

METHODOLOGICAL QUESTIONS FOR THE POST-2015 DEVELOPMENT AGENDA

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Abstract: In 2015, the Millennium Development Goals are due to end. Academics, practitioners and the general public are eager to see which development agenda will take their place and a variety of different organizations are currently elaborating proposals for the next “round” of goals and targets. Instead of investigating possible topics of the upcoming agenda, we focus on methodological questions that – according to our view – will play a major role in the definition and implementation of future development goals. We focus on the elaboration of some key questions that should be addressed in the realm of poverty and inequality measurement, the definition of targets, the ability to consider complexity and evidence-based policy making.

Keywords: post-2015, development agenda, poverty, inequality, complexity, evidence-based policy.

INTRODUCTION

The Millennium Development Goals were first launched in 2000 as the most important global anti-poverty push, by the United Nations and their member states. The first and fundamental goal was to eradicate extreme poverty and hunger. 2015 is approaching and new reflection is needed in order to set a post-2015 development agenda enabling to solve global problems, which still remain, such as extreme poverty, inequality and lack of access to fundamental goods and services, which guarantee basic human rights.

The share of population living below \$1.25 a day¹ has fallen from 52 to 22% in the period 1981-2008², as 600 million of people came out of extreme poverty (from 1.9 billion to 1.3 billion over 1981-2005), following a trend of a 1% decrease per year. The \$1.25 poverty rate fell by 9% during the ‘80s (from 52 to 43%), and by a further 20% between 1990 and 2008. This trend would allow being on track with the Millennium Development Goals of halving

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extreme poverty by 2015. However, the key role played by China for these figures needs to be taken into consideration: excluding China, the absolute poverty rate just decreased from 40% to 25%. Using a \$2 per day line, the poverty rate has fallen from 70% to 43% in the period 1981-2008 (Chen and Ravallion 2013).

Geographically speaking, most of the poor are concentrated in Sub-Saharan Africa, South Asia and East Asia. All regions have witnessed falling poverty counts in the 2000s: the trends differ substantially by region, leading to different current poverty situations. On one hand, East Asia passed from 77% incidence of poverty in 1981 to 14% in 2008, while South Asia moved from 61 to 36%. On the other hand, the situation has not improved much in Sub-Saharan Africa, where the incidence of poverty has remained constant, around 50% (even increasing in some periods) and the share of the world's poor living in this area increased from 11 to 30%.

Similarly to absolute poverty, the incidence of relative poverty³ has fallen from 63 to 47% during the period 1981-2008⁴. Despite of this fact, the headcount of relative poor has increased by about 360 million people over the same period (this is not the case of absolute poor, whose number decreased by 650 million).

Inequality has not been directly considered in the MDGs agenda, but is now called to enter the sustainable development post-2015 agenda, due to its fundamental relevance for a more equitable development. In 2008, the richest 1% of global population earned about 15% of global income, almost as much (12.7%) as the poorest 66% (Milanovic 2012). Unweighted inter-country inequality⁵ increased over the period 1950-2000 and then started to decrease, whereas population-weighted international inequality, after a stagnating period until 1990, decreased sharply. As in the case of poverty, the success of China and India is responsible for the decline. However even when excluding them, the evidence for decreasing inequality persists, mainly due to higher growth rates in all developing countries. If instead of considering the national averages we assume a more individual perspective and consider global inequality⁶, the level of inequality is much higher than in the previous measures. When combining between countries and within countries inequality,



we find that 50% of global income belongs to the richest 8%, whereas 50% belong to the remaining 92% (Milanovic 2012b).

Finally, within-country inequality is increasing since the mid-1980s, particularly in OECD and developing Asian and European countries (Goda 2013). If we look at the geography of inequality in a within-countries perspective, the highest levels are registered in Latin America and Sub-Saharan Africa; while it is substantially decreasing since 2000 in the former, it remains stable in the latter (Ravallion and Chen 2012).

How do we deal with these imbalances? We need actions, interventions and policies at all levels. Before agreeing on actions and policies, some key issues should be debated. Among a range of methodological difficulties we select the following four issues of interest: measurement of poverty and inequality, the definition of specific targets, the understanding of complexity and multidimensionality, evidence-based policy implementation. The goal of this writing is to provide a very synthetic overview of current debates and of open issues for each of the topics selected. We conclude the writing with some key questions around which we would like to focus the debate during Expo 2015, the World Exposition, which will be held in Milan from May to October 2015. Such debate is finalised to the identification of main questions and issues, which will be delivered to the international community in order to contribute to the post-2015 development agenda.

MEASUREMENT OF POVERTY AND INEQUALITY

Absolute vs. relative poverty

The goal of eradicating absolute poverty is hardly debatable, especially when the poverty line is set at very low levels. Combating absolute poverty implies focusing on the ability of a person to survive. A common benchmark, such as the current line set at \$1.25 a day by the World Bank for measuring global poverty, is one way of defining what we mean by “poor” and how we identify people falling under this category on the planet. This further im-



plies being able to compare incidence (the percentage of poor people over the total population), the intensity (how poor they are, on average) and the severity (how severe their poverty condition is) across different contexts. The significant assumption being made is that the international threshold set is actually able to adequately represent the amount of resources necessary for survival. Currently the \$1.25 poverty line is based on the average poverty line of the poorest 15 countries at 2005 Purchasing Power Parity (PPP).

International comparisons of absolute poverty remain a delicate issue as contextual differences in nutrition, home-production and consumption might play a role beyond the Purchasing Power Parity (PPP). Beyond its mediatic appeal, the usefulness of an international poverty line and of the PPP is still under debate.

Apart from international thresholds, national definitions of absolute poverty have helped tracking the progress in fighting deprivations. National absolute poverty lines correspond to the cost of a bundle of “basic consumption needs” (Ravallion 2012) while considering social and cultural factors related to food intake with greater detail. Nonetheless, methodological approaches to the definition of the minimum consumption basket remain a concern.

Relative poverty measures focus much more on the position that an individual has with respect to others in the society of belonging. A relative poverty line is commonly expressed as a fixed percentage of average or median income and can be expressed at local, national or global level. Relative poverty provides important insights on social exclusion as it directly addresses the distance between poor and non-poor individuals in the society. Relative poverty is closely connected to inequality, as the concept rotates around identifying the conditions in which a person possesses an amount of resources that are far below the average. The average can refer to the local, the national or the global context. It is less adequate for cross-country comparisons as the reference value (average, median or similar) becomes less significant with the inclusion of heterogeneous populations.

While relative poverty might not necessarily imply the lack of satisfaction of basic needs, absolute poverty might not automatically come with social exclusion if



poverty is widespread in the context. Usually, relative poverty is associated to higher poverty lines than absolute poverty, leading therefore to higher estimates of poverty.

Objective vs. subjective poverty

Poverty measures typically rely on objective data under the assumption that the deprivations are observable. Income or reported consumption levels are commonly collected through surveys and censuses and used as proxy for measuring deprivation. There are a number of difficulties in measuring poverty with objective data. Firstly, household consumption or income aggregates need to be normalized for cost-of-living differences, including household size and composition. At which level costs-of-living are normalized is not a trivial question and also the use of different equivalence scales can produce rather different estimates of poverty. Second, in objective income-based measures, all “non-income” dimensions of welfare, such as education, health, housing, security or employment quality, tend to be omitted. Difficulties in including auto-consumption remain despite of relevant progress in the refinement of surveys. In a similar fashion, a relevant amount of non-market goods – such as access to public services for health and education are often not accounted for by standard surveys (Ravallion 2010). Consequently, these elements of deprivation often remain unconsidered or are imputed with questionable techniques.

The use of subjective data allows people to assess whether they feel poor or not. Positive aspects of this approach are, first of all, the fact that it withholds a “democratic” approach to defining poverty and derived policy implications. Second, subjective measures provide welfare-relevant information that is typically not present in standard surveys, and therefore provides a “holistic” measure of poverty in which usually omitted factors are included. Subjective welfare might be measured through “economic ladder” style questions, life satisfaction or “minimum income questions”.

Subjective variables have mainly been used to test objective poverty lines and to determine weights of sub-dimensions of wellbeing⁷. Yet, these measures allow for



conceptual inconsistencies such as people with the same objective wealth reporting different perceptions of their poverty (feeling poor or not poor). The result is a degree of “noise” and inconsistencies that prevents the finding of robust results. Another drawback to subjective measures is that they might be biased by interview circumstances. Subjective welfare can be not only driven by latent personality traits, but also by psychological adaptation to adverse circumstances, presence of peers or children, cognitive abilities and contingencies during the interview. In this sense, subjective measures of poverty can even change when asking the same person in different circumstances. Further concerns are survey design issues, measurement errors, frame-of-reference effects: what other people do you know and do you compare yourself to (Ravallion 2012).

Subjective data can be expected to shed light on the difference between absolute and relative poverty. Subjective expressions might better capture the “spirit” of relative poverty than a fixed proportion of the mean or median. The interpretation and combination of subjective data with relative poverty measures needs further investigation. In rich countries, relative poverty measurement is predominantly investigated as proxy for social exclusion. Yet, its significance in poor contexts might be different: the immediate presence of richer individuals might of course increase inequality and thereby impact on relative poverty estimates. However, it could also provide access to infrastructure, jobs or facilities there where rich individuals and their private investment compensate the absence of public goods. Where subjective opinions in rich countries might reflect the degree of “perceived injustice” due to inequality, in poor contexts, subjective data might capture a “perceived opportunity” that comes with an increase of inequality. Most probably, the link between subjective and relative poverty can assume different meanings in different contexts.

Multidimensional vs. monetary measures

Across all different conceptions of poverty and of inequality, a relevant question remains whether the monetary metric is sufficient to capture substantial deprivation in



life, or whether additional dimensions of life quality need to be considered: “For income-based poverty measurement to be welfare consistent it is imperative that the poverty lines are adjusted for all relevant non-income dimensions of welfare” (Ravallion 2012). To include relevant dimensions of welfare, different approaches can be used. The first one attributes a monetary value to non-monetary dimensions and combines these imputed values with income or consumption, in an objective measure. Another approach is the construction of multidimensional indicators of poverty, which record deprivation levels in dimensions that are deemed to be relevant for life quality. Examples for multidimensional indicators are the Human Development Index and the UNDP family of indicators at the macro and meso level or the Multidimensional Poverty Index, MPI, (Alkire and Santos 2010) at the micro level. Multidimensional indicators combine information gathered for the same unit of analysis by normalizing single sub-indicators, choosing an aggregation operator (arithmetic or geometric mean, intersection or union approaches) and by attributing weights to different sub-dimensions, such as health, education, employment, housing, etc. Each of these methodological choices can have a profound impact on resulting estimates (Chiappero and von Jacobi 2012), which tend to be underreported or unclear. Major critiques to multidimensional indicators comprise their lack of transparency in terms of how the marginal substitution rate between dimensions (e.g. Lustig 2011) and the usefulness of putting so much different information into a single number (Ravallion 2010).

While non-monetary measures enlarge our ability to observe deprivations and life quality without reducing these concepts to money, they are equally subject to arbitrariness with what concerns the dimensions that are considered and the thresholds that are chosen (see also the next section): the *problematique* of defining global standards multiplies in these measures. For example, who decides which type of floor material is “best” no matter in which context a person lives? The risk of global measures to simplify human diversity and complexity increases in multidimensional indexes. Global multidimensional poverty indexes can provide more detailed information on progress, but they force to compare living standards and



concrete aspects (schooling, housing construction material, etc.) of very diverse contexts against one framework. Even if the global agenda might be defined by participatory approaches, it is likely that some would interpret *any* global framework as a cultural imposition.

On the top of this, a concern is whether monetary and non-monetary measures should coincide in the identification of the poor. On one hand, literature on subjective measurement confirms a strong correlation between income and subjective (holistic, including monetary and non-monetary) welfare (Clark et al. 2008, Stevenson and Wolfers). Yet, mismatches of 40% to 80% between the MPI and income poverty (Alkire and Summer 2013) are alarming signals for the fact that our understanding of poverty might still be profoundly limited.

Absolute poverty requires a consensus on what basic needs are. Different perceptions can concur in this sense. While subjective measures might provide greater detail and holistic perceptions of poverty, this might not allow distinguishing between “needs” and “wants”. If needs can be conceived of as universal, then the effort consists in finding those measures that are more appropriate to capture them. In technical terms, viable solution to deal with the fragmentation of possible measurement techniques could be greater and more transparent use of sensitivity analysis.

At the conceptual level, if we need to combine different measures, we need to be concerned about the consistency of estimates: we need to decide whether the diverse measures we use are identifying the same people as poor. On the other hand, consistency might not be so relevant when the underlying concepts being measured are profoundly different. In general terms, an open issue for the combination of different measurements seems to be whether priority should be given to the overlapping of measures or to the comparison of a plurality of poverty concepts.



Relative vs. absolute inequality

Inequality was not explicitly considered by the MDGs, but is expected to play a major role in the post-2015 development agenda, given its interdependence with the key dimensions which are likely to characterize the new agenda: inclusive social and economic development, environmental sustainability, peace and security. A methodological discussion of the key measurement issues linked to inequality is needed in order to identify and track future goals.

Common measures of inequality are the Gini coefficient, the coefficient of variation, the mean log deviation, variance of logarithms, generalized entropy indexes, the p90/p10 ratio, other decile ratios and Atkinson indexes. These measures compare income standards with each other, typically some measure of lower and upper income standard. They are all measures of relative inequality. Measures of absolute inequality focus on the actual distance between absolute welfare levels at the bottom and the top of the distribution. While absolute measures also put different points of the overall distribution in relation to each other, they focus on absolute measures of distance, e.g. the income gap. Relative measures, on the other hand, maintain a proportional approach. The implications of one choice over the other are different conclusions about the effects of growth, or of globalization, on inequality. In the presence of distribution-neutral growth, relative inequality will remain unchanged, whereas absolute inequality will rise (Ravallion 2004). The same proportional increase implies a greater amount for the top end of the distribution than at its bottom (Amiel and Cowell 1999; Cowell 2000). Greater clarity and transparency on which notion of inequality is being referred to – absolute or relative – might be necessary within on-going debates. Currently, most inequality measures being used are of relative type. However, as inequality and the divergence of living standards become a focus-topic of the post-2015 development agenda, more thought should be spent on *which* notion of inequality – absolute or relative – we are truly concerned about.

Inequality measures can be calculated at different levels of aggregation. Within-country or regional measures



are based on comparisons of individuals/households income/expenditure between the higher and the lower ranked. For a more global comparative perspective, the unit of analysis is shifted to countries' GDP per capita⁸ in order to calculate inter-country inequality. This allows comparing different policy-solutions that are typically applied at the country-level (Milanovic 2004; Ravallion 2004). Weighted inter-country inequality is based on the latter concept but additionally considers population weights, to take into account that changes in bigger countries have a greater impact on the level and trend of international inequality between individuals. Only population-weighted measures of global inequality can guarantee that each human being is being given the same importance (see Cowell 2000; Ravallion 2004, Sala-i-Martin 2002). However such measure only approximates global inequality between individuals. Milanovic (2005) proposes to account for both inter- and intra-country inequality by taking individuals as unit of observations. As highlighted in the introduction, different measures of inequalities reveal different results on global levels and time trends. The introduction of goals related to the reduction of global inequality in the post-2015 development agenda poses an important challenge with regards to the choice of the indicator which tracks progress and to which the international community will commit.

Horizontal vs. vertical inequality

Another choice that needs to be made for inequality measurement is whether we prefer concentrating on horizontal or vertical approaches. Choosing horizontal inequality implies questioning *who* are the winners or the losers of the development process (Jenkins and Lambert 1999; Ravallion and Lokshin 2004). When inequality is conceived in horizontal terms, the belonging to a certain *group* – whether determined by income class, race, belief or geographical location – matters (see Stewart 2001, 2005 and Stewart *et al.* 2005). Extreme horizontal inequalities awake concerns about political stability, as the protests of “losers” can be disruptive despite of aggregate net gains (Ravallion 2004). With respect to vertical inequalities, hor-



horizontal inequalities are likely to be more disruptive of social stability as a clearer group identity binds economic “losers” together. A focus on horizontal inequality seems to be more promising for providing the detail that social protection policies need, especially when applied at the meso (subnational) level. On the other hand, media attention to horizontal inequality might indirectly and unwantedly promote sentiments of disadvantage and group segregation – for this reason, countries with high ethno-linguistic fractionalization often choose not to publish findings on horizontal inequality⁹.

Functional inequality

While vertical and horizontal interpretations of inequality are particularly able to describe it, functional inequality has also grasped attention of economic theory, in particular because it can provide hints on structural causes of inequality (Targetti-Lenti 2014). This approach focuses on the functional distribution of income: the division of national income between wages, profits and rents¹⁰. Overall inequality is accounted for by disparities in the remuneration of productive factors (factor shares) and by the concentration of productive factors in the hand of few people. For a long time the hypothesis that factor shares were relatively constant was accepted, but since the beginning of the 90s this has changed (Glyn 2009; OECD 2008, 2011). On one hand, globalization and technological progress have led to a steady increase in the remuneration of capital, in parallel to a stagnant or decreasing remuneration of labour. On the other hand, redistributive measures such as taxes are currently putting a heavier weight on labour-income than on the remuneration of capital. Recent findings using tax records instead of survey data further suggest that the concentration of capital has been increasing since the 1970s (Piketty 2014)¹¹. Piketty and his research team find empirical evidence that capital returns are systematically higher than growth rates, which hints that top-labour incomes and their increase are a major force behind increasing inequality. The worst implication of Piketty’s findings seems to be that the world has returned to a state of patrimonial capitalism, where wealth



is extremely concentrated, and inherited. A focus on functional inequality is typically associated to policy implications that refer to the taxation of capital.

Conceiving and measuring inequality accurately is most relevant for the upcoming development agenda. The open issues outlined call for a more systematic and fruitful comparison and combination of different measures.

Questions

How can the use of different measures fruitfully contribute to more comprehensive poverty and inequality profiles? When do we need to compare and when to combine information?

DEFINITION OF SPECIFIC TARGETS

The Millennium Development Goals have produced an international development agenda with an unprecedented precision in the specific targets that should be achieved. The definition of a post-2015 agenda now renews the debate on which targets should be chosen, and through which procedural steps. The definition of targets whether in terms of quantitative thresholds, such as the poverty line, or in terms of qualitative distinction of specific vulnerable groups is tightly intertwined with general issues of measurement discussed in the paragraph entitled *Measurement of poverty and inequality*. For the definition of reference levels, similar open issues apply as for measurement techniques in general: in order to avoid thresholds to be arbitrary, transparent sensitivity analyses – possibly with the inclusion of subjective data – might increase our ability to make targets overlap with objectives.

In this section we discuss which considerations should lead to the definition of thresholds, such as the poverty line, or the new development goals in general. Thresholds serve, ultimately, to define a consensus on the constituents of equity. Yet, different theories of justice can underpin the consensus and therefore the final choice of thresholds. On one hand, the definition of international thresholds can be the result of conventions, like the practice to



set the absolute poverty line at \$1.25. Yet, setting new international goals, as in the case of the post-2015 development agenda, raises ethic concerns that require a reflection on our conception of justice. We inspire our discussion on the hand of John Rawls and Amartya Sen whose approaches within the disciplinary realm of Theory of Justice have provided among the most important philosophical contributions to the development debate.

In Rawls' words "a conception of social justice is to be regarded as providing in the first instance a *standard* whereby the distributive aspects of the basic structure of society are to be assessed" (Rawls 1971, 9). The definition of this standard is directly linked to the "referencing problem" (Ravallion 2012), which calls for a benchmark level of well-being that serves as anchor to the poverty line. For Rawls, the *standard* takes on the form of "basic rights and duties" (Rawls 1971, 14) according to which unjust casual distribution of natural endowments should be levelled out. The idea is for society to design compensatory actions that "nullify the accidents of natural endowment and the contingencies of social circumstance" (Rawls 1971, 15).

Rawls provides a framework that facilitates the definition of specific targets. His theory forces us to interpret what we would consider a minimum standard if we were not to know (*veil of ignorance*) as *whom* and *where* our life might take place (*the original positions*). This approach calls for an overlapping consensus on what is conceived as minimum standard, no matter the position one assumes in society. Although Rawls work goes far beyond the quest of identifying the procedure of how to set some poverty thresholds, his theoretical framework has had profound influences on development thinking: Rawls' *social primary goods* share the same principles of the *basic needs* and the *Human Rights* approach, where a set of basic rights and conditions has to be provided to each human being.

Sen hints that the provision of resources, whether monetary or not, may not be sufficient if people are unable to "convert" these resources into life achievements. In this, Sen brings in the important notion of complementary conditions that are needed in order for the increase of resources to actually promote human development and



freedom. Complementary conditions are personal and contextual characteristics, which play a role in people's decision making process and contribute to transform resources into achievements. Sen's analysis proposes a focus on "enabling factors" that should be considered when planning and implementing development actions. For our discussion on the definition of thresholds, his analysis reminds us of the profound diversity of human beings, which might lead to very diverse scopes, limits and enabling factors across the world.

If the definition of thresholds can be conceived as the outcome of a contractual process, then a fundamental question is *who* participates in the contracting process. In particular, the extent to which this process should involve the international community defining goals for an ideal global society is a concern: fundamental values might be perceived as impositions, by definition, if they do not succeed in considering contextual *differences* to a satisfactory extent. Adaptive preferences arguments (that poor people might be satisfied with lower levels of welfare) clash against universalist perspectives in which all human beings are expected to be guaranteed equal dignity. While universalist arguments call for thresholds and frames of reference that ignore context-specific diversity in values – they risk to be "tainted" by cultural imperialism. The theoretical argument can easily be translated into technical choices: with reference to the previous section, objective poverty lines tend not to be context-specific, while subjective ones tend not to be comparable with each other.

Rawls' *social primary goods* and Sen's notion of *development as freedom* (Sen 1999) can serve as baselines to overcome contextualist positions (Veca 2002) and therefore to actually allow for a comparison of people embedded in very different contexts of the world. An open issue remains whether a focus on social primary goods/basic needs or on enabling factors is more promising. In many cases the two concepts might coincide, or their complementarity might already be explicit. In order to defend thresholds as an outcome of a social agreement, the inclusion of different voices further seems to be relevant.



Questions

When do enabling factors *de facto* coincide with basic needs? In which circumstances does the difference between them require more resources, in which circumstances a different implementation of actions and policies? What subjects should be in charge of the definition of targets and thresholds and what process should be followed?

UNDERSTANDING AND RESPECTING COMPLEXITY

Beyond the quest to set international development targets, other important issues need to be considered if we want to maximize the scope of the next phase of international cooperation and aid. Implementation, monitoring and evaluation are equally relevant. A further concern is to minimize the potential *damage* that aid can produce by applying common standards to different contexts. If the post-2015 development agenda takes on a similar shape as the Millennium Development Goals, it might choose some indicators on the hand of which to monitor progress and avoid hints on implementation: this would leave the decision of *how* to achieve the goals to national governments, the major development agencies and other civic groups that are active in this field.

Implementation is typically informed by *policy recommendations* that are based on studies, analyses and project outcomes. In what follows we dig into a methodological *problematique* that is relevant at the source of production of policy recommendations. In this section we focus on the fact that in current policy studies, a single action or development factor tends to be isolated from other, complementary actions and conditions that characterize the context in which the analysis is taking place. By following the hint of complex systems research, we argue that a wider perspective on context-specificity should be embraced in the implementation of development policies.

Development economics has informed policy-actions throughout the last decades. It has witnessed different periods of “fashion” in which one single element has been put at the centre of the international institutional and co-



operation discourse: capital (Harrod-Domar), savings or aid (Rostow), technical change (Solow), policy and governance (Washington Consensus) and institutions (Post-Washington Consensus). The latter, general consensus on the importance of institutions, however, further breaks up in the quest of identifying which institutions matter most (Bardhan 2006; Rodrik 2004). A general concern with “scientific fashions” is that they tend to pursue a quest for the “missing ingredient of development” (Barder 2012). This leads scholars and policy makers to embrace a logic of “predictable trajectories” which developing should eventually follow to grow and to achieve higher living standards¹². The predominant praxis of identifying “best practices” and to transplant best solutions is directly related to this type of thinking. However, ethical and methodological concerns question the appropriateness of such an approach: on one hand, most studies that focus on a single factor are troubled with endogeneity and multi-collinearity problems¹³ – meaning that interdependencies are strong and hard to disentangle. This makes the identification of causal relationships difficult in general. On the other hand, sustainability requires us to properly explore the context – or the *system* – within which the single policy inserts. It is the way that the policy interlinks with other elements of the system that determine whether its outcomes are sustainable or not.

Similarly, the whole process of development can be interpreted as not just the “increase in output but the emergence of a system of institutions, products and technologies that provide the citizens with the ability to lead the lives they want” (Barder 2012). Development therefore can be identified as a property of the system itself, more than just as the aggregate of people’s wellbeing. Complexity science has contributed to understanding the economy as a “complex adaptive system” (Arrow, Anderson and Pines 1988; Waldrop 1992; Beinhocker 2007; Fontana 2010; Arthur 2013). The stake of this literature is to draw on ecology in order to depict economics and society as complex and adaptive systems in which single elements interact and adapt to changes. While applications of complexity science to economics have witnessed a recent “boom” (see Dolphin and Nash, 2012), research that focuses on complexity is still scarce in development.



A “complex” approach to development implies that some “old” certainties may falter: we might have to re-think about the “engineering approach” in which the scope of analysis is to predict accurately and to design best solutions. Yet, if evolutionary processes – intended as trial and error with subsequent adjustment – outperform engineered design (Barder 2012; Ramalingam 2014) and if social processes in general tend to be non-linear (Pierson, 2004)¹⁴, the allocation of resources and efforts might have to shift. We might have to question the tendency to believe in convergence and to try to transplant solutions that have worked in context *A* directly to context *B*¹⁵. The difficult quest is to refrain from a “one-size-fits-all” logic in the attempt to identify a single, most relevant determinant for development, and to focus on “best-fits” instead (Ramalingam 2014).

While the “multidimensionality” of deprivations and of quality of life has broadly been recognized and included – for example into poverty measurement – interdependence and complexity of development factors reserves knowledge potentials that are likely to be further explored in the future¹⁶. By stepping back from detailed predictions, these approaches embrace a different logic – on one hand a descriptive one, in which complexity and single interconnections are explored. On the other hand policy actions are recognized as single elements within an adaptive system. Diverse implementations and innovative approaches are put at the centre of intervention efforts, coupled with feedback-loops that allow for the evaluation and the selection of the most appropriate shape for the desired intervention. Active participation of people in developing countries (bottom-up approach) and a more structural reliance on local knowledge and resilience play a major role for a successful adaptive process.

The policy-implications of complexity science seem to be: the need for additional care in selecting credible assumptions for local implementation; the likely necessity for more holistic policy approaches in which different problems are targeted jointly; the strengthening of decentralized policy design and the construction of reliable and inclusive feedback-loops. In addition, complexity research warns us from believing that policy-outcomes can be certain (Dolphin and Nash 2012). Some complementary ele-



ments such as plurality of media, transparency and a civil society movement (Barder 2012) are likely to work as “oil in the mechanism” and should not be neglected by the post-2015 development agenda.

A counterargument to evolutionary approaches to development is that they risk falling into the trap of fatalism, leading to accept unsatisfactory *equilibria* as natural outcomes and thwarting our quest to improve life conditions of the most disadvantaged. Yet, complexity research counters that fatalism can be resisted and that, indeed, directionality of the co-evolutionary processes must coincide with collective goals. This can happen mainly through innovation and targeted selection.

Despite of its attractiveness, a “complex” approach to development policies faces different challenges: on one hand it requires policy makers and practitioners to be more open to innovative and to experimental approaches to problem solving¹⁷. On the other hand, it asks for the construction of feedback-loops that provide relevant, timely and representative information. In general, a more complex approach to development requires systemic information that can be interlinked and connected to international targets: a greater combination of information and their overlapping might be required, just as closer collaboration between local stakeholders, national policy-makers and international donors. A major challenge in this sense seems to be the creation of bridges between people, practitioners, sectorial data-collection and analytical processes.

Question

Through which mechanisms can a more complex approach to development be introduced in policy-making?

EVIDENCE-BASED IMPLEMENTATION

Once international development agendas are set, governments, agencies and NGOs are in charge of translating identified priorities into implementable policies. The decisions over which policy to implement, among the available bunch, are of extreme importance in determining the



extent to which the development goal will be achieved. Such decisions over policies, as discussed previously, should consider complexity and specificity of the context of intervention. A growing number of governments, donors, policy-makers and NGOs are trying to improve their performance in order to operate more effectively and efficiently and to provide better service and impact to citizens and beneficiaries¹⁸. To do so, the implementation of monitoring and evaluation tools is developing and increasing at all levels, with the aim of providing assessments of the impact of interventions. Such systems constitute the backbone of evidence-based public policies and programs. Evidence-based policy is guided by methods and analyses that try to show what works and what does not, and possibly – most importantly but most difficultly – why, revealing key elements on the process of development. Considerations on cost-effectiveness and efficiency of policies and programs based on the evidence collected through impact evaluation studies are extremely important when resources are scarce as they allow identifying the best way to spend money for the goals of interest. Moreover, in terms of implementation, impact evaluation analysis allows to actively and rigorously search for the most cost-effective and efficient modalities, across different project designs, with clear benefits on the decision process.

The implementation of impact evaluation systems is not exempt from limits and critical issues. First of all, costs: evaluation designs guaranteeing sound inferences, for example through randomized control trials (RCT) and large ad hoc surveys, are more expensive than collecting qualitative and performance index data. The issue of sound inference using RCT means identifying proper counterfactual (i.e. the control group), guaranteeing enough statistical power to detect effect (large sample size) and controlling for possible spill-over effects. Other methods such as difference-in-difference, regression discontinuity design or propensity score matching are subject to even further limitations in the identification of a proper counter-factual¹⁹.

Second, impact evaluation analysis like RCT may raise ethical issues, when the provision of benefits from projects or programs is only entitled to the treatment group, while the control group is excluded. Although several op-



erative solutions have been suggested²⁰, further reflection is needed, should impact evaluation analysis become a standard and common procedure for policies and programs. Third, the issue of generalization, or external validity: a policy, which may be successful in a place, may not necessarily work elsewhere in the same way. Evaluations should therefore try to go beyond the basic assessment of impacts, trying to say something on the mechanisms and processes at work, aiming at more generalizable conclusions. This can happen by not only focusing on average treatment effect but by also considering the possible heterogeneity of impacts, which means, for example, assessing whether interventions are more effective on women rather than men, on poorer rather than on richer households. This also requires coordination in the effort of evaluating programs, in order to draw general lessons. In that, regular systematic reviews of the available literature, for instance through the use of meta-analysis, on the impact of particular interventions replicated in different geographical areas are of extreme importance in order to draw conclusions which can be generalized²¹.

The use of impact evaluation studies has considerably increased in the last decade for the analysis of policies, programs and projects by national and international institutions, agencies, donors and NGOs. However, those are still a minority of cases. Adopting proper impact evaluation designs not only would bring benefits to individual decision makers, by feeding the process of feedback to adopt effective policies, through monitoring and evaluating processes and impacts, but would also contribute to the increase of global knowledge of development processes.

Questions

What are the obstacles and limits that impede a wider use of impact evaluation analysis in order to provide evidence-based suggestions to the decision making process? How can experimental methods be improved in order to spot drivers of impact?



NOTES

¹ This is usually defined as poverty headcount ratio, i.e. the number of poor to the overall population: it measures the incidence of poverty within a given population.

² 20.6% in 2010, according to World Bank, 2013.

³ Absolute poverty is defined as the number of people living in extreme poverty, below the \$1.25 a day poverty line. Relative poverty is usually measured as the percentage of the population with income less than some fixed proportion of average or median income.

⁴ The reported data refer to the weakly relative poverty line described in Ravallion and Chen (2011).

⁵ In un-weighted cross-country comparisons the size (the population) of countries is not considered: Luxemburg and China have the same weight.

⁶ In such exercise, all individuals are compared to each other at global level.

⁷ Examples of studies are Van Praag (1968), Ferrer-i-Carbonell and Van Praag (2001), Ravallion and Loshkin (2002), Ferrer-i-Carbonell (2005), Kingdon and Knight (2006).

⁸ This can be at market exchange rates or using purchasing power parity (PPP).

⁹ An example is Jordan, in which it is forbidden to collect information about nationality of respondents in any type of survey. The social fragmentation between Jordanians and refugees of neighbouring countries is thought to be explosive and therefore tends to be understated by the government.

¹⁰ For an introduction, see Atkinson 1997 and 2009; Glyn 2009; Franzini and Pianta 2011; Piketty 2014; Targetti-Lenti 2014.

¹¹ See Krugman 2014 for a review of Piketty's findings and an explanation why they should change the entire debate about inequality.

¹² The concept of predictable trajectories is tightly linked to the notion of "convergence" according to which all countries will eventually converge to equal levels of living standards. For a critical discussion on convergence, see Ray (2007).

¹³ Multicollinearity implies that different explanatory variables are highly correlated to each other. Endogeneity, on the other hand is present whenever the direction of causality between two phenomena is dubious: for example, good institutions are thought to contribute to (*cause*) improved economic performance. On the other hand, the reverse direction of causality is plausible, namely that improved economic performance may lead to (*cause*) improvements in the quality of institutions.

¹⁴ Pierson (2004) outlines how social processes, such as institutional change, revolutions or political change are better understood as long-term phenomena that are subject to *Path Dependence*, *Cumulative* and *Indirect Causation Processes* and to specific *Tipping Points*. According to Pierson, these mechanisms are insufficiently recognized and recorded in standard quantitative analyzes in which phenomena are investigated at one point in time, with the aim to detect direct causation mechanisms.

¹⁵ The reason why transplantation of organizations or institutions does not work has been named "isomorphic mimicry" by Lant Pritchett (e.g. 2010): the latter implies the transplantation of an apparently functioning institution/ organizational set-up into a context where it does not inter-connect and interact with other elements. The result is an institution that appears as equivalent (isomorph) to working ones that served as reference for the imitation (mimicry) process. Isomorphic mimicry often leads to failure. Unfortunately, this has resembled a major part of international development strategies.

¹⁶ Some prominent institutes that host scholars of complexity science are the Santa Fe Institute, the London School of Economics Complexity Group, the International Institute for Applied Systems Analysis. For more literature on complexity economics, see Arthur, 2013.

¹⁷ Experimentation within complexity science is not to be put equal to randomized experiments (see next section), but instead refers to the trial of diverse solutions. It is inspired from ecology and biology referring to evolution that occurs through "casual" mutations (trials) and subsequent selection of the "best fit".

¹⁸ A key role in the diffusion of impact evaluation analysis using randomized control trials have been played since the early 2000 by international research centers such

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as the Abdul Latif Jameel Poverty Action Lab (J-PAL) and the International Initiative for Impact Evaluation (3ie).

¹⁹ For further information on randomized control trials and other non-experimental techniques for impact evaluations see Duflo et al. (2007), Imbens and Wooldridge (2009).

²⁰ Among the possible solutions, the phase in design exploits different timing in the assignment of the treatment to obtain the control group which is not excluded from the intervention; the encouragement design allows to random vary incentives to be treated or not, without preventing anybody from the intervention.

²¹ For more details on the use of systematic reviews in development economics, see the special issue of the “Journal of Development Effectiveness” (2012, vol. 4, issue 3).

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