

The new Istat Macroeconometric Model: improvements in statistical information availability and labour force projection

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Abstract

After some introductory comments devoted to the presentation of Istat new Macroeconometric Model MeMo-It at the LII Annual Scientific Meeting of Sie, the second section of this foreword spells out the main possible areas of cooperation between Istat and Sie, in an effort to implement a more open access to and improve the quality of statistical data-bases for research purposes. The third section considers some of the key issues relevant when dealing with labour markets and the theoretical approach chosen by the model. I will argue that in the contemporary framework new needs for labour force projection and job requirements should be considered and connected to the drive shaft of the econometric model.

Keywords: data-base availability and quality, labour markets, microdata, human capital, manpower forecasting.

1. Introductory comments

The assignment to the Italian National Institute of Statistics (Istat), since January 2011, of the responsibility of macroeconomic forecasting activities represents, first of all, an important shift in the very role and functions of Istat. It fosters, moreover, a switch of mind and a new attention and investment by scientific associations and particularly by the Italian Economic Association (Sie).

It is precisely in order to mark this shift that Sie decided to invite the team of experts sharing the responsibility for the MeMo-It model to present it in a parallel session devoted to the modelling of Italian economy in the LII Annual Scientific Meeting of Sie, held last year at the University of Matera. The presentation was carried out by Fabio Bacchini, with the contribution of Roberto Golinelli, while the discussion was introduced by Maria Elena Bontempi and Ottavio Ricchi, with the active contribution of several scholars attending the session.

The works presented in that session are now published in this issue of Istat quarterly journal, after a revision allowing the different authors to take advantage of the fruitful discussion held on that occasion.

This novel responsibility of developing a new macroeconometric model represents, in fact, a further step in the actual acknowledgment that Istat is a public research organisation,

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a core independent producer and a guarantor authority of official statistics to the service of citizens and policy-makers.

A parallel recent institutional change should be also mentioned, since it can lead to a significant improvement in the capability of interaction between Istat and the academic and scientific communities, as well as with the other stakeholders in civil society. In December 2011 the *Commission for the Users of the Statistical Information* (Cuis) was established and Sie is actively taking part in its activities.

These changes foster a switch of mind and require a new awareness and investment by scientific associations because, through closer cooperation with Istat, they can help to solve frictional problems as well as strategic issues in the field of statistical information availability and quality. The *Commission for University and Research* (Cur) established by Sie did start to work and make proposals on both trajectories.

The second section of this foreword is therefore devoted to clarify the main proposals made in this spirit by Cur and Sie.

The third section deals with some of the key issues that can be raised while reasoning on the theoretical approach selected for dealing with labour markets in the model. I will also argue that in the contemporary framework new needs for labour force projection and job requirements should be considered and connected to the drive shaft of the econometric model.

2. Institutional changes and new cooperation opportunities between Istat and Sie

As suggested before, recent institutional changes in Istat foster a new attitude by scientific associations, in general, and by Sie, in particular. The new cooperation framework can help to improve the array and quality of the statistics made available to the public, solving also frictional problems. Moreover, and more important, it can help to face new strategic issues, with better chances to find sustainable solutions to them.

Cur has intensely worked in the last three years with the aim of setting up proposals of cooperation on both trajectories.

In the first place, it has produced a wide-ranging document, circulated through Cuis, in which several suggestions have been advanced for improving, in the short-medium term, the availability and quality of data-bases for academic and non-academic research. In our proposal, these should be obtained also through the merging of existing different sources² in order to make better applied studies and policy assessment in different fields possible.

The proposed baseline, which builds on the research practice adopted in the different fields of applied economics, refers to a multi-layer perspective. The main layers refer to:

- a) the collection of new data-bases which are needed in research topics relevant for crucial policy actions;³

² Internal, but also external to Istat.

³ For instance, the effects of financialization of the economy and global crisis on firm networks and value chains; the procedures through which firms are redesigning their job openings, organization of knowledge, sectorial specialization and value creation in the new international division of labour; the new problems of interaction between labour demand and supply, from skill mismatch to over/under education, over/under skilling, over/under qualification, over/under utilization.

- b) the need of new approaches for the measurement of immaterial activities, human capital, social capital and migration;
- c) the need for new arrangements allowing for a timely and effective quality assessment of the enlarging base of administrative and managerial statistical sources;
- d) the need to develop the longitudinal or diachronic dimension of socio-economic statistics;
- e) the improvement of the modes employed in collecting and processing data on microeconomic variables⁴ and mesoeconomic variables;⁵
- f) the need to generally improve the procedures for accessing statistical data-bases.

In the second place, Cur worked with the aim of focusing Cuis and Istat attention on a strategic issue accrued in a more tangible way rather recently in the world of economic research. A quantum leap in microdata utilization has occurred in the last twenty years or so. The two main interconnected drivers of change have been: (a) the technological and scientific progress in processing, elaboration and estimate of statistical information, through statistical and econometric techniques; (b) the need to employ new assessment methods in the evaluation of social and economic impact of public policies at the local national and supra-national level. Dataset panels⁶ and geographical units are the core requirements in the survey of heterogeneous behaviour.

Available microdata bases, also due to the new procedures recently implemented by Istat, allow for quite a few applications, but severe limitations⁷ still persist and independent researchers are not yet able to find their way in an uneven quasi-market environment.

If this is true for fully available microdata sources, I should add that we are under-exploiting also the “statistical oilfields” that are available at Istat or could be nurtured at the SISTAN level, through the merging of administrative data-archives of different authorities.

This issue has strong implications both on the career prospect of applied researchers and on the quality of statistical information available at the central and local level to public bodies, business organization and the media, at large. Together, these two implications make evident that the basic principle at stake is the guarantee of democratic access to microdata bases.

In this perspective a lot could still be done and Sie is ready to collaborate in the best suited ways to improve the availability of microdata for applied research in Italy. Among the suggestions made, I consider very relevant, also for its concrete co-financing side, the idea to cooperate with Istat in launching a two-stage program aiming at favouring the access to new and improved microdata bases. The main purpose of the programme is to recover and enhance the value of well defined “statistical oilfields” which, after a phase of appropriate cleaning up and maintenance, would be used for research activities jointly

⁴ For instance, prices, physical capital stock, households wealth, labour markets and human capital circulation, real estate markets, R&D and innovation.

⁵ The need for a new system of territorial statistics, both for improving the quality of applied research and for planning appropriate policy actions, is evident. E.g., in Italy, there will be room to improve information on territorial accounts, cyclical data at a local level, and the production of data on spatial consumer behaviour, environmental indicators, commodities circulation, firm localization and mobility, local labour markets, material flows and transport infrastructures, immaterial flows and communication infrastructures.

⁶ That is, longitudinal data on single individuals and household and, even more, on single firms, agencies and other organizations.

⁷ The main reasons which could explain this deadlock are linked to privacy regulation, cultural habits, budget restraints and also to a still prevailing rent-seeking attitude.

by Istat researchers and academic researchers and then made freely accessible to the public for research purposes. After a selection of the best suited statistical oilfields, in the first stage a “call for ideas” concerning their “exploring potential” could be issued with the support of Sie and other scientific associations. In the second stage, a “call for projects”, again with the support of Sie and other scientific associations, could be launched, on the basis of the ideas developed in the first phase, and the best projects for each oilfield selected.

No new structure or consortium would be required and the main aim is to foster, even in a recession phase, an effective and efficient cooperation between Istat/SISTAN and academic researchers, giving full recognition to the principle of democratic access to microdata.

In the same spirit, I find the proposal made by Maria Elena Bontempi in her paper highly valuable. Her wish that “MeMo-It shall become open source, publicly available and fully documented” (Bontempi, 2013, pp. 48-49) is strongly supported by Sie for all the reasons made clear in her work, but also for the motives stirring Sie proposals.

3. Key issues and new needs for forecasting activities

For several and sometimes contrasting reasons, that would require a specific paper on the topic, labour market functioning became crucial for the generality of economic profession only after the take off of the New Classical Macroeconomics.⁸

Given the important and complex role played by labour markets in the overall economy and the increasing weight of the highly educated and skilled labour force in them, I would suggest to reconsider the choice to stick to assumptions like: homogeneous labour force, perfect competition equilibrium; absence of segmentation between generations. Moreover, there is an evident strong need to anticipate the flows and stocks among the different regions in the different sections of jobs and manpower. An open econometric model supporting these projections would be highly valuable.

In my view, we can find good reasons for this reappraisal if we first consider the requirements of the European 2020 strategy in the Euro-Mediterranean perspective, and if we look at the main facts referring to the labour markets for highly educated people in Italy, comparing them with those characterizing the United States situation. This is why I will devote this section to this exam.

3.1. Smart growth in Europe and Italy inside the Euro-Mediterranean area

While the economic and financial crisis is still deeply affecting labour markets, especially in Italy and Europe, and depressing in particular both occupational opportunities and earnings capacity of highly qualified young people, the capability of carrying out the education of competent graduates, to employ them and to foster life-long education is more and more crucial in order to increase people’s employability, productivity and firms’ competitiveness.

⁸ For instance, this is rather amazing that, as Addison and Siebert (1979, p. 1) remember us, Paul Samuelson (1954, p. 380) suggested that economists horrified by the mathematical and formal directions taken by their discipline might “sublimate their feelings” and “transfer from economic theory” in to a safe haven such as labour economics.

In this general context, the economic prospects of the Euro-Mediterranean Countries (EMCs) are uncertain, not only due to the long-lasting effects of the global economic crisis, social turbulence and political unrest, but also because of the impact of long term structural changes in the international division of labour and the shortage of political and institutional tools pre-arranged by the EU and the international community at large.

Furthermore, the post 2011 events in the Southern shore of the Mediterranean Sea ask us to reconsider the European integration process taking into account the new challenges and the deep interactions between the Northern and the Southern shores, as well as to implement new priorities and regional economic unions.

We may even say that, after all, at least some of the many determinants of the “Arab spring” were not unpredictable. For sure, what has been called the “fever under the skin” of the Arab world heads to a brand new stage of development.

The main research question we should focus on is the following: after at least six years of global crisis, is it realistic to conceive a European strategy for promoting employment based on smart, sustainable and inclusive growth? And, if the answer is positive, is it desirable and realistic to implement such a strategy by adopting an outward-oriented approach with positive scale effects?

As it has been the case with the transformation of the Eastern-Central Europe Countries (ECECs) after the fall of the Berlin wall, the puzzle of the present crisis reflects many of the factors acting at a global scale: the impact of long-term fragmentation in trade and production; the emergence of new economic powers; the changing composition of population and labour force.

In fact, if we take into account the proper time lag, we may note clear similarities between the ongoing transition of the ECEC and the potential transformation of the Arab League Countries (ALCs). For instance, the number of countries in each group is similar (27 countries and 22 respectively); the two groups of countries are similar in the size of projected population in 2030 (384.7 and 412.8 million), even if the latter exhibits a higher speed of growth and the median age is much lower.

Of course strong differences are also present: while the EU first comers countries are all included in the group with a very high HDI, the ECEC are concentrated in the group with high HDI and the ALC are mostly distributed between the high HDI group and the low HDI group. But this can be also consistent with the assimilation of the present events to a new transition process.

However, the subsequent key question is: how a new transition is likely to take place if the EU, in competition/cooperation with the US, will not invest enough in it?

Structural and behavioural changes are now taking an accelerated speed, following a long-run trend pre-existent to the global crisis: scale effects in many spheres of economic life;⁹ diversification in the models of capitalism;¹⁰ variety in economic leadership;¹¹ supply of new financial sources.¹²

⁹ E.g., availability of broad production factors, manufacturing and trade.

¹⁰ E.g., the supposed strengthening of the Turkish model in the version of Islamic liberalism and democratic governance or in its pre- Erdoğan version.

¹¹ E.g., China, with its 38,800 workers in Libya in 2011 evacuated very quickly, and also Brazil, as observer state in the Arab League, are very influent in the Mediterranean area.

¹² E.g., sovereign funds from Saudi Arabia and other Arab states.

Deep changes are taking place in labour markets on multi layer basis:

- a) in the level and composition of the labour force by age groups and generations;
- b) in the level and composition of the labour force by gender;
- c) in the level and composition of the labour force by educational qualifications;
- d) in the level and composition of the labour force by geographical origin;
- e) in the level and characterization of inequality which is high and increasing.

Higher education graduates do not seem to represent anymore the main tool for shifting the production frontier. They are becoming, together with upper higher education diploma holders, bulk of the labour force in the most advanced countries, and in developing countries as well. The economic, but also the social and political role of education is changing over time.

This brings about additional key research questions. Are labour market adjustments to be still conceived as the residual to economic integration processes? Which role is played by mismatch, over-education, under-utilization of qualified manpower? Do we experience complementarities or substitution between the labour force of the two shores? To what extent labour market governance can be one of the main determinants in regional integration processes?

All these questions have to be properly explored, but I could add some analytical comments in order to start this exploration. The complexity of the present setting helps to explain why very divergent views are shaping the present debate. Three are the main views, at least among the economists.

In the human capital model education is essentially treated as an investment good for which the returns are decreasing as the years of education increase. Therefore, education is a key to economic success, but tertiary education cannot overcome the boundaries set by the Smithian compensating differentials and, if this happens, inefficiency occurs, with excess supply/over-education or excess demand/under-education as the most visible outcomes. This view is often suggesting, with a short-term attitude, that mismatch is dominant when Italian labour markets are considered, but also when the determinants of "Arab spring" are investigated.

In a second view, which I would call post-Ricardian, skill formation and development are processes inherently linked to firm activities. The match between labour demand and supply is always mediated by the expected dynamics of skill formation and development, which adapts employees' characteristics to the firm's technology and organization of knowledge and work. Skill formation and development allow the establishment of complementary relationships between the techno-organizational framework of the firm and the skills of the individual employee. Skill mismatch may depend on: (i) a 'pathological disconnection' between the educational system and the economic system in the demand and supply of knowledge and skills (like in the human capital model); (ii) a 'physiological' division of labour between the two systems in the process of skill formation.

By devoting time and funds to the development of human resources, individuals and households, firms and governments undertake activities which are not only finalised to present benefits (consumption, availability of required skills), but also to future pecuniary returns (investment) and non pecuniary advantages (risk aversion and precautionary behaviour). This second view suggests that underutilization, more than over-education, can often be the problem, especially in transition phases.

In the third view, which I would call the “offshorability” view, the basic idea is that computers can quickly and cheaply perform tasks that used to require highly qualified manpower: technological progress is reducing the demand for highly educated workers (lawyers, paralegal, but also engineers). “Conversely, jobs that can’t be carried out by following explicit rules – a category that includes many kinds of manual labour, from truck drivers to janitors – will tend to grow even in the face of technological progress.” (Krugman, 2011, p. 1-2) According to this view, since the 90s the US job market has not been characterized “by a general rise in the demand for skill, but by “hollowing out”: both high-wage and low-wage employment have grown rapidly, but medium-wage jobs – the kinds of jobs we count on to support a strong middle class – have lagged behind.” International trade in services will reinforce this trend making high-wage jobs performed by highly educated workers more “offshorable” than jobs done by low-paid, less-educated workers. The third, is certainly the most sceptical and deterministic view.

However, in all these views long-term prospects should be distinguished from short-term ones, but this distinction is not done very often.

In any case, if we observe present and past evidence a systematic fact occurs: lower unemployment rates and higher employment rates are strongly associated with tertiary education both for males and females. This is true both for OECD and EU19 Countries. A relative advantage in labour markets seems to persist even in recession times.

Moreover, the supply side of the markets for goods and services cannot be forgotten. However, recent developments in the study of firm organization emphasize an increasing role played by firms in the enhancement of manpower skill endowments. In a dynamic world training is an essential joint production activity needed to organize knowledge within firms. It is not only a simple matter of on-the-job training. The problem is that firms cannot implement this consistency of the internal and external organization of knowledge by themselves, because they are too focused on short-term dynamics, especially in periods of high instability in markets. The consistency should be favoured by industrial and innovation policies.

This seems to be the case also for many of the ECEC. The picture is more complex and the data are often missing with reference to ALC.

In the Middle East and North Africa (MENA) region labour markets are characterized by:

- a) strong segmentation between public and private sector;
- b) high unemployment rates;
- c) shifts from the formal to the informal sector.

Labour force growth rates of are higher than population growth rate in most Arab countries , with an average growth rate of 3 percent annually.

In 2000 regional economies had to absorb 30 million entrants into the labour market, and they will have to absorb another 160 million by 2025 (Williamson, Yousef, 2002).

We are told that in the Arab countries, at least 20 percent of the total population is between 15 and 24 years old. Unemployment is concentrated in the age group of youth (15-24 years). This is so for 80 percent of unemployment in Egypt as well as in Jordan. The informal sector employs 61 percent of Arab workforces on average. It is characterized by small-scale establishments, moderate investments, and production of family nature. Employees lack legal protection, social insurance and protection against professional injuries and diseases. Rigidity is dominant in the Arab labour markets for elder workers, while high turnover prevails for young entrants.

The inability to transform the different educational and labour market institutions (labour code, universal admission in higher education, low profile of training institutions) is often considered as one of the determinants of the existing imbalances.

Youth is concentrated in the informal sector and is generally vulnerable for lack of access to resources, including land, skills, knowledge, capital and social connections. Hence young people are particularly vulnerable to poverty. Gender and regional differences exist as unemployment rates are in general higher among females than among males. Urban unemployment is higher than the rural one due to internal migration.

Within this framework, worsened by war, the implementation of economic policies combining economic, environmental and social sustainability is crucially based on forecasts of international flows and stocks of manpower correlated with the structural and cyclical evolution of the different regions.

3.2. Comparing stylized facts for labour markets in the United States and Italy

As already stressed, the global economic crisis is enduring and the sequences of booms and slumps characterizing it add to prospective risk and uncertainty, especially for younger generations and women.

In economic and social systems in which the organization of knowledge and innovation are continuously transforming the international division of labour, life expectancy significantly increases and the majority share of manpower goes to graduates from higher-secondary and post-secondary education, the relevance of the integration between study curricula and on-the-job experience over the life cycle increases. All the stages included between study, internship and permanent employment contract gain strategic meaning and constrain the different steps and career progressions.

Long before the crisis, changes took place which deeply affected the role and functions of the higher education systems at the international level. Among these an overriding role was played by: the growth of a service economy based on knowledge which is presently reshaping the boundaries between the production sectors; the expansion of an international trade in which firms' competitiveness rests on their capacity to contribute to the global production through definite roles in sound value chains rather than in the exchange of finite goods; the establishment of an international division of labour granting new and relevant tasks to emerging economic powers.

Within this framework the capability of individuals to interconnect their education with their professional experience and work career is crucial for their employability and their economic and social success. Indeed the global economic crisis is accelerating changes under way and the need to programme education and professional careers with appropriate tools in the different scenarios. However, in spite of its crucial role, the capability to link together educational projects and job opportunities is not enough developed at the individual and collective level yet. Deeper technical skills are required to handle the growing share of non-repetitive tasks and a set of broader skills are required to move from one customized task to another. In addition, the automation of repetitive tasks leaves workers with overlapping assignments and increased interaction with each other. This increases in turn the demand for soft skills such as general interpersonal skills and teamwork. In broad form, these effects, referred to by economists as "skill-biased technology change" are reinforced by a related change in the mix of industries and occupations from an industrial economy to a post-industrial service economy. Finally, the

pace of technological and economic change itself accelerates. As a result, workers need to be armed with more general preparation in order to adapt to changes in labour markets.

Simplifying in a radical way the puzzle, we may try to obtain better signals on future perspectives taking into account a continuum with two polar edges: the United States and Italy. Even if the former are extremely different from Italy and Europe in many respects, starting from the baseline, push and pulls in change and policy actions, the evolution under way and the forecasts on the setting after the crisis in this country could anticipate trends with which others countries shall confront themselves. By the way, the United States came first into the global crisis and probably they will be among the first to come out of it.¹³ Leaving aside extreme, even if possible, scenarios of stationary state and degrowth, the most definite trends observed for this Country are the following.

- a) *Employment polarization.* Observing the pattern of change in employment shares by wage terciles in the last fifteen years, the employment growth is polarized with job opportunities increasingly concentrated, on the one side, in high-wage and probably high-skill jobs, on the other, in low-wage and probably low-skill jobs. A decline is detected for traditional middle-wage and probably middle-skill jobs (Autor, Katz, 2010);
- b) *Educational gender reversal.* In the United States female educational attainment rose substantially in the last twenty years.¹⁴ This is true when considering the female college education attainment rates and the ratio of the female college attainment rate to the male one (around 1.3 in 2009). However, this positive result is late in determining an adequate economic and social success, and, in the case of United States, has a counterpoint in the weak increase for males with post-secondary education (Autor, Katz, 2010);
- c) *Inequality increase.* Empirical evidence for the United States highlights a rather high level of inequality in disposable income. In the last thirty years we have observed a strong and increasing income inequality, a process of strong élites concentration and, even if starting from relatively low levels, a strong rise in long-term unemployment, especially for the age class 15-24 years.¹⁵

Of course in this comparison we need to be very careful. In particular, the clear-cut account of these trends clashes with at least three limits. The first is due to the awareness that in statistics relating to this field of analysis several measurement and comparison problems persist. The second is based on the acknowledgement that we do not have a satisfactory theory for interpreting the social structure evolution at our disposal. The third consists in the uncertainty which surrounds post-crisis outcomes and the possible confirmation or inversion of observed trends.

Italy is located at the opposite edge. We can make a distinction with respect to other European Countries for the fact that it was the first to start the Bologna Process. In fact, the *Bologna Declaration* in 1999 had a strong impact on the willingness to reform the Italian

¹³ Evidence seems to show a continuous decline in unemployment every month, slow but steady job growth, and stronger quarterly GDP growth.

¹⁴ The US recession has also been called the “mancession” due to the disproportionate job loss for males and increased labour force participation of females.

¹⁵ Almost half of the unemployed have been so for over 6 months. This is unusual and highly biased by race, class and education.

university system in order to support an overall convergence at the European level. In Italy the main steps of a complex, and sometimes cumbersome, reform process aiming at saving rather than investing resources, have been the following. The reform act (MD 509/99) established a generalized 3+2 system, implemented starting from academic year 2000-01. Further adjustment regulations (MD 270/04) were implemented in academic year 2008-09 (apart from the Faculty of Law, for which it already started in 2006-07) aiming at reducing the number of new degree courses and the resources involved. Law 240/10 substantially reformed the governance of the university system and is now under implementation.

We should indeed remember that we are reasoning on a much smaller dimension of the university system than that of the United States, taking into account both the share of population holding a university degree and the share of demand for workers holding a university degree.¹⁶ The scale problem can be addressed at two levels. The first one (at the European scale) can be tackled and solved through the European Space of Higher Education (ESHE). The second (at the national scale) can be tackled and solved doing what is needed at the national level.

Even if the cumulative effect of the strong institutional change and the global crisis make it difficult to completely assess the transition, the observed outcomes of the reform – when focusing on the share of students that fully developed their study experience under the new system - are largely positive. The most definite trends observed for Italy are the following:

- a) *Detrimental convergence.* Observing the pattern of change in employment shares by wage terciles in the last fifteen years, the employment growth concentrates only on job opportunities in high-wage and probably high-skill jobs. Job opportunities both in low-wage and probably low-skill jobs and in traditional middle-wage and probably middle-skill jobs have decreased (Autor and Katz, 2010). These last two trends in Italy can be likely explained respectively by the reduction in job creation by the public administration and the strong expansion of immigrant labour force.¹⁷ AlmaLaurea (2012) shows how this long term trend is coupled in Italy with a decrease of employment in the most qualified professions from 2004 to 2010, contrary to what happens in other European countries, including Spain;
- b) *Under the educational threshold.* A crucial prerequisite for Italy is to achieve the educational threshold needed to compete with the most dynamic economies. The expenditure in education and research is much lower proportionally than that in the United States and in the leading European Countries. Unfortunately Italian inadequate commitment in this sector goes back in the years. One of the most relevant consequences lies in the fact that, in spite of the increase experienced in the last decade, in 2008 (OECD, 2010) the share of graduated population was rather low, both in the age class 55-64 (10 percent vs 40 percent in the United States and 20 percent in OECD Countries) and in the age class 25-34 (20 percent vs 42 percent in

¹⁶ The Obama administration put more emphasis on middle skills – post-secondary vocational certificates and 2-year associate's degrees of value in the labour force.

¹⁷ It is more difficult to say the same for the United States. The data that the Author uses largely reflects the precipitous decline in US manufacturing and of middle-wage jobs. We should also be concerned with what middle wage jobs replaced them. In US healthcare jobs did a lot of that and biased towards female employment. Moreover, 11 million illegal workers in a 300 million population (160 million labour force) is often a political gimmick to blame unemployment on cheaper foreign labour.

the United States and 35 percent in OECD Countries). This imbalance is worsened by low investment in work-based training. All this brings about an Italian historical delay, with crucial feedbacks on the low education of the ruling class, both public and private, and on its low propensity to understand the strategic role of human capital;

- c) *Educational gender success and occupational failure.* Also in Italy female educational attainment has risen substantially in the last twenty years, so as to generate one of the highest observed ratios between female and male college attainment rate (around 1,6 in 2009) (Autor and Katz, 2010). Such a positive result not only is late in determining adequate economic and social success, but it also coexists with a situation in which female graduates experience more difficulties in finding jobs and, when they get them, these are often less stable and pay lower wages (AlmaLaurea, 2012).¹⁸ Moreover, gender inequalities tend to increase at some distance from the graduation year. Lastly, in Italy the increase of the female graduates component has not a counterpart in the weak increase of the male graduates component, as in the case of the United States, also due to low starting levels for both;
- d) *Inequality increase.* Empirical evidence for Italy highlights a rather high level of inequality in disposable income. However in the last thirty years, after a sharp increase till the middle of the 1990s, we can observe a decrease in income inequality. The increase in long-term unemployment is rather strong, especially for the age class 15-24 years. Moreover, AlmaLaurea (2012) stresses how strongly the graduates' occupational condition is influenced by the great variability in family and social background, as well as by the strong differentiation of the local systems of production in which they live. Also gender inequalities depend, apart from individual determinants, on the stage of development of the local economic context.

In any case intuition and investigation suggest that in the present global context the majority of traditional activities carried out in higher education systems tend to acquire a new role. This is why it is important to face complex and new questions.

In general, the interaction between cycle and structure is neglected because "In economics, the long run is seen as a logical time period where all adjustments are automatic, so the question of how and when adjustment processes take place can be ignored." (Bianchi, Labory, 2012, p. 4). In contrast, the present crisis is strengthening the link between cycle and structure, and one of the transformations which underlines this fact is the individual need to plan education and professional ladder more carefully than in the past. However, in spite of its importance, the tuning of educational and training projects with job opportunities does not attract enough attention and the available information and capabilities in vocational guidance are lacking both at the individual and social level.

My suggestion is that the United States experience, both in the case of forecasts made by the Bureau of Labor Statistics (Sommers, Franklin, 2012), and in that of the projections proposed by the Center on Education and the Workforce (Carnevale, Smith, Strohl, 2010), can be highly relevant in order to comply with the new needs of manpower forecasting in Italy and Europe. Therefore, it would be important if the future work on Istat's econometric model were also oriented in this direction.

¹⁸ As it is often suggested, a female needs one extra degree to earn the wages of a male with a lower level of degree. Some of that is due to occupational choices.

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