hand higher wages lead to higher capacity utilization, having an potentially positive effect on investment and therefore growth. On the other hand higher wages lead to lower profits and thereby dampen investment and therefore growth. Which of the effects dominates has to be settled empirically. The discussion is known in Post Keynesian growth theory under the heading of wage-led vs. profit led growth.

A distinct mechanism to link income distribution and growth is used in the models of Shleifer or Zweimüller. They take the product life cycle for new innovations as their starting point. If a new innovation is introduced it will first get bought by high income people, gradually also by people further down the income leader. Given this model market size for new products become a function of time and of the income distribution. Narrow distributions lead to fast growth of the market for new innovations, as there are many people buying the new product as prices decrease. Faster expansion of the market allows recovering fixed cost of R&D faster, economies of scale can be used earlier. Unequal distributions of income do not allow fast amortisation of R&D expenditure, for the time to reach sufficient market size becomes to long. Therefore, inequality of income leads to lower R&D in new products and to lower growth.

Models using political economy arguments like Rodrik and Alesina (1994)³, argue that higher inequality leads to more redistribution by government, causing more distortions through taxation and lower growth. For sake of a full picture one has to mention here that the view of redistribution (not to be confused with inequality per se), having a negative impact on growth has been seriously

² For an overview and further literature see Stockhammer (1999).

³ For an overview on the literature see also the Survey by Aghion, Caroli, and García-Peñalosa (1999).

challenged. For detailed arguments see the survey by Aghion, Caroli, and Peñalosa cited in footnote 3.

The model of Benabou (2005) discussed by García-Peñalosa extends this political economy arguments so listing them here is somewhat unfair but done for sake of completeness.

A somewhat different strand of this literature relies on social instability as key mechanism. High inequality leads to social unrest which causes uncertainty for investors and lowers growth.

One might consider these models to be of minor relevance for industrialised countries. I would argue that the current crisis in the EU-constitutional process might provide a counter example.

With respect to the theoretical and practical i.e. empirical aspects the paper by Cecilia García-Peñalosa, focuses on theoretical descriptions, citing empirical evidence, whenever necessary for the argument. She perfectly follows the old principle that there is nothing more practical than good theory.

The Framework of the Paper

Given the supply side framework, growth is seen to be driven by, changes in physical capital, human capital (labour) and **Total Factor Productivity**. Labour input is decomposed into the influence of population size, labour force participation, which becomes especially important as changes in female labour force participation is analysed separately and hours, of work.

Income distribution, meaning distribution over individuals not households, is determined by factor shares, individuals physical and human capital endowments, relative wages of skilled vs. unskilled workers, and labour supply decisions.

García-Peñalosa does not follow the usual procedure to complain about insufficient data sources. So they have to be added here.

Starting with physical capital one has to mention that physical capital is not only hard to measure for empirical and theoretical reasons but also hard to conceptualise in the first instance. Empirically physical capital is usually measured by the perpetual inventory methods. Perpetual inventory takes past investment and a “suitable” rate of depreciation to calculate current capital stocks. This calculation makes use of the fact that unknown initial capital is depreciating to zero after some time, therefore capital stocks are solely a product of later investment. Problems of technical depreciation etc. are hard to be taken into account within this approach.

Capital stock data calculated using a production function approach are even more problematic as the production function used there is not a product of the economic process but an assumptions used to construct the data series. Conceptually the problems in defining physical capital date back at least to the Cambridge controversy which can not be given in detail here. For a introduction see Galbraith (1998) and the literature cited there.

Human capital is another shaky concept, just to name one problem, assume education is just a screening device to separate people by their talents or even worse their social background, under this assumptions formal education, usually taken as a proxy for human capital, is not even a weak indicator for individual productivity.

Total Factor Productivity is calculated from the residual or unexplained differences, between actual output and predicted output using a particular production function. Taken seriously it can only be a measure for technical progress if one believes in the production function to represent the underlying process correctly, otherwise they could as well represent, breaks in data series, or misspecifications.

Even data on something as obvious as labour input are plagued with many problems, just to name one. How can you deal with times spent on standby of maintenance technicians, if they do an excellent job or if they are lucky, they can use their standby time to sleep. If they do a lousy job or if they are unlucky they might work most of the time repairing equipment. There is a high probability that data report these activities according to legal regulations not to conforming to any specified research question.

Having said that one might ask for the consequences of weak data sources? Certainly to quit analysing growth processes is not the best response, but one should be careful in data selection and in drawing recommendations for policy.

Income distribution poses a similar set of problems, starting from the already mentioned distinction of household versus individual income and extending to the problems of comparability of various data sources in cross country regressions many of which are described in an excellent survey by Sudhir and Segal (2008) in the *Journal of Economic Literature*.

One particular problem in comparisons over time is how to deal with growing populations. depending on the specific question at hand it might be useful to ignore growing numbers of people earning market income while in other cases growing inequality in income might be caused by people having no income at all before and therefore where absent from the data, while earning little income now makes them visible.

Concerning the chart on inequality decomposition in the paper another point becomes obvious. If inequality by income is decomposed by source, as shown here, the overall share of this income source in total income might make it the most important source of inequality. Even if the within distribution of this income source is much more egalitarian than the within distribution of other sources.

If one is interested in the question whether a redistribution of a fixed amount of income, by proportionally taxing capital for example, and using receipts to give a proportional transfer to labour, would increase or decrease inequality a very different picture would emerge. For the within distribution of labour income is much more egalitarian than within distributions of capital income.

The paper is well structured along the various lines of causality, for not only might equality lead to higher or lower growth, but also the reverse might be true. In addition many factors might influence both. I try to summarize the arguments given for positive and negative relationships on growth and equality, using equality instead of inequality to get the “good” things, at least by my own normative judgement, having positive signs and the bad things having negative signs.

Major Mechanisms Causing a Negative Impact of Equality on Growth

The first connection between equality and growth covered in the paper, but also along the history of economic thought, works through different saving rates. If high income individuals save relatively more, lower equality will foster growth of physical capital, leading to higher growth. This argument can in principle be traced back to Marx stating that if poor people don’t (can’t) save equal distributions are bad for growth.

A similar effect occurs if there are indivisibilities in investment projects combined with imperfect capital markets. Under this prerequisite projects can only be realised if wealth is concentrated enough to allow some people to surpass the minimum wealth requirement for investment projects. Interestingly a similar argument has been put forward in favour of state ownership.

Another mechanism lies in incentives for entrepreneurs, if income from innovative entrepreneurship is more volatile, lower equality leaves more people willing to risk innovative activities for expected rewards are higher.

The indivisibility argument requires imperfect information or risk aversion to exclude external financing. If capital providers can’t control effort or if risk bearing has to be rewarded above the “secure” wage income, lower equality fosters growth.

Concerning incentives for entrepreneurs some words of caution is in order here, as not every entrepreneur is Schumpeterian. Higher degrees of self employment might also be caused by a lower state of development, having more precarious self account workers. Just to give one example, self employment rates are 14% in Austria compared to 7% in the United States⁴.

Major Mechanisms Causing Positive Impacts of Equality on Growth

The major direct mechanism from equality to growth in the models presented is through the financing of human capital accumulation. Because of diminishing

⁴ Data from the EU commissions AMECO Database.

returns to human capital investment it is more efficient to invest equally into the education of all people. This can usually not be attained via capital markets.

Under this assumption equal income distributions make human capital investment more efficient by allowing more people to invest. This will foster growth through higher human capital endowments.

Higher human capital endowments in turn lead to an increase in efficient labour units, making R&D cheaper, and faster adoption of new technologies possible, for new technologies usually require a skilled labour force.

The once formulated goal for Austrian education and research policy to “produce” a Nobel Prize winner within the coming years seems not to be a good idea given the diminishing returns to human capital investment.

Even so a good deal of education is financed publicly at least in Austria, our education system still produces strong intergenerational inheritance of educational outcomes, indicating that beyond financing some other mechanisms are at work to hinder all people to invest in their education on an equal footing.

Income redistribution can also act as insurance for entrepreneurs and allows riskier investments to be made. Recognising the high risk implied by human capital investment income redistribution might also be good for growth.

Exogenous Factors Affecting Equality and Growth

a) Skill Biased Technological Change

The increase in educational participation and skill biased technological change, pose two strongly interrelated forces affecting growth and equality. The important question concerning the effect of skill biased technological change, which is the prime suspect in political debates on increasing inequality, is whether it is fully exogenous or caused by the expansion of higher education. In the former case it acts as to reduce equality by increasing the demand for skilled workers. While in the later it might be a consequence of the expansion of higher education which leads to an increased supply of skilled workers which initially increasing equality. Only as a consequence of increased supply, skilled labour is used more intensively leading restoring of higher skill premier. The total effect of both developments is ex ante unclear.

Beyond the relative supply of skilled and unskilled labour, skill biased technological change could be caused by the expansion of international trade, forcing low skilled wages down in the skill rich country.

On top of all complications skill biased technical change might be self enforcing rendering the original cause even harder to detect. Still there remains the standard problem of empirical research; SBTC is measured by the residual of the production

function therefore it might also be called unexplained difference, making it an artefact of some other developments not measured in our equations.

b) Taxation and the Welfare State

Institutions of the welfare state are a strong equalising force on the distribution of income and welfare. Therefore they also influence the trade of between growth and equality, in a non trivial way. The original idea of the policy maker deciding between equality or equity on the one side and efficiency or growth on the other can not be sustained in the light of current theoretical and empirical research.

On the one hand redistribution reduces incentives to innovate by dampening potential rewards for successful projects, potentially reducing the supply of labour, and discouraging investment in human capital.

On the other hand redistribution and the welfare state might facilitate innovation by reducing risk for innovators and by providing education to people otherwise constrained by imperfect capital markets. Again the overall effect of the welfare state is unclear.

c) Labour Supply of Women

As García-Peñalosa correctly points out in her article, one of the most important changes of the post war period was the remarkable increase in female participation in the labour market. Growth and equality are both influenced by this development. On top of the effect of higher labour supply and the increase in commercialisation of household services, the increase in female labour supply also changed the organisation of society and production in a substantial manner. For its effect on equality it poses an interesting question, touching on the important question of empirical concepts of equality.

Measuring household inequality female labour supply might well lead to a decrease in equality as people tend to marry within their own social and income classes. Considering the effect on individual income distributions it is very likely to increase equality if the reference point is chosen correctly. Comparing the earlier situation where many women did not have any market income at all to the situation where they get some income should lead to a more equal distribution. In empirical research this is particularly complicated as people without any income are usually not present in the data.

Exogenous Factors Affecting Equality: Institutions

Labour market institutions have an important impact on the distribution of income. While only briefly mentioned in this paper there is an important paper by García-Peñalosa together with Daniele Checchi (2005) modelling and testing for the effect

of labour market institutions on the distribution of income. I want to refer all readers to this paper for important insights, especially concerning the careful analysis of the particular political circumstances in the countries considered.

Concerning institutions in general I want to underscore the necessity to take a detailed look at the concrete implementation. Public services like in education might have a different impact whether they are targeted to child care institutions facilitating higher participation of parents or if they are targeted to research institutes. Neither educational finance nor labour market institutions are easily modelled by a lump sum transfer or some simple indicators mapping complex institutions onto the numbers from one to five.

What I have Learned from García-Peñalosa's Paper

The most important aspect of the paper is the renewal of two handed economics. The relationship of growth and equality is neither straight forward nor backward. There are three general lessons and one personal lesson which I draw from the paper.

The general lessons are:

1. The concept of distribution and of growth needs to be as clear as possible, it has to be stated openly whether one talks about household individual or any other form of distribution. Concerning growth, the distinction of overall, per capita or TFP growth has to be specified carefully.
2. Institutions, history and country specifics matter a lot therefore it is an absolute necessity to analyse them carefully especially in cross country comparisons.
3. Growth can not be regarded to be the prime goal or economic policy the distribution of income has to be considered equally important.

And my final personal lesson was, whenever you go into the subject of growth and inequality put García-Peñalosa on the reading list.

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