

Observatorio



The Economic Crisis and its Effects on the Social Determinants of Health

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Abstract

With the economic crisis, the fight against unemployment in most countries ¹ is coetaneous to the need to restrain public expenditure in closing budget deficits. As a consequence, spending cuts have started to affect a large number of decisions that directly or indirectly may be expected to have an impact on health. These effects are likely to be unevenly distributed among different groups within the population. Therefore, not just health levels but also its distribution may be at risk with the financial consequences of the crisis.

The main message of this paper is to show first social concern on the nature of the trade-offs in redefining expenditure priorities. On the prescriptive side of our work we argue that in the present situation we should not focus so much on health expenditure as we should do on the social protection system as a whole. In addition, to fight against poverty (and not so much focusing on income inequality in itself) should be the most important consideration for health policy design. Thus, more selective, tailored made combination of integrated policies should be addressed. Fragile groups need to be prioritized at this stage in battling for poverty alleviation (poverty induces health losses) and for a sound job creation economy (workfare strategies require health at the same time that they produce health). Universal old-style welfare policies commonly lack focus, are not financially sustainable, and overall, they have lower redistributive impacts. Otherwise, random, not well understood, effects in welfare may result from these policies due to side effects from economic crisis, unemployment and changes in life style. Results may also depend on the type of groups benefiting from sustained social spending in practice. A welfare function is required in order to compare “losers” and “winners”. This is a part of the second welfare theorem where non superior Pareto agreements are achievable, and lack of consensus may easily

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emerge, in designing health strategies since *politics* may not build the necessary consensus *for policies*.

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JEL classification: H51, H5, I12, I18.

1. Introduction

Political scientists usually postulate that income inequality lowers poor people health by frustrating self-fulfillment expectations, capabilities and creating the sense of failure. However, this hypothesis is quite difficult to prove since even in the cases that we might compare groups with equal income, larger variances remain even once we adjust for all the other differential conditions (e.g. average income in Ghana and that of low deciles in Harlem). The relevant issue may be perhaps better tested through the dynamics of income in a specific country; say, on whether the poorest today –under high income inequality– has better health than in the past –with lower income inequality.

In doing this, we may notice, in addition, that the relationship between income and health is likely to be non lineal, and overall, that short run impacts on health and income cannot be analyzed in this respect as two separate entities under a single causality link. However, let's agree from the start that despite it is desirable that income should grow hand in hand with income inequality reduction, there is not an argument in order to sacrifice the first (income) when the second (equality) is not achievable. At the end of the day, health inequalities seems to be related more closely to poverty and to lack of employment, and not so much to income inequality (Leigh *et al*, 2009). In dealing with the causal links' puzzle, this paper offers in the first section a literature review on the state of knowledge of the relationships between income and health. In the second section, we show several empirical approaches in testing the validity of the links once some exogenous factors are taken into account in the analysis. And finally, we derive some policy prescriptions which we believe are evidence based.

We conclude that at present if population health is our main concern, policies should not focus so much on health expenditure as on the social protection against poverty. For this, governments need to be more selective in the way they spend public money, by tailoring policies related to population needs. Fragile groups need to be prioritized. Universal old-style welfare policies commonly lack focus, and then scrutiny, are not financially sustainable, and overall, they have lower redistributive impacts. Moreover given the potential dynastic patterns of health and poverty, more attention should be devoted to the dynamics of health over the individuals' life cycle and to the way the transmission mechanisms operate between generations. In this direction, *financially fair and sustainable intergenerational welfare enhanced health policies* stand as the most desirable option.

2. Literature Review

2.1. Poverty, income inequality and health

It is well known that income rises by increasing health and this improvement in health allows, in principle, for some other multiple goals, including income growth (López-Casasnovas *et al.* 2005, Sala-i-Martin, 2005).

However, achieving this virtuous cycle does not imply income redistribution, at least from a Pareto or even from a Rawlsian point of view. The utilitarian Pigou-Dalton principle² (due to the hypothesis of concavity of income) and the Rawls maximin rule³ would allow indeed for an increase in welfare too, without loss of generality, even if we observe a worsening of income inequality. This falls short of stating whether it is more desirable to improve the less well-off in a way that we end up with more and not less inequality.

In more general terms, there is no doubt that income losses reduce welfare while gains in health increase it. But ‘who takes what’ is important since social weights are beyond the slope of the welfare function. In fact, if health improvements are achieved by redistributing a pre-existing income level, we need a welfare function (second theorem of welfare economics) in order to judge whether the change reflects a social gain. A second round–side effect of this might be that the absolute level of income to be distributed, as a result of the accepted redistribution principle, be much lower. This gives us a word of caution on the limits of redistribution for social welfare. A rather obvious consequence of this is also that by equalising income there is not guarantee that total health improves: health gradients depend on some other factors than just income levels!

2.2. Causal links

Wilkinson and Pickett (2009) in a recent book explore the pernicious effects that inequality has on societies: eroding trust, increasing anxiety and illness and encouraging excessive consumption. The authors claim that for each of eleven different health and social problems: physical health, mental health, drug abuse, education, imprisonment, obesity, social mobility, trust and community life, violence, teenage pregnancies, and child well-being outcomes are significantly worse in more unequal rich countries. Similar issues are pointed out in the OECD Report on Growing Unequal (2008) and Lindert, P. (2004).

Although these contributions have raised a large debate (Wilkinson, 1996; Rodríguez and González (2011)) on what influences what and which is the main determinant (the absolute versus the relative income inequality hypothesis), we do not think that this is a fertile field for applied policy. The estimation results do not grant clear-cut conclusions due to the fact that they are highly context-dependent, with a large amount of confounding factors, and therefore these results are very difficult to replicate and extrapolate across countries at different development stages. Finally, to translate whichever

evidence we achieve on public policy prescriptions is very floppy: to reduce inequality by lowering average income may not improve overall health; reducing country/country average levels without affecting internal individual differences may not help to lower the socioeconomic health gradients, and mortality may not be the correct health outcome to judge welfare for these purposes. (Deaton, 2003 or Wagstaff A and van Doorslaer, E., 2000).

At any rate, the decomposition effect of the interrelationship between income and health goes beyond a single link of the joint income-health distributions. Thus, from this analysis, three main questions arise: (i) whether the well being is concave in income, which would imply that one raises social welfare by simply transferring income from better off individuals to poorer; (ii) how an increase in income affects health across different health status; in a more precise manner, how income increases enhance well being, particularly for the less healthy; (iii) whether the income concavity of social welfare decreases with higher health levels and, as a result, a transfer in favour of poor and sick people has a greater impact on social welfare than one aimed at poor but healthy people.

In doing the former exercise, notice some measurement differences for health and income. First, commonly used health indicators, say the self reported gradient, are not cardinal, as they are for income. Second, there exist upper bounds for the first (health) but no for the second (income). As a result, the heterogeneity of the composition (in income) of the perceived health status is essential because when two distributions are compared, in order to show “dominance” of one against other, say between countries or among two periods or groups of individuals, apart from the central point, confidence intervals should be checked. As more overlapped are both distributions, more ambiguity comes out from the analysis since different aggregations may have different dominances.

Moreover, health inequality associated with income, is related to mean income through income elasticity. This measures how mean health responds to a proportional increase in income and how this income elasticity varies with income levels. For instance, in comparing some countries, Greece and Germany are, among the European countries, those with income elasticity dependent for health coverage⁴. This is not the case for most of the countries with well established National Health Systems. In addition, health inequality related to income is influenced by other factors than pure income inequality. Hence, the effect of mean income on the elasticity needs to be adjusted by factors other than income and the income rank. Income related inequalities from determinants such as age, and how they do concentrate for social groups, appear to be here the most relevant factors. In this sense, Contoyannis and Forster (1999) show that a public policy that reduces income inequality may, under certain circumstances and given the sign of the former effects, leave health inequality unchanged or even raise it. To this respect, income elasticity of health inequality plays a crucial role because if it increases with income, proportional income growth may lead to higher (and not lower) income related health inequality. Otherwise, if income growth goes hand in hand with a reduction in health inequality, then greater social inclusion may derive from both as a windfall profit.

2.3. Individual responsibility on health

In general, in order to redistribute income by lowering, at the same time, its average absolute levels, a very specific (and implausible) welfare function is needed, such as that of accepting an initial assumption that “all equally poor” or “all with the same health level” throws grater social welfare. In facing this, some authors (Fleurbaey and Schokkaert, 2009) advocate the introduction of health inequalities in the general domain of welfare, and consider inequalities from fields other than the socioeconomic ones, in order to minimize “unfair” inequalities in welfare. Once inequalities coming out from these other factors are accounted, it may then be stated that the existing fairness gap should be valued as the distance between the actual distribution and a fair distribution in which all the effects resulting from “illegitimate” variables (such as those depending on the individuals’ own responsibility, this is, out of all those unavoidable) are removed. It implies, ‘a la Roemer’ (Roemer, 1998) to adjust *between* groups for those “legitimate” social class differences but not *within* groups of the same class. This is similar to a conventional standardisation exercise putting in the estimated regression equation all the ‘illegitimate’ variables equally valued at a given group (López-Casasnovas *et al.* 2011).

On an individual basis, the correlation between income and health may be signed differently to the signs postulated at the aggregate level.

This is the case, for instance, when someone may be willing to sacrifice health to earn more income and vice versa, despite the fact that “ex post”, and at the global level, more income means usually better health. In order to understand this relationship, the exact income position of the individual in the distribution is crucial. If the individual belongs to an upper income class and health is improved by reducing income inequality, but with no effect on the health of the lower income class, the income related health inequality would increase. For this, three main factors will basically influence health outcomes (i) differences for this result: the initial health stock; (ii) the efficiency in health production (the user capability to transform resources into health); and (iii) how far from his own health maximum is an individual at each moment in time (since decreasing returns to scale are likely to appear as the individual gets closer to the optimum). Indeed, by redistributing income, inequalities may be reduced as well as average population health increases, but this ultimately will depend on the reaction of low income health producers to income improvements.

2.4. Health dynasty

The study of the correlation between social and health characteristics is important from both a political and a policy perspective (see Kim and Ruhm, 2012 for a recent contribution). From a generational point of view, a large component of the social background and inherited dynastic health represents factors beyond the individual responsibility (Roemer, 1998, *op. cit.*) likely to create socially or morally unacceptable sources of inequality (Dworkin, 1981). Consequently, they are the first candidates for a policy aimed at reducing social inequalities.

However, they are the most persistent and more difficult sources to cope with and remove. According to Trannoy *et al.*, (2010), there are three transmission channels between generations: (i) the *latency model* states that during childhood a specific risk takes place and it needs to be triggered in adulthood to be reactivated (Wadsworth, 1999); (ii) the *pathway model* suggests parents' socioeconomic status is a major factor having an indirect and persistent influence on the health status in adulthood and subsequent life trajectories and, particularly, affecting the transmission of socioeconomic status over different generations (Case *et al.*, 2005) and on the investment in children's human capital (Currie, 2007); (iii) *the inter-generational transmission of health* (Ahlburg, 1998) assumes parental health status to be correlated with the descendant's health status. But genetic inheritance (for diseases such as cancer and Alzheimer but as well for human longevity) has to be distinguished from the hereditary dependence which comes from the same exposure to risky living settings. The former example testifies a causal link while the latter only illustrates just a positive correlation.

2.5. Health in all Policies

The work of The European Commission against *bad politics, unfair economics* (Marmot, 2010) shed some light on this issue despite it lacks of specificity, by focusing for instance on policies such as: (i) Equity from the start: and so for potential welfare loss of millions of children; (ii) healthy places: from access to quality housing up to satisfactory economic and social policy responses to climate change; being the intergenerational links self-evident; (iii) decent work: from a living wage that takes into account the real cost of healthy living up to the definition of international labor standards; (iv) social protection through life: for all type of shocks (from health shocks up to pure loss of income effects) under /below universal comprehensive social protection strategies; (v) tackling the intra-generational inequitable distribution of power, money and resources, including the creation of new gender equity policies, at the country level, or an agency to enforce global aid at the aggregated one.

As a consequence, the income related health inequalities make for a rather complex setting. The oversimplification of the links, the ecological aggregation fallacy and mean rather than median (distributions adjusted) values may "kill" the truth of the arguments.

However, health in all policies cannot be identified with a simple political agenda. Social inequalities indeed kill. But there is a jump which falls short to declare that "those who benefit from the inequalities kill too" (Navarro, 2009, page 440), asking therefore for politics rather than for policies and calling public health workers for acting as political agents for preserving health expenditure increases. This is not evidence based. It cannot be derived from normative theory. Redistribution of income ('more equally poor?'), a higher share of national income derived from salaries (rather than from self-employment and capital) and more public expenditure (without clarifying for what and how this is spend and how this is financed) cannot be acceptable solutions. At least we must recognize that they are not derived evidences from health economics. We live in a rather more complex world (Rodriguez and Gonzalez, *ob cit*).

3. Review of the Empirical Approaches

3.1. Income and Health inequality

Van Ourti *et. al.*, (2009) provide some evidence of the effects of income growth and inequality on health inequality in Europe. They analyze how the income related health inequality varies as the income distribution changes, disentangling the effect of proportional income growth from the impact of changes in income inequality. This is made by estimating two hypothetical health levels: first, the health level that would dominate in case of a non-changing income distribution and, second, the health level that would prevail in case of a proportional income growth. This enables the authors to isolate the effect of changes in the income distribution from the other health determinants as well as income inequality variations from proportional income growth. In both instances, there is a direct effect of the income redistribution on IRHI (which depends on the slope of the income elasticity), but also an indirect impact, through the other health determinants (which basically depends on the concentration index of the other health determinants). Existing evidence suggests that pro-poor changes in income inequality do not always lead to reductions in IRHI if income inequality and elasticity do not move together “on average”.

For the European countries, Van Kippersluis *et. al.*, (2009a, b) find that health levels change little for individuals age cohorts between 20 and 40 years old. But beyond 65-70, health begins to deteriorate rapidly. Older generations have markedly worse health than their younger counterparts at a given age, but not in all the countries. For instance, in Spain, the variance significantly decreases with age once the cohort effect is considered (more aged people in the oldest cohorts). In general, in most of the Southern Europe, they find a significant fall in health inequality over time (with some northern countries and France being the main exception).

The same authors analyze the relationship between health and income across the life cycle of individuals and several generations in Europe. They try to find out: (i) how does the distribution of health evolves over the life cycles, (ii) whether it changes across generations or not, (iii) how do socioeconomic disparities in health fluctuate as individual ages; and, finally, (iv) how health disparities are narrowing or widening across generations. They apply an age-cohort decomposition to a panel data population and identify how the mean, overall inequality and income related inequality of self-assessed health evolve over the life cycle of the individuals and differ across generations. They observe a moderate and steady decline in mean health until the age of 70, and a steep acceleration in the rate of deterioration thereafter. In southern Europe and Ireland, where development has been most rapid, the average health of generations born in more recent decades is significantly higher than that of older generations. This result is not observed in the northern countries. Moreover, in almost all countries of EU-11, health indexes are more dispersed among older generations. This indicates that Europe has experienced a reduction in overall health inequality over time. In general, there is no evidence that health inequality increases as a given cohort ages. Finally, there is no global evidence that IRHI is greater among younger than older generations. In some countries, however, the income gradient in health does peak around retirement age (as it happens in the USA).

3.2. The role of ageing

For Sweden, Islam *et. al.* (2009) analyze how aging may impact on income related health inequality. If health inequality increases as the population ages, then a complementary interest is to consider whether the effect of aging represents unavoidable inequality consequences not amenable to public policy interventions. These authors conclude that good health is generally pro-rich and this bias increases as the cohorts become older. The age-gender standardization does not avert this result. The increasing trend in health inequality is then partly explained by the decrease in the population mean of health, which is attributable to aging population. Also, the variation of health for different cohorts increases over time. To be precise, elderly people in lower health states remain into the poor group, which then drives the inequality upwards. On the opposite side, the “student” effect or “young effect” biases the index downwards since young people are on average poor but healthy. No evidence suggests that health profiles across individual-mean income groups diverge over time. However, the observed increase in income related health inequality may be an artifact related to the structure of the pension payments system (the “retirement” effect) or to changes in the saving behaviour at older ages. By using lifetime income data, the authors find that the concentration index is quite stable over time. Indeed the ranking of the individuals at a given moment in time is influenced strongly by the pension payments (its degree of redistribution). For Sweden, when one controls for age related income mobility over the life cycle, there is little evidence that income related health inequality increases as the population ages.

For the United States of America, Deaton and Paxson (1998) argue that if health shocks are permanent, their cumulative effect will result in health being more widely dispersed at older ages. If health dispersion increases with age, ageing population would lead to greater total inequality in health, assuming no offsetting differences across generations. In addition, income losses from illness were related to job interruptions which ceased after retirement. Kunst and Mackenbach (1994) remark the case where health problems, which inevitably arise in the course of time, act as levelers and, as a result, socioeconomic disparities tend to narrow in old ages. Deaton and Paxson (1998) found however that health deteriorates with age in a persistent constant rate and that health variance is increasing up to the age of 60 after which it remains constant. In addition, they argue, if we assume that shocks are accumulative and not random, the prediction of increasing variance with age would not hold anymore. Finally, these authors find that the income health income gradient is greater among young cohorts and that the socioeconomic components of inequality in health have been raising while total health inequality, measured by the variance, has been falling.

3.3. Dynasty effects

For the French case, Trannoy *et. al.* (2010) use the data base “SHARE”⁵ and follow an stochastic dominance methodology in order to prove that the mothers’ social economic status (SES) have a direct effect on health status of descendants in older ages (in coherence with

the *latency's hypothesis*), while fathers' SES only have an indirect impact through the descendant's education level, in accordance with the *pathway hypothesis*. Moreover, the *hypothesis of transmission of health from one generation to the next* holds as postulated since they observe a direct effect of fathers' vital status and of mothers' relative longevity on descendants' health in adulthood. As a consequence, all the channels through which the family background can influence health in adulthood are involved in the explanation of inequalities in health opportunities in France. The authors show that by allocating the best circumstances in both parents' SES and parents' to all the citizens, health improvements would halve health inequality in France, being the more relevant influential factor the mother's social status on the health of her offspring.

Notice finally that the use of subjective (self-assessed) rather than objective health measures incorporate into the analysis an implicit income/health gradient given the way they are defined. Moreover, different views may be held about what should mean fair health care utilization for equal 'need', not always easily captured by the standardisation procedures. This is not always well taken in the empirical literature we have revised in this section

4. The Economic Crisis and its Impact on Income and Health

In principle, health policy is not different to any other fields of public policy since it is defined by goals, means, policy environments, instruments and processes, styles of decision-making, operational implementation and final assessment. Health policy deals then with institutions, political power, people and professionals, at different jurisdictional levels, from local to global.

As a result, the objective of health policy uses to be rather complex, defined either by health itself at the highest possible level, or by its equitable distribution over the population.

In the European Union, the core values of health policy were reassessed in 2000 Barcelona Summit: universality (services for all), equity (in access), solidarity (in funding) and quality. Nevertheless, life is more complex: achieving universality requires prioritisation (need and perhaps means testing); equal access does not imply actual identical consumption nor equal health outcomes; financial solidarity is not guaranteed just by financing higher health expenditure through general taxes, particularly under dual fiscal systems (higher indirect tax share, preferential fiscal treatment for capital income); and "quality" does not match well with observed large variations of clinical practices overall (*The Dartmouth Atlas*).

During 2006 Finland's presidency, a new landmark was boosted: "Health in All Policies". In general, this idea is appealing and clear-cut, but easier to define than to pursue it in highly segmented public administrations. To this line follows the rhetoric of The WHO Tallinn Charter (2008). It states that "beyond its intrinsic value, improved health contributes to well being through its impact on economic development, competitiveness and productivity. (...) Today, it is unacceptable that people become poor as a result of ill health. We (the member states) commit ourselves to promote shared values of solidarity, equity and partici-

pation through health policies, resource allocation and other actions ensuring due attention is paid to the needs of the poor and other vulnerable groups...”.

Finally, in the 2010 Spanish Presidency of the EU, it was discussed the need to monitor the social determinants of health and the reduction of health inequalities at the peak of the crisis, this being the paramount goal at present financial crisis circumstances.

Indeed the current crisis is characterized by an asymmetric output gap for Western countries and lower income, fiscal unbalances and spending cuts, unemployment and job insecurity, poverty and deterioration of social protection, particularly concentrated in a group of countries. To be precise, on average, long term unemployment increased in 2008 up to 25% in some OECD countries. Moreover, youth unemployment has proved to be particularly responsive to the business cycle since 1% deviation from the potential GDP growth rate (1996-2007) has implied a 1.4% increase in the unemployment of youngsters, well above the level of the rest of the population (0.65%). The overall figures for youth unemployment are worrying since its average OECD rate was, still in 2010, 21% and reaching an alarming 40% in countries like Spain, with more temporary contracts, cheaper lay-offs (“last in first out”) for the few entrants and less experienced and trained workforce than for the rest (OECD, 2010).

The first action against the crisis is that of the political economy. Across European countries, there are substantial differences in the kind of instruments used by public policy to support unemployed people. In general, Southern countries tend to offer less public protection and informal family support. Moreover, countries like Spain have unemployment benefits really close to the Continental countries both in terms of replacement rate (70%) and duration (between 4 and 24 months). The Relative Welfare Resilience Indicator (RWRI) is defined according to how income changes before and after the shock by taking the ratio of both magnitudes ⁶. For all the countries, RWRI falls as pre-unemployment household income increases. The Absolute Welfare Resilience Indicator (AWRI) is the result of dividing income after the shock by the poverty line and, hence, it measures by how much household’s income falls below a concrete income threshold once the unemployment shock took place ⁷.

In almost all the economies, the crisis has meant a change in consumers’ time preference (so for types of consumption and investment); labour market reforms such as those applied in Germany, where the employers were subsidized for maintaining jobs instead on favouring subsidies to unemployed; job creation by reducing labour cost units (to increase economic competitiveness) and a move towards workfare policies in order to fight against absenteeism for welfare.

A second derivative comes out from social policies, trying to mitigate the side effects of the economic crisis and welfare. Regarding the concrete relationship between unemployment and health, evidence suggests remarkable differences between long and short term effects of unemployment and a high variation of these impacts across countries according to idiosyncratic factors. For an accurate comparison, administrative data and/or full accounting for individual heterogeneity is required. This is not easy. If we approach absence of health in terms of mortality rates, its impact may differ too when we move out of employment to

unemployment (accounting for duration), given the existing evidence from increasing employment and job stressing, especially, considering the way in which income reduction affects individual addictions, on mortality.

In principle, the impact of unemployment across health systems depends basically on the degree of social vertebration (income pooling), the financial factors restricting effective access to health care in particular and the degree of social protection for the most vulnerable groups. In addition, the changes in life styles of the former employees, the response to new opportunities for education and job training and the further postponement of intersectoral actions as well as the existence of preventive policies for health due to financial short cuts are essential factors to be considered too, not always playing the expected or postulated theoretical influence.

On one hand, unemployment is expected to be linked to poor health and it has been associated in the past with increased mortality rates, especially from heart disease and suicide (Jagger *et al.*, 2008). With this regard, a policy based on subsidies for the firms and workfare strategies in general are superior to residual welfare compensations once the employment is lost.

On the other hand the impact of the crisis on employment will be harder for workers on temporary contracts and people with lower levels of education. Workfare with complementary retraining and capital formation (for instance for those who did not complete upper secondary education) could be considered a positive externality from the crisis. Evidence is split. In some countries unemployment does not prove to have negative health impacts. Instead, there were short term cohort comparative positive effects in Finland, to be mostly attributed to the importance of social protection (Hintikka *et al.*, 1999; Valkonen *et al.*, 2000). Similar results, given the impact of unemployment on changes in life style are found in USA (Deaton A. and Paxson C., 1998, and Ruhm 2004).

An analogous conclusion is reached in some studies in Spain due to family income pooling and social capital in general (Alaya *et al.*, 2010). On the negative experiences side, it is well known the negative impact on health associated to the disintegration of the former Russian Federation, mainly attributed to the lack of social capital. In USA, out of the positive short term effects above mentioned, some authors observe negative long term effects on mortality (Sullivan and Wachter, 2009).

All the aforementioned negative characteristics of the crisis are related to the potential effects of the economic crisis on poor health and increasing mortality rates, especially from heart disease, anxiety and suicide (Jagger *et al.*, 2008). Notice the relative role of health policy in these situations given that in the health determinants map, 70% of the factors have non-genetic components, and among them, behavioural and social factors prevail (with a 85% incidence). These are then the most important part at risk when we value the impact of the crisis on health (McGinnis *et al.*, 2002). The actual effects depend however on the characteristics of the basic welfare and family support models, with the existence of family asset risk-pooling, within a dual earners family structure, among others. In this context, success-

ful health policy requires a clear focus on the determinants of ill health rather than just on its consequences (health care). This requires the adoption of an intersectoral perspective. McGinnis, Williams-Russo and Knickman (2002) estimate that 40% of early deaths are due to behavioural patterns; 30% to genetic predispositions; 15% to social circumstances and 10-15% to shortfalls in medical care. However, as it is known, currently 95% of the money spent on health is on treatment, not on prevention.

5. Building Policy Strategies

From the former analysis is very clear that the key point in building policy strategies is to identify what causes the onset of the disease and the practice of unhealthy behaviour, and which is the most cost effective way for reducing or eliminating their sources. Most of these factors have to do with routines, shaped by abilities and motivations. As some authors remark (Becker 2006, Fogel 2004), these traits emerge early in life and are strongly influenced by the family context. Thus, early intervention programs that help to form positive traits (such as education and nutrition) are crucial on shaping cognitive and non-cognitive capabilities.

In *Capability formation, early intervention and long-term health*, J Heckman (2008) remarks the importance of a unified approach to build human development potential (“a la Sen”) that uses a common framework as the basis for all policy interventions in health, education, crime and employment. He advocates for this approach by arguing that it would be extremely useful, say, to analyze the probability of a given behaviour associated with moving up in one ability distribution for someone after integrating out the other distribution (i.e. the effect of increasing non-cognitive ability after integrating the cognitive ability) such as that related to crime, high school dropout, teenage pregnancy, been in jail by age 30, daily smoking, low wage by age 30, probability of being a 4 year college graduate by age 30, among others. In addition, some other authors (Friedman, 2007) identify personal conscientiousness as a powerful predictor of life time health–longevity and morbidity in general.

From this perspective, to close ability gaps between individuals and across socioeconomic groups are substantial for reducing social inequalities, open up at early ages for both cognitive and non cognitive abilities⁸. These gaps start early, before school, and they persist over time. However, once we control for early family environments, the gaps substantially narrow, showing the influence of maternal education, math scores or anti social behaviour at early ages (before 12) by income quartiles. Even if we take the former point as a controversial not a fully validated one, we may accept that, in general, gaps in health are not all about access to health care services. For USA, Paxson and Case (2006) and Currie (2008) proved that the access to health insurance is not the main driver for the steepening of the health income gradient, at least for child age, between US and Canada. Family environment plays a more powerful role. Moreover, genes and environment interact to produce outcomes: gaps are not purely due to genes and environments affect gene expression. There is plenty of evidence on the associations of genotypes⁹, with family and environmental

conditions in the early years are predictive of adult outcomes including those related to health. To this respect, it is observed a close association in USA between adverse childhood experiences and adult alcoholism, intravenous drug use and later suicide, antidepressant prescriptions, perpetrating domestic violence, unwanted pregnancies or, in family contexts, divorced alone, married spouse absent, multiple sexual partners, three or more marriages, among others (Heckman *ob. cit*). Thus, conscientiousness seems to be the main operator effect for change, and the earlier the measures aimed to redirect it are implemented, the better, and the more disadvantaged the child is, more powerful the effects of the intervention are. Perinatal interventions that reduce fetal exposure to alcohol and nicotine are the ones with the highest economic returns.

In another front of policy interventions, public job training programs and adult literacy, trying to remediate educational and emotional neglect from the past, have the lowest economic return. Controlling for cognitive abilities, policies such as those trying to ensure family income flows during the time a child attends school, visits the doctor for preventive care, pregnancy visits, among others, play a major role in determining socioeconomic differences. Despite knowing this, much public policy is predicated on precisely the opposite point of view: free access with biased opportunity costs according to social gradients against the most needed groups. The technology for the production of cognitive skills depends on maternal cognitive and non cognitive skills and the health of the mother. For non cognitive capabilities, the individual's cognitive skills should be added to the former factors, with health levels coming out from both combined set of factors. These technologies recognize intergenerational transmission and dynamic multipliers, as commented before, with cross effects on cognitive fostering non cognitive effects and viceversa. The *Heckman model* on investment in human capabilities stands as the most helpful theoretical support to understand the intricacies of these links. It consists of a model of capability formation with a unifier ground. To be precise, agents are assumed to possess a vector of capabilities at each age, including pure cognitive abilities (e.g. IQ scores), non cognitive (e.g. patience, self control, temperament, risk aversion, time preference, among others) and health stocks. Health stocks include propensities for morbid-mortality consequences.

All capabilities are produced by investment, environment and genes. Those capabilities are used with different weights in distinct tasks in the labour market and, more generally, in social life. The capability formation is governed by a multistage technology. Each stage corresponds to a period in the life cycle and inputs investment at each stage produces outputs at the next stage and different technologies are needed at each stage of child development.

This teaches policy makers to invest more on preventing health income related inequality measures and not so much on reactive ones.

Finally, the *Grossman model* (1981) offers a useful explanation to be considered here for the opportunity costs of adult investments in health. Child opportunity costs in childhood health investment effects are less known, despite they are more profitable in producing some added capabilities. Indeed the self reinforcement of actual and future capabilities could be

considered as a sort of self-productivity. At the same time, cross fertilization for mutual advantage seem to create dynamic complementarities that cannot be neglected. Both self-productivity and dynamic complementarities generate multiplier effects which constitute the mechanism through which capabilities beget capabilities. They imply an implicit equity-efficiency trade-off for late child investments but not for early investments. Differences in these dynamic processes can account for the emergence of socioeconomic differentials in health as those detected by Smith (2007), Case, Lubotsky and Paxson (2002).

To sum up, successful health policies in this area need a wide approach to understanding health and human development, integrated across the life cycle and across diverse outcomes affecting welfare. In addition, overlapping generation models for the intergenerational linkages in health, personality and skill formation need to be considered too. For all these purposes, it is essential to understand how to manage change, since the task affects multiple actors, and it requires long time frameworks not always politically and socially well accepted. But the goal is worth to try.

6. Some Final Observations

To identify equitable finance in the present circumstances with increasing taxes may be misleading since larger contributions are to be expected from expenditure reorientation. Fiscal duality to close budget deficits has to be discussed against the burden of higher intergenerational debts. With the crisis, we need more than ever to be selective with tailored-made policies for targeting frail groups. Age is not a determinant factor for this. The variance and not the mean is the relevant element in defining the adequate type of public policies. Factors at risk have to do with unemployment, anxiety, healthy nutrition and human capital accumulation. Public consumption for services provision is more protected than most of the social transfers, since financing health care spending is not at risk in a Keynesian world of expenditure multipliers. More doubtful is the impact of the financial crisis on the social and economic policies which fight against its determinants.

The analysis is affected by the contemporaneous nature of the outcome and explanatory variables which provides for a potential ecological fallacy (Lundberg *et al.*, 2008). This may be overcome when trend data are available and then, panel and microeconometrics modeling can be better specified.

For the moment, non-selective (average) type of policy responses are in the dark side of the public policy design: Not enough resources seem to be available to address additional targeted interventions since politically, universal access is easier. New focus on policies include some of the neglected ones such as taxation practices, zoning laws, corporate practices (production and design, marketing and retail distribution and pricing) and, in general, contents of the economics and welfare policies (dual earner-models; general family policies and market oriented policy models and on migration in particular) (Putnam and Galea, 2008).

6.1. Discussion and further research

Compounding factors amongst the conventional explanatory variables such as income, poverty, inequality, education or life styles do not allow for enough convincing evidence on the observed relations in order to accurately forecast future impacts from new policies. We need for this better methodology such as that provided by a difference-in-difference type of approach on micro individual panel data.

Moreover, it is not clear how short time changes in variables such as income and employment may affect basic trends on human capital investment, individuals' behaviour, and consumption on a permanent income over the life cycle. It is not sure that even overcoming both former difficulties public health policies may change the direction of the bullet. To this respect, more analysis is needed on the epidemiology and macroeconomics of social factors. This includes the study of the effects of fiscal policies on individuals' behavior such as the increase of taxes on unhealthy consumption, versus higher minimum price policies or banning promotions and discounts, or subsidies for healthy food policies, occupational and corporate practices or better land zoning, among others.

The new emerging debate is bounded to be the social inequalities created by occupational status and income fall. This may call for less universal and more target-oriented welfare policies (Lundberg *et al.*, 2008). The most desirable option here is to carry out programs with targets at the earliest days, such as health education and preschool programs, since job training impacts decrease with age and so the rates of return on human investment capital.

Other methodologies, which need further improvements, include those related to fixed effects estimation (aimed at mitigating unobservable factors), instrumental variables, better matching techniques for quasi random experiments and pseudo panel in order to deal properly with endogeneity decisions¹⁰. Moreover, reporting bias and sample selection bias should be carefully considered. Reporting bias arises from the subjective nature of self-reported health status. Culture, language, social context, gender and age, among others, may influence the health rating leading to different results across individuals with the same health status. *Methodological issues in the analysis of the socioeconomic determinants of health using EU-SILC data* (Eurostat, 2010) suggests dealing with it through calculating an indicator of suffering health limitations in daily activity using longitudinal data. Sample selection bias considers dubious relationships between variables, such as quitting smoking and a lower propensity of overweight (for instance, answering the question on whether this comes from the fact that those who quit smoking are more concerned on health or because quitting the addiction improves health itself? Is it an issue of excessive alcohol consumption or this just reflects the lack of balance for the individual to control himself in all the aspects of life?).

In addition, further attention should be paid to non linearities, adjustment costs, accounting for time in habit formation, unobserved heterogeneity and overtime changing conditions. Identifying substitution effects is essential, such as the impact of exogenous shocks, techno-

logical change, the production model and more stress, more sitting than exercise; and complementarities such as positive (unemployment, spare time and self-care), and negative (less wealthy, less educated, more addicted, more unintended effects). Also, it is necessary to distinguish the sign and direction of the relationships such as unemployment and alcohol consumption; alcohol abuse and risky sex; loss of income and higher intake of calories for obesity; budget restrain effects-higher tobacco prices and less expenditure, say, on healthy nutrition. The result of all this may be a dangerous causative accumulation: less wealthy, less educated and more addicted. We need therefore to disentangle the recursive process for a better evidence based health policies on income and health.

Notes

1. Around 10% on October 2010, Organization for Economic Co-operation and Development (OECD).
2. Under the Pigou-Dalton principle a transfer of income from a richer to a poorer person, so long as that transfer does not reverse the ranking of the two, will result in greater equity. In the unidimensional setting this principle is theoretically consistent, because regressivity in terms of attribute amounts and regressivity in terms of individual well being coincide in the case of a single attribute. In the multidimensional setting, however, the relationship between the various attributes and well being is more complex. To formulate a multidimensional Pigou-Dalton transfer principle, a concept of well being should therefore be first defined.
3. According to Rawls, social and economic inequalities are to be arranged so that they are to everyone's advantage and attached to positions open to all.
4. Measuring Disparities in Health Status and Access. OECD Working Paper, 2009. A good survey on the state of affairs on social inequalities and health, with several contributions from different authors can be found in M Rodriguez and R Urbanos *Desigualdades sociales en Salud. Factores determinants y elementos para la acción* Economía de la Salud y Gestión Sanitaria (V Ortún dir) Elsevier Masson, 2009.
5. Survey of Health, Ageing and Retirement in Europe.
6. Belgium and Spain share some noticeable similarities: Firstly, they have the highest RWRI, around 0.8, meaning that unemployment benefits suppose an 80% reduction of the pre-unemployment level. Secondly, unemployment benefits are closely related to earning before the shock. Finally, unemployment benefits represent a 30% in Belgium and 36% in Spain of pre-unemployment household income. Especially for Spain, higher income households are relatively less protected than lower income families.
7. For instance, Spain takes a value of 1.56 meaning that the unemployment benefit is 1.56 times the poverty threshold (the lowest is 1.38 for the U.K). For all the countries, in-work poverty risk is higher for those households with only one earner. Notice the disadvantage situation of families with children when they suffer an unemployment shock, since their absolute protection is lower and, as a result, public support represents a small percentage of the needed income. The cost of protection indicator measures the public cost of a person affected by an unemployment shock. In general, the cost is the highest in Spain, where it supposes a 234% of national per capital disposable income, while the smallest is in the UK (93%).
8. In this sense, conscientiousness, self-regulation, motivation, time preference, far-sightedness, adventurousness (risk aversion), self-esteem...—affect that evolution through choices made by parents and children.
9. Some gene–environment interactions examples are child maltreatment and MAOA genotype; adult life stress and 5HTT genotype; breastfeeding and FDS2 genotype; Methylation patterns in young and old twins.
10. This is, pseudo panel for cohort analysis by dividing population in groups according to observable heterogeneity characteristics, taking the population mean of the different cohorts (being unknown, relying

on its sample analog and a certain trade-off between bias-size of the cohort-and variance-characteristics of the defining cohort), with the cohort fixed effect to be imposed and/or instrumentalising the estimation, regarding the extensive marginal analysis conditioned to participation (i.e. reduction of intakes versus switching...).

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Resumen

Con la crisis económica, en la mayoría de los países la lucha contra el desempleo es coetánea con la necesidad de contener el gasto público para reducir el déficit presupuestario. En consecuencia, los recortes en el gasto han empezado a afectar muchas decisiones que directa o indirectamente pueden tener un impacto sobre la salud. Estos efectos probablemente estarán distribuidos de forma desigual entre los

distintos grupos de la población. Por lo tanto, con la crisis, tanto los niveles de salud como su distribución pueden estar en riesgo.

El objetivo principal de este artículo es mostrar preocupación social sobre la naturaleza de los cambios en las prioridades del gasto público. En la parte prescriptiva de nuestro trabajo, discutimos como, en la situación presente, no deberíamos centrarnos tanto en el gasto en salud si no en el sistema de protección social en general. Además, luchar contra la pobreza, más que en la desigualdad de la renta en sí misma, debería ser la consideración central en el diseño de política sanitaria. Por lo tanto, deberían impulsarse políticas más selectivas e integradas. Los grupos más vulnerables deben ser priorizados para reducir la pobreza (la pobreza induce pérdidas de salud) y para conseguir una creación sólida de empleo (las políticas de empleo requieren salud y, al mismo tiempo, producen salud). Las políticas universales anticuadas de bienestar a menudo carecen de un objetivo claro, no son sostenibles a nivel financiero y, en general, tienen un impacto redistributivo modesto. Efectos sobre el bienestar, aleatorios y sin suficiente conocimiento, pueden ser el resultado de estas políticas, como consecuencia de la crisis económica, el desempleo y los cambios en el estilo de vida. Los resultados también pueden depender del tipo de grupos que a efectos prácticos se benefician del gasto social sostenido. Se necesita una función de bienestar para comparar los “ganadores” y los “perdedores”. Esto es parte del segundo teorema del bienestar, donde se pueden conseguir acuerdos no Pareto superiores, y la falta de consenso puede surgir fácilmente en el diseño de estrategias de salud, puesto que la política puede no conseguir el consenso suficiente para producir acciones.

Palabras clave: Crisis económica, desigualdad de la salud, desigualdad de la renta, desigualdades de salud relacionadas con la renta, determinantes socioeconómicos de la salud, políticas intergeneracionales de bienestar.

Clasificación JEL: H51, H5, I12, I18.